Crete and the Sea

The Maritime Cultural Landscape of Late Hellenistic and Imperial Crete



by

Dimitrios Karampas

St Cross College
University of Oxford

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Abbreviations

EUA: Ephorate of Underwater Antiquities

MCL: Maritime Cultural Landscape

I. Cret.: Inscriptiones Creticae

SEG: Supplementum Epigraphicum Graecum

KretChron: Kretika Chronika

Fig.: Figure

Figs: Figures

Tbl: Table

ITS: Italian Sigillata

ARS: African Red Slipware

LRC/PRS: Late Roman C/ Phocaean Red Slip ware

LRA: Late Roman Amphora

ESA: Eastern Sigillata A

ESB: Eastern Sigillata B

GSE: Greek-Swedish Excavations (in Chania).

Gortina V.3: Di Vita, A., 2001. Gortina V.3. Lo scavo del Pretorio (1989-1995), vol V.3 t.1: I materiali. Monografie della Scuola Archeologica di Atene e delle Missioni Italiane in oriente 12. Rome.

NE: Northeast

SE: Southeast

NW: Northwest

NE: Southwest

Abbreviations of Greek and Latin authors and works follow *The Oxford Classical Dictionary*.

Ath.	Athenaeus, *Deipnosophistae*
App., *B Civ*.	Appian , *Bella Civilia*
App.	*Appian*, *Histories*
Arist., *Pol*.	Aristotle, *Politica*
Arr., *Anab*.	Arrian, *Anabasis*
Aur. Vic. *Caes*.	Aurelius Victor, Caesares
Caes. *BGall*.	Caesar, *Bellum Gallicum*
BAlex.	*Bellum Alexandrinum*
Cic., *Cael*.	Cicero, *Pro Caelio*
Cic., *Rab. Post*.	Cicero, *Pro Rabirio Postumo*
Nep., *Hann*.	Nepos, *Hannibal*
Dio Cass.	Dio Cassius, *Roman History*
Diod. Sic.	Diodorus Siculus, *Library*
Flor.	L. Annaeus Florus, *Epitome of Roman History*
Hes., *Theog*.	Hesiod, *Theogonia*
Hdt.	Herodotus, *Persian Wars*
Hom., *Il*.	Homer, *Iliad*
Hom., *Od*.	Homer, *Odyssey*
Joseph., *BJ*	Josephus, *Bellum Judaicum*
Just., *Epit*.	Justinus, *Epitome (of Trogus)*
Livy	Livy, *Ab Urbe Condita (History of Rome)*
Livy, *Per*.	Livy, *Periochae*
Paus.	Pausanias

Philostr., *V A*	Philostratus, *Vita Apollonii*
Plin. HN.	Pliny, *Naturalis historia*
Plut., *Vit. Pomp.*	Plutarch, *Vitae Parallelae Pompeius*
Plut., *Vit. Crass.*	Plutarch, *Vitae Parallelae Crassus*
Plut., *Vit. Cat. Mai.*	Plutarch, *Vitae Parallelae Cato Maior*
Plut., *Mor.*	Plutarch, *Moralia*
Polyb.	Polybius
Ptol., *Geog.*	Ptolemaeus mathematicus
Sall., Hist.	Sallust, *Historiae*
Stadiasmus	*Stadiasmus Maris Magni*
Strabo	Strabo, *Geography*
Periplous	Skylax, Periplous
Steph. Byz.	Stephanus Byzantius, *Ethnika*
Suet., *Aug.*	Suetonius, *Divus Augustus*
Theophr., *Caus. Pl.*	Theophrastus, *De causis plantarum*
Vell. Pat.	Valleius Paterculus

Abstract

Following the Roman occupation in 67 BC, Crete underwent several transformations in its societal and economic structures. The island's transition into the Empire changed the shape of the cultural landscape of Crete, both in its interior and coasts. The new administrative system, in combination with the end of endemic warfare and the vast exploitation of the sea, liberated the island from its hostile past by shaping its new 'Imperial' identity.

This thesis examines the different dynamics and mechanisms that transformed Crete's Maritime Cultural Landscape (MCL) in Imperial times (1st c. BC – 3rd c. AD) and the sea's undisputed role in the island's overall prosperity. As part of this endeavour, my research focuses on a number of case studies in order to identify the circumstances under which several harbour sites developed, expanded, and became the new commercial centres of the island. Furthermore, the production of a new dataset of information about Cretan shipwrecks and their cargoes is presented, which constitutes the first attempt to gather evidence of all known Roman shipwrecks from the island. This study constitutes the first comprehensive overview of ports and shipwrecks from Crete, much of which is based on primary data collection and analysis. It also provides a significant insight into the role and importance of the sea in the gradual transformation and development of the Cretan economy and society following the island's transition from the Hellenistic to the sphere of the expansive Roman world.

In order to accurately reconstruct the MCL of Crete, a comprehensive analysis of the island's trading patterns was conducted. Special attention is given to the various scales of interactions that emerged among the Cretan poleis and harbours, as well as the interactions with external regions involved in maritime trade. Such an interpretation aims to show the extent to which the new conditions affected the ports, by gradually turning them into administrative and commercial centres. By applying different methodological approaches and cognitive hermeneutical tools to each chapter, a series of new hypotheses concerning the economy and society of Crete are formulated, leading the thesis into its final discussion, the MCL.

In the misty morning, on the edge of time,

We've lost the rising sun, a final sign.

As the misty morning rolls away to die,

Reaching for the stars, we blind the sky.

We sailed across the air before we learned to fly,

We thought that it could never end.

We'd glide above the ground before we learned to run.

Now it seems our world has come undone.

They say that it's over.

And it just had to be.

We're lost children of the sea.

Children of the Sea by Ronnie James 'Dio'

Chapter 1: Introduction

The Roman occupation of Crete in 67 BC marked the end of an autonomous era for the Cretan poleis, which, for the first time in their history, came under the rule of a foreign intruder. Following the island's annexation, a plethora of political and economic changes occurred. A century later, Crete was part of the Roman Empire and an island whose prosperity was mainly based upon the economic potential of its coasts and agricultural self-sufficiency.

This thesis aims to reconstruct Crete's maritime cultural landscape (MCL) by investigating coastal and underwater archaeological remains, including harbours, ports, and shipwrecks. According to Christer Westerdhal, the MCL '*comprises the whole network of sailing routes, old as well as new, with ports and harbours along the coast, and its related constructions and remains of human activity, underwater as well as terrestrial*'.[1] The study and interpretation of maritime evidence highlight the importance of coastal seascapes in

[1] Westerdahl 1992: 6; 2011.

transforming Crete's economic, social, and political framework during the Imperial period. This thesis constitutes the first comprehensive overview of ports and shipwrecks from Crete, much of which was based on primary data collection and analysis. It also provides a significant insight into the role and importance of the sea in the gradual transformation and development of the Cretan economy and society following the island's transition from the Hellenistic period to the sphere of the expansive Roman world.

Previous studies have partially shown the changes that occurred on the island following the arrival of Rome.[2] There is still, however, a significant 'maritime gap' in our knowledge, with the impact of sea and coastline often overlooked in historical and archaeological interpretations of the periods discussed. The problem is compounded by the neglect of the classical world of Crete in favour of Minoan studies by many scholars of the previous century and the late foundation of the Ephorate of Underwater Antiquities of Crete in 2010, which have played formative roles in the creation of this lacuna in research.

The thesis focuses on the Imperial period in Crete, specifically the four centuries between the occupation of the island by Quintus Caecilius Metellus in 67 BC,[3] and the introduction of the Tetrarchy by Emperor Diocletian in AD 293, which marked the end of the joint province between Crete and Cyrenaica.[4] At the same time, this thesis ponders the nature of the economic landscape of the island during the Hellenistic and the later Roman era, exclusively through ceramic analysis (chapter 3), thus creating a logical continuity in the interpretation of the economic history of the island during the transition from one period to the other. Overall, the transition from the Hellenistic to the Roman period was a slow process according to the archaeological record; however, as Angelos Chaniotis noted, it was 'the most significant turning point in the history of Crete since the destruction of the Minoan palaces'.[5] The island's conquest, in combination with the end of the Cretan piracy, allowed Crete to become a safe and essential node in developing Roman seafaring networks.[6] As a result, it allowed its inhabitants to re-orientate their economy from inward-looking self-

[2] Sanders 1982; Harrison 1993; Marangou-Lerat 1995; Chaniotis 1999; Livadiotti and Simiakaki 2004; Sweetman 2013; Gallimore 2015; Francis and Kouremenos 2016.
[3] Livy 100; Diod. Sic. 40.1.1; Dio Cass. 36.18–19.
[4] Crete and Cyrene formed the 'Provincia Creta et Cyrenaica' (Dio Cass. 53.12). The division of the province is mentioned on the *Laterculus Veronensis* (Verona List). Barnes 1982: 201-8. Diocletian turned Crete into a single province within the Diocese of Moesia.
[5] Chaniotis 2008: 81.
[6] Brulé 1978; De Souza 1998; Chaniotis 2004;2005b.

sufficiency towards interconnected Imperial markets. Furthermore, the island's unique location allowed a great range of transactions between the eastern and central Mediterranean. Before presenting the aims, research questions, and methodological approaches of the present study, it is important first to have a holistic picture of maritime projects and surveys that were conducted on the island.

1.1 An Introduction to the History of Cretan Archaeology

The mythological Cretan past, including the birth of Zeus,[7] King Minos,[8] and the description of one hundred polis,[9] has always stirred the imagination of travellers and historians since antiquity. Foreign travellers produced various accounts, maps, and drawings during the 15th to 18th centuries that can be used today to identify potential archaeological sites.[10] During the last quarter of the 19th century, many foreign scholars arrived in Crete searching for the island's legendary past. At the time, the political instabilities that affected Crete, such as the secession of the island from the Ottoman Empire following the Treaty of Halepa (1878),[11] turned Crete into '*a huge excavation site*,[12] or as Farnoux describes it, an *'archaeological El Dorado*.[13] The diplomatic involvement of some European countries in the new Cretan reality, gave foreign archaeological schools permission to excavate important sites across the island. As a result, the foundations of Cretan archaeology began during a tumultuous political climate, '*suspended between the East and the West'*.[14] The 20th century introduced some extensive excavation projects throughout central Crete, with the sites of Knossos, Phaistos, Gortyn, and Ayia Triada, being the focal points.

Most of these sites are still under investigation, with ongoing excavations and surveys conducted annually. While the importance of continuing research has been acknowledged for terrestrial archaeology, maritime archaeology has recently gained momentum as a form of archaeological investigation on the island. Of course, the technical and methodological prerequisites that underwater archaeology requires were not accessible in this early phase

[7] Hes., *Theog*. 453.
[8] Hom., *Od.* 17.520.
[9] Hom., *Il.* 2.645; Strabo 10.4.15.
[10] *Buondelmonti* 1415; Barozzi 1577; Belli 1583; Sieber 1823; Spratt 1865.
[11] More specifically, it was not until 1913 when Crete integrated into the state of Greece.
[12] Carabott 2006: 40.
[13] Farnoux 1996: 27.
[14] McEnroe 2002: 63.

of research.[15] As a result, most surveys and excavations taking place underwater in Greece (and Crete) during the previous century were conducted by professional divers and not archaeologists. It was not until 1976 when the Ephorate of Underwater Antiquities (EUA) was founded, and not until 2010, that its department in Crete was established for the first time. The future of maritime archaeology in Crete is optimistic, with several new projects introduced year after year and more scholars involved in underwater research than ever before. Below, a brief history of maritime research in Crete is provided, to highlight the developments and mechanisms that led to the discovery of coastal and underwater finds allowing a better understanding of Crete's long history and connection with the sea. A narrative chronological order has been followed, with the section divided into three key sections: the Pioneers, A New Archaeological Discipline, and Present and Future.

The Pioneers

In contrast to terrestrial archaeology, maritime archaeology requires a different set of expertise to be applied, with methodologies and technology not being available at least during the first half of the 20th century. Especially if one considers that the aqua lung, the pioneering device that allowed unsupported diving, was first introduced in 1942 by Émile Gagnan and Jacques-Yves Cousteau.[16] As a result, one should imagine that the first steps taken in Crete were from terrestrial archaeologists, who had, however, a tremendous impact on the field. Part of their work is considered useful, while their contribution in the storage and protection of some of the finds, especially during WW2, was crucial for their identification and interpretation in modern scholarship. Several of these previously studied sites (coastal and underwater) have been recently revisited and surveyed, while in others, a great amount of work needs to be done.

The 20th century

Almost a century ago, specifically in 1926, the first-ever coastal excavation was conducted by Spyridon Marinatos,[17] who identified and excavated a massive marine installation at the site of Ayioi Theodoroi of Niru Chani (or Kokkini Chani). During the excavations, the remains

[15] One should keep in mind that the use of aqualungs was introduced for the first time in 1946, as well as, that the term 'Maritime archaeology' (Ενάλια Αρχαιολογία) did not even exist until 1978.
[16] Bass 2011: 5. Previously, the invention of diving helmet by Dean brothers in the 1820s was the most useful underwater apparatus (and it was also the shift from salvers to maritime antiquarians).
[17] Marinatos 1926: 141-147.

of a Late Minoan I structure with wide walls (~0.80 m), a well and walls of neighbouring buildings that continue into the sea were discovered. Today, one can see that the beach is protected at the north by a rocky outcropping cape, with three consecutive rocky islets indicative of quarrying. To the west, in the area where the promontory originated, there is a rectangular carving separated in two parts by a strip of rock. The excavator considered the promontory the best natural site for the excavation. Marinatos interpreted the site as the best natural breakwater in the area and the large carving as either a harbour or a neorion (shipshed). In 2014, a geophysical survey was conducted at Nirou Chani during a collaboration between the EUA and the Laboratory of Satellite Remote Sensing and Archaeoenvironment. The geophysical survey showed that the northern area has the shape of a basin; therefore, it could not operate as a neorion. The southern part was open to the east, although the eastern side of it is buried today at a depth of about 0.5 to 1 m. Most likely, if it was used as a storeroom, it was probably at a distance from the water line. The site needs more extensive archaeological investigation, while an underwater excavation could shed further light on the date of the construction of either the curving and the submerged and coastal buildings.

Just a few years later, specifically in 1935, in a paper by Fernand Chapouthier, a graffiti from the coastal site of Istron (near Gournia) depicting the names of three Greek sailors and a dolphin was carved/depicted.[18] The discovery had been made earlier by Harriet Boyd Hawes, who produced the sketch included in Chapouthier's paper.[19] The graffiti was discovered close to the site of Istron, where an ancient quarry was located, believed to date to the 1st - 2nd c. AD.[20] The sketch of a dolphin and the position of the graffito on a rock that can only be approached by boat leave no doubt that this graffito was made by sailors;[21] the hypothesis is that they were two brothers, the sons of Nikanor, and that *εὔπλους* refers to both of them and their ship. Such a piece of evidence constitutes important information for the understanding of the Maritime Cultural Landscape of eastern Crete, especially if one considers that in the county of Lasithi and especially around the Mirabello gulf, a number of ancient quarries have been identified (Fig. 6.20). Recently, a study conducted by Tziligaki in

[18] *Εὐθύτιμος, Χρύσιππος, Νίκανδρος εὔπλους* (Euthytimos, Xrysippos, Nikandros euplous = wish for a good sailing/navigation).
[19] Boyd 1904; Chapouthier 1935: 377.
[20] Tziligkaki 2014; Tziligkaki 2018.
[21] Chapouthier 1935: 379-381.

the coastal quarries of Crete expanded the map of potential coastal sites around the island.[22]

A decade later, specifically in 1937, two fishermen from the small seaside village of Ayia Galini came across one of the most fascinating underwater discoveries in the history of the island, the first shipwreck ever recorded in the Cretan seas. While fishing, the two men observed that several bronze statuettes were lying underwater.[23] In the following decades, two expeditions took place on the site, revealing more bronze artefacts. The last dive at the site occurred in 1960, with the assistance of divers of the Royal Navy. With most of the finds being bronze, in poor condition, and from different periods, it is hypothesised that they were cargo on a vessel tramping along the southern coast carrying, and perhaps picking up, bronze for 'recycling'.[24] No hull remains have been discovered. The Ayia-Galini shipwreck constitutes the first recorded underwater site in Cretan archaeology. In 2009 a study conducted by Yiorgos Brokalakis on the bronze artefacts from the Ayia Galini shipwreck strengthened the hypothesis that the ship was probably conducting bronze recycling.[25] The site, however, has not been revisited since 1960, and the wreck has not been analysed. Additionally, a hoard of 259 coins recovered from the site remains unstudied. The initial work produced by Brokalakis was the first dissertation on a shipwreck from the late Imperial period discovered in Crete.

It was not until 1955 that the first underwater expedition was launched in Crete by the British pioneers Leatham and Hood.[26] Their contribution to the survey of the Roman harbour at Chersonesos remains an essential aspect of Cretan archaeology, as no other systematic study has taken place there since. In 2001, a study of the hydraulic concrete used for its construction[27] showed similarities with other Roman installations across the Mediterranean.[28] Further research needs to be undertaken on the site to provide a better

[22] Harrison 1993: 190; Tziligkaki 2018. In her 2014 PhD thesis 'The ancient quarries of Crete', Tziligaki proposed that 'they could have been parts of complexes or trade centres of the area whose activity focused in the trade of fish, stone, always in places close to harbours'.
[23] Theophanides 1938;1951.
[24] Platon and Davaras 1960: 508-509.
[25] Brokalakis 2016: 133.
[26] Leatham and Hood 1959: 266-273.
[27] The Romans introduced hydraulic concrete as a mean of harbour construction (Blackman 1982b: 197; Oleson and Hohlfelder 2011: 817).
[28] Brandon, Hohlfelder et al. 2005: 89-93; Brandon, Hohlfelder et al. 2014: 92.

understanding of the ancient harbour in terms of the usage, capacity, and construction of the harbour facilities.[29] Additionally, during their time in Crete, Leatham and Hood discovered several rock-cut pools (rectangular compartments), which were identified as fish tanks. Three of them, carved into the rock, were found in the northeast of Chersonesos harbour,[30] while a couple of them were found a few meters from the water's edge in the region of Mochlos.[31] The team also discovered a broken stone slab that was probably used to block the canal of the tanks at Mochlos.

Additionally, following the invitation by the director of Antiquities N. Platon, they revisited the Ayia Galini shipwreck, where with the use of aqualungs, they surveyed the site.[32] Unfortunately, no trace of the wreck was found. During their last expedition on the island of Pseira, they identified a conglomeration of stones as a Roman breakwater or a Roman waterfront. However, taking into consideration local sea level rise and the configuration of the rubble, it is more likely that it is a natural formation. In 1955, the same year as Hood and Leatham's team were conducting fieldwork, the research vessel Calypso explored the seabed of Kaloi Limenes.[33]

1960s – 1970s

In the 1960s, several archaeological surveys took place on the island, many focusing on the shorelines. Following the work of Leatham and Hood, the Greek archaeologist and Director of the Ephorate of Antiquities of Eastern Crete, Kostas Davaras, surveyed several sites of maritime interest in the counties of Heraklion and Lasithi.[34] In 1962, Davaras and Crile

[29] In 1999 in the volume 'From Minoan farmers, to Roman traders', a study of a group of ostraca (pottery sherds) by Nikos Litinas proposed a new hypothesis about the trading circumstances on the island. Inscribed ostraca, 92 in total, discovered close to the Roman port of Chersonesos. revealed that different types of products were shipped from the region during different seasons of the year. The ostraca dated from the second half of the 2nd c. AC and the first half of the 3rd c. AD. (Litinas 1999;2008). Scott Gallimore (Gallimore 2014: 203-209), compares these ostraka with ostraka found at Ilôt d'Amirauté at Carthage (late 4th cent. AD). He argues that they are connected with wine production in the area of Lyttos and with the storage of wine at the harbor at Chersonesos, from where it was exported.

[30] Leatham and Hood 1959: 270.

[31] In the case of Mochlos, we should mention that today's island was once a cape (Akrotiri), that due to geological changes was partly submerged. Minoan, Roman and Byzantine remains can be seen upon the island. The islet was in fact a cape whose neck was submerged with the change of the sea level in relation to the land. Underwater, one can see no remains today due to the strong currents and corrosion (Theodoulou 2011b: 45).

[32] Leatham and Hood 1959: 280.

[33] Blanc 1958: 24; Blackman and Branigan 1975.

[34] Crile and Davaras 1963; Davaras 1974;1978.

carried out underwater research in the areas of Kommos and Matala.[35] They were in search of Menelaus' ships, which according to Homer wrecked near the shores of Gortyn and Phaistos.[36] Instead of Menelaus' vessels, however, they located three masses of amphorae dating to the historical periods. Crile and Davaras suggested that the amphorae belonged either to the same wreck or three smaller ones. All three mounds were made of Rhodian amphorae dated to the Roman period.[37] According to Strabo,[38] the site of Matalon was one of the two main harbours of Gortyn, the capital of the province of Crete and Cyrenaica. Ian Sanders, a pioneer of Roman studies in Crete, proposed the hypothesis that the official harbour of Gortyn could not have been at Matalon, due to the site's small size and instead proposed the bay of Mesara as a potential location for the harbour.[39] This hypothesis could be partly true, given that Matalon and several other certain points at the gulf of Mesara could be used as anchorages.

The coastal surveys continued in the following years, with Stylianos Alexiou excavating at the beach west of the rocky hill of Amnisos (Karteros) and the sanctuary of Zeus Thenatas, two clusters (groups) of building remains (in 1964). Amnisos, and specifically the Minoan Villa and at the sanctuary of Zeus, were first excavated by Marinatos at the beginning of the previous century.[40] Alexiou dated the remains to the Late Minoan IIIb and Late Minoan I periods.[41] The northern part of the two clusters lay beneath the sea. A few years later, in 1967, Davaras explored and excavated a Roman/Hellenistic slipway at the coastal site of Trypetos.[42] The rock-cut slipway, located three kilometres east of the modern city of Seteia, represents a unique marine installation. The slipways at Sounio and the one at Trypetos have the '*steepest gradient known in the Mediterranean, with an inclination of 15* °.[43] This marine installation was probably part of the nearby harbour, under the authority of the Hellenistic city of Praisos. Due to its geographic location, it would have acted as part of the

[35] Crile and Davaras 1963: 48. In the rest of the thesis, as a reference to this shipwreck will use the term '*Matala* Shipwrecks', while for the description of the ancient harbour the term 'Matalon'.
[36] Hom., *Od.* 3. 290-295.
[37] Crile and Davaras 1963: 49.
[38] Strabo 10.4.11.
[39] Sanders 1982
[40] Schäfer 1992: 129, 159. For Marinatos' reports see the Praktika of The Archaeological Society at Athens (1929-1938).
[41] Alexiou 1967.
[42] Davaras 1968: 84-90; Blackman, Rankov et al. 2013: 238-518.
[43] Blackman, Rankov et al. 2013: 245.

fortification of the local naval station (well-fortified promontories).[44] According to Blackman et al., the Seteia slipway might have been able to host triremes.[45]

Davaras continued his intensive work on the coasts of Crete into the 70s, when he surveyed a submerged curved installation in Seteia, which he identified as fish tanks. In his publication, he also mentioned the existence of two other tanks in Zakros. Later, these installations were identified as parts of a submerged aeolianite quarry. A recently published investigation of the site by the EUA considers them as basins for fresh water to serve existing springs at the seashore. In 1975 Davaras also reported a further rock-cut fish tank in the region of Ferma near Hierapytna (and a possible quarry). Years later, Mourtzas relocated the site, where he surveyed two other fish tanks and a salt pan west of the region of Ferma,[46] at Koutsounari in Lasithi.[47] In 1971 a team led by David Blackman and Keith Branigan surveyed the coastal sites of Kaloi Limenes and Lasaia in search of potential harbour facilities along the south coast of Crete.[48] They identified no marine installations in Kaloi Limenes. In Lasaia a 90 m long breakwater was surveyed, and some potential warehouses were examined onshore.[49] The survey results indicated that the occupation of the south coast of Crete started during the 5th century BC and was mainly inhabited during Hellenistic and Roman times. In the same year, following the observations reported by Shaw, Blackman completed a survey of a ship-shed/slipway on the southern part of Matala bay.[50] Blackman dates the installation to the Roman Imperial period.[51] In a recent survey that took place on the site, archaeologists found that '*a rock-cut chamber intercommunicates with the ship shed via an entrance cut into the east side of the main rock-cut chamber'*.[52]

During the same decade, the work conducted by Nikos Papadakis on the island of Leuke (Kouphonisi)[53] revealed another popular commercial activity along the Cretan coasts, and

[44] Ibid.: 238.
[45] Ibid.: 96.
[46] Mourtzas 1987.
[47] Davaras 1978.
[48] Blackman and Branigan 1975.
[49] Ibid.: 30.
[50] Blackman 1973; Blackman, Rankov et al. 2013.
[51] Blackman 1973: 21.
[52] Blackman, Rankov et al. 2013: 248.
[53] Papadakis first arrived in Leuke with the help of Cousteau and 'Calypso' in 1975 (Papadakis 1983: 60).

especially the south-eastern part of Crete, murex processing.[54] The island of Leuke must have played a very important role in the commercial activities of eastern Crete.[55] In Hellenistic times, the cities of Itanos and Hierapytna were involved in a conflict to control the island.[56] Furthermore, stone blocks and columns were discovered at a depth of 2.5 m, over a distance of 50 m, between the islet Marmara and the shores of Leuke (Kouphonisi). Papadakis mentioned that the islet was probably connected with the coast in antiquity and that the remains of the blocks and columns are located where the ancient harbour might have stood.[57] During his survey of the eastern part of the island, specifically at the cape Sidero (ancient Samonion), Papadakis located a temple dating back to the 4th c. BC.[58] By the end of the decade, specifically in July 1978, a strong sea disturbance revealed a sunken rectangular building on the eastern side of Malia bay, which was partially recorded by the French expedition searching the area of the palace.[59] The building was quickly covered again by sand with no evidence of dating recorded or interpretation given.[60]

A New Archaeological Discipline

The 1970s can be described as a revolutionary decade for coastal and underwater research, not just for Crete but for the rest of Greece, with the first large-scale underwater expeditions taking place that inevitably led to the foundation of the EUA (Athens). Specifically, in the autumn of 1976, with the momentum that Cousteau's presence in Greece had intensified, the EUA was established, acting as a competent state body (Archaeological Service) for the protection, investigation and promotion of the country's underwater cultural heritage. Since then, all underwater research in Greece and, therefore, in Crete has been directed or supervised by the Ephorate.[61] Before Cousteau's expeditions in Greece, the Hellenic Institute of Marine Archaeology (I.EN.A.E) was established in 1973. In 1985, the

[54] Papadakis 1977: 78; 1983: 62. Murex trunculus: Murex dye was used as a colourant for clothing and was an expensive product. The extraction of purple dye from murex shells was a popular activity in Crete since prehistoric times and boomed during the Hellenistic and Roman period. The Porfira, as it called, was a very prosperous activity (see also Chaniotis 1999).
[55] Coutsinas, Guy et al. 2016.
[56] See the Magnesia-mediated conflict between Hierapytna and Itanos over Kouphonisi and Stalis (Bosanquet 1940: 735; Spyridakis 1970: 56-59; Bennet 1990: 201; Chaniotis 1996b: 33, No. 57; Haggis 1996: 206).
[57] Papadakis 1983: 64.
[58] Papadakis 1989: 60-62. According to him the temple was dedicated to Athena Samonia. The temple is not visible today.
[59] Guest-Papamanoli and Trecil 1978.
[60] Ibid.: 668.
[61] For a brief review of Greek Maritime Archaeology, see Theodoulou 2011a.

1st International Symposium on Ship Construction in Antiquity called 'Tropis' took place,[62] that set the base for the academic investigation of maritime archaeology in Greece.

The First Shipwrecks

A small number of Roman shipwrecks were discovered in the waters of Crete during the previous century, with most remaining unstudied or poorly reported.[63] In 1975, a thorough underwater survey along the Cretan seas was conducted by Jacques-Yves Cousteau and the Greek Ministry of Culture and Science.[64] Greek archaeologists such as Charalambos Kritzas, Lazaros Kolonas, Charalambos Pennas, and Nikos Papadakis, all participated (Fig. 1.1), directing and supervising Cousteau's missions, which established the new archaeological discipline in Greece.[65] Several shipwrecks were discovered during this mission, three dating to the Roman period (Fig. 1.2). During the project, they also conducted an underwater excavation at the island of Dia, specifically in the bay of Ayios Georgios, where a massive rubble construction was identified.[66] Also, during the Cousteau expedition in Crete, underwater surveys were conducted around the island of Pseira, the Rhodopou peninsula, and ancient Olous.[67] One of the last explorations of the Cousteau survey took place off Cape Sidero. There, a cargo of Cretan amphorae dating between the 1st and 2nd c. AD was discovered.[68]

Sea level changes

Crete is one of the most seismogenicly active zones in the Mediterranean. Large earthquakes have, disrupted the lives of its inhabitants, such as the devastating earthquake of AD 365.[69] This earthquake likely caused substantial geomorphological changes on the island,[70] resulting in a change in sea level, with '*up to 9 m uplifts of a more than 100 km long segment of Crete'*.[71] This destroyed many inland and coastal cities. The geological changes

[62] Tzalas 1989.
[63] Parker 1992; Theodoulou 2015b.
[64] Kritzas 1978.
[65] Theodoulou 2022.
[66] Kritzas 1988b: 10.
[67] Kritzas 1988a;1988b.
[68] Theodoulou 2015b: 35. Cape Sidero (Samonion) was significant for ancient sailors since it offered the first anchorage in Northeast Crete (*Stadiasmus* 318; Strabo 2.4.3).
[69] Ambraseys, Melville et al. 1994; Guidoboni, Comastri et al. 1994; Pirazzoli, Laborel et al. 1996.
[70] The epicentre of the seismic event was probably offshore Cape Krios (Pirazzoli, Thommeret et al. 1982: 36).
[71] Stiros 2010: 54.

on the island were first observed by Captain Spratt back in the 19th century.[72] In 1972, the geophysicist Nicholas Flemming first surveyed the coasts of west Crete and studied sea level change noting the historic changes.[73]

Between 1976 and 1979 fieldwork took place along the Cretan shores focusing on the sea-level to better understand the Cretan shoreline during antiquity. Pirazzoli and his team surveyed and dated 13 coastal sites along the west of Crete. For central Crete, however, one cannot say much about the ancient shoreline due to the lithology of the coasts.[74] Among the sites they surveyed was the harbour of Phalasarna. This uplifted Hellenistic site has offered a vital range of evidence concerning the Hellenistic harbour's architecture, as well as information about the rest of the city and its potential size. At the same time, it is also a unique example of the geomorphological changes that affected the island of Crete. According to Pirazzoli, following the massive earthquake of AD 365, the harbour of Phalasarna rose 6.6 m.[75] Phalasarna constitutes the only harbour on the island that has been continuously excavated (with several breaks) since the 1980's and is a site of great potential for the future.[76] Overall, the work conducted by both Flemming and Pirazzoli was crucial for understanding the geomorphological changes that occurred on the island and the level of destruction that impacted the material culture along the shores. In contrast to the submergence observed in eastern Crete, in western Crete, there is prominent uplift. Flemming estimates this elevation at 2 m in the area of Plakias, 3.5 m in the area of Loutro Sfakia (ancient port of Phoinix), 3.6 m in the area of Lissos (Figure 1.3), 6. 6 m in the area of Phalsarna, 5.2 m in the area of Kissamos, 1.5 m in the area of Akrotiri (Marathi), 1.5 m in the area of Georgioupolis, to end up at -0.2 m, as already reported, for Rethymno (Rithymna). [77] Similarly, for the area of Ayia Roumeli (ancient Tarrha), west of Loutro,[78] the change is limited to 2.5 m.[79] Finally, in a 1992 volume about Amnisos, a study upon the sea level change in the area is also included.[80]

[72] Spratt 1865.
[73] Flemming, Czartoryska et al. 1973; Flemming and Pirazzoli 1981.
[74] Pirazzoli, Thommeret et al. 1982: 39. According to Pirazzoli, '*as for the Roman remains, their submersion becomes increasingly evident northwards along the eastern coast*'.
[75] Pirazzoli, Ausseil-Badie et al. 1992: 390.
[76] Hadjidaki 1988; Hadjidaki 1996; Hadjidaki 2019.
[77] Flemming 1978: Tbl. 1.
[78] Pirazzoli and Thommeret 1977.
[79] Theodoulou 2011b: 43.
[80] Schäfer 1992: 329-334.

Large-scale Surveys Across the Island

In the 1980s and 1990s, several archaeological surveys were undertaken by different institutions, surveying both inland and coastal sites. In most cases, the archaeologists searched for evidence of the Minoan times while coming across Hellenistic and Roman remains, which were reported in their publications. These observations are beneficial to this research of the archaeological potential of coastal Crete. Among the most important surveys were the ones at Akrotiri peninsula, Sfakia, Kavousi, Gournia, Vrokastro, and Gavdos islet, all of which are discussed below.

Jennifer Moody first investigated the Akrotiri peninsula between 1978 and 1982 in search of Neolithic and Minoan evidence.[81] Following her work, Raab conducted a series of fieldwork campaigns between 1992-1994 aiming to produce the missing image of the peninsula during the Roman period. Based mainly on pottery evidence, Raab showed an increase in Akrotiri's settlement, especially on the coasts.[82] Raab found no evidence of maritime activity in the form of harbour works, but future projects could use this work to relocate potential sites for further maritime investigation. An identified piece of maritime evidence in the Akrotiri Peninsula was in Korakas. This was probably a fish tank discovered by J. A. Moody during the survey,[83] probably from the Roman period.[84]

From 1986-1989 a thorough survey took place in the area of Vrokasto. It covered most of the southwest coast of Mirabello gulf, from the point of Ioannimiti and Priniatikos Pyrgos to Vrionisi. In the same year (1987), the first pilot survey took place in Sfakia.[85] The Sfakia survey constitutes the most extensive survey in Crete, with the team having covered an area of 470 km^2, including several coastal sites. Along with the coastal areas surveyed are Tarrha, Ayia Roumeli, Poikilasos, Loutro (the ancient harbour of Phoinix) and more.[86] In most of the sites, pottery sherds from different periods were discovered, while a study of sea-level change also occurred (Price et al. 2002). No harbour remains were located but based upon the *Stadiasmus Maris Magni*,[87] and observations from the survey, both Poikilassos and

[81] Moody 1987.
[82] Raab 2001: 420-21.
[83] Moody 1987: 23.
[84] Raab 2001: 178; Tziligkaki 2018: 232.
[85] Moody, Nixon et al. 1998: 89.
[86] Moody, Nixon et al. 1998; Nixon, Moody et al. 1989; Nixon, Moody et al. 1990.
[87] *Stadiasmus 329*.

Tarrha probably had an anchorage,[88] while Phoinix must have had an actual harbour in the west bay of the site.[89]

From 1985 to 1987, the EUA conducted several surveys in eastern Crete. Specifically, in 1985, at the bay of Kouremenos (Lasithi), a submerged quay was discovered.[90] The installation extended for about 60 m and was located 10 m offshore. Although Minoan structures are also found in the area, the presence of Roman pottery sherds at the site indicated that the quay was probably constructed during Imperial times. Two years later, the EUA discovered two concrete-made peribolos walls on the rocky western side of the region of Stalida, a few kilometres outside of Chersonesos. Further research, however, indicated that freshwater was seeping out of the peribolos walls, suggesting that the structures were made to prevent the mixing of seawater and freshwater. Based on the construction material, these facilities are now considered to be Roman cisterns.

From 1987 to 1994, an underwater survey took place at the shipwreck of La Thérèse at the Dermata bay, Heraklion. La Thérèse was a military vessel of the French Navy which sunk outside Candia (Heraklion) in 1669 during the city's siege by the Ottomans. Cousteau had previously located the shipwreck following indications from a local diver. The expedition was directed by the archaeologist Maria Anagnostopoulou and the architect Nikos Lianos. During the project, a map of the wreck's remains was produced and there was a small-scale excavation. Several artefacts were recovered from the site, including atoms, armaments, pottery and more. The available evidence provided scholars with a thorough image of the sinking event while confirming the vessel's importance during this historical transition for the island.[91]

A year later, the Kavousi survey took place (1988) and demonstrated a complete abandonment of the region during classical times.[92] Offshore in the bay of Agriomandra, archaeologists located deposits of Roman amphorae at a depth of 3 m,[93] which made Haggis assume the existence of a small harbour dated to the 1st c. AD.[94] Furthermore, in the bay of

[88] Müller 1855; Price, Higham et al. 2002: 197.
[89] Ogilvie 1958.
[90] Simosi 1988.
[91] Anagnostopoulou and Lianos 1986; Lianos 1986;1989;1992; Lianos and Anagnostopoulou 1995.
[92] Haggis 1996b: 415.
[93] Ibid.: 418.
[94] Haggis 1996a: 189.

Tholos, there was probably another harbour in the area, as can be seen by the various structures around the site, including a massive Roman building, which was probably used as a warehouse.[95] To the west of Kavousi stands the region of Gournia. Here the Gournia survey took place between 1992-1994 and examined the southern area of the Mirabello Gulf and parts of the Isthmus of Hierapytna. According to Watrous et al., during the Roman period, the region of Gournia was '*extensively resettled*',[96] with correspondingly little evidence from the Hellenistic period.

Lastly, the island of Gavdos at the southern edge of Crete has been under investigation by the University of Crete for more than 25 years, making it the longest survey project ever conducted.[97] Fieldwalking and observations in several parts of the island while the excavation of a Minoan settlement was taking place.[98] Gavdos have been inhabited for thousands of years, especially during the Minoan and Imperial periods. No harbour remains have yet been located on the island, except for possible submerged remains of a breakwater at Karaves, roughly excavated by the EUA around 2005.[99] However, plenty of safe anchorages are scattered along the island's shores.[100]

Minoan Harbours and Cretan Ship sheds/Slipways

In 1993 Joseph and Maria Shaw announced at the 'Fifth *International Symposium on Ship Construction in Antiquity'* the interpretation of a complex at Kommos, dating to the Late Minoan I period, with four elongated parallel compartments, as prehistoric shipsheds.[101] The discovery and excavation of a second similar complex by Antonis Vassilakis,[102] between 2005 and 2007 at the mouth of the Kairatos river (Katsampas) in Heraklion, made the hypothesis more convincing. The carving at Agios Theodoroi, the sunken building at Malia (see above), the harbour complex on the beach of Sfougaras in Gournia,[103] as well as another building,

[95] Haggis 1996b: 418.
[96] Watrous, Blitzer et al. 2000: 478.
[97] Kopaka 1994: 729.
[98] Kopaka 2000.
[99] Tegou 2018.
[100] Kopaka, Gontika et al. 2006: 278.
[101] Shaw and Shaw 1999.
[102] Vasilakis 2010.
[103] Watrous 2012.

half-submerged on the beach in front of the Hotel Istron in Kalo Horio, can probably be included in this discussion.[104]

Of course, the Minoan neosoikoi differ from those of the historical period, as they seem to be more of a storage area for ships and their equipment, but at a distance from the beach. This also probably disconnects them from their use for warships, as is the case with the neosoikoi of the historical period. Crete is not lacking in shipsheds/slipways of the historical periods, which can be found in three locations. Kostis Davaras studied the first one in Seteia (see above), a second one was studied by David Blackman in Matala (see also above), while the third complex of shipsheds was studied by Baika, Sarris et.al, in the west of Fortezza, Rethymnon.[105] The team applied various geophysical and remote-sensing methods for a better understanding of the constructions. The survey showed a central deep longitudinal groove in two of the three slipways, which 'was used as a base for the installation of a longitudinal wooden runner on which the keel of the ship could slide during hauling and launching operations'.[106] This longitudinal groove might have also been used as the base of a 'ladder'. The evidence of slipways in three different sites along the coasts of Crete suggests that they may have been used for 'monitoring operations against pirates'[107] or generally as a defensive mechanism during Hellenistic times. The neoria of the Venetian period that still exists in Chania and Heraklion can also be included in this discussion.

In 1997 a seismic survey was conducted at the Hellenistic site of Itanos, on the north-east part of Crete. Various geophysical surveys took place over the five-year project, initially to search for the ancient port and then to map buried features of buildings, streets and walls of the ancient settlement.[108] The seismic tomography showed that the port was located south of the acropolis, onshore and west of the Gulf of Itanos, at a distance today of 100 m from the sea.[109] The potential harbour might lie under a layer of sediments (colluvium): no excavations have taken place on the site of the port.

[104] Theodoulou 2015a; Theodoulou 2015b.
[105] Baika, Sarris et al. 2020.
[106] Blackman, Rankov et al. 2013: 241.
[107] Ibid.: 240.
[108] Vafidis, Manakou et al. 2003; Vafidis, Economou et al. 2005.
[109] Vafidis, Manakou et al. 2003: 173.

The Present and Future

With the dawn of the new millennium, several new projects were begun along the Cretan coasts and seas. The 2000s brought a new wave of surveys and discoveries for Greek maritime archaeology, and Crete had an active role in the new era. Specifically, the new emerging evidence and discoveries across the island, and of course, the great potential of Cretan coasts and seas, led to a large wave of new projects and gradually revealed the need for the establishment of a new archaeological department in Crete, specialised in coastal and underwater archaeology. In 2010 the department of the EUA (Crete) was introduced in Heraklion. For the first time, the coastal and underwater antiquities of Crete were under the protection and custody of a local organisation. Since then, tens of investigations and several maritime surveys have taken place across the island, including an ongoing excavation, as well as the formation of a huge database.

2000s

In 1999, Elpida Hadjidaki directed the recording of remains of a Minoan marine installation at Plaka Kapetanianon (Heraklion), which she dated to the Early Minoan II - Middle Minoan III period and emphasised the importance of smaller centres in the practice of trade during the Bronze Age in contrast to the prevailing view of the exclusive conduct of trade by the palaces. She also investigated the area of the island of Gramvousa in Chania, where a set of six cannons were located. At the same time, a few stone anchors were identified in Stavros Akrotiri,[110] similar to the anchors found in the excavation of Kommos.[111] Similarly, in the bay of Atzikiari (Seteia), pottery fragments were discovered by D. Evangelistis on the seashore in front of a small cave on the eastern side of the bay and clusters of large pottery sherds at a depth of 11.5 m.[112] In 2001, several surveys were conducted at the site of Elounda and the Minoan coastal settlements at Stalos (Chania), and excavation at Pachia Ammos.[113] In 2003, following the general intense activity of the EUA, a deep underwater archaeological and geophysical survey took place in eastern Crete.[114] The result was the discovery of a pottery assemblage from 1700 BC submerged just outside the Pseira islet. According to Hadjidaki,

[110] Hadjidaki 2004; 2006.
[111] Shaw 1995.
[112] Hadjidaki 2006.
[113] Dellaporta 2012.
[114] Hadjidaki-Marder, Betancourt et al. 2021.

that was the first ever Minoan shipwreck discovered. The primary research turned into an excavation that lasted until 2010. Several intact local pottery vessels were recovered, but unfortunately, no parts of the ship's hull.[115]

Again in 2003, two clay vessels were recovered from a depth of 300 m, 30 miles southeast of Crete. The artefacts were probably part of a cargo of a potential Roman shipwreck that a fisherman recovered in his nets.[116] The two artefacts, a '*provaskanion*' and a lamp, date between the 1st c. BC and the 1st c. AD (Figs. 5.19, 5.20). Due to the great depth of the finds, and because the artefacts collected from the fishing nets could have been trawled from a location far from where they were pulled to the surface and identified,[117] the exact location of the shipwreck remains unknown.

In 2007 and 2008, a substantial interdisciplinary survey, the Danaos Project, took place off the south and south-west coasts of Crete,[118] which aimed to reconstruct the ancient sea route between Egypt and Crete during antiquity.[119] Several foundations were involved, including the Institute of Nautical Archaeology (A&M Texas) and the Hellenic Centre for Marine Research. Despite the advanced technologies, including side-scan sonars and ROVs, no shipwrecks were identified, except for some scattered finds, mainly amphorae.[120] The project covered a large area of the southern Cretan Sea, with more than 85 km^2 south of Crete being surveyed and recorded.[121] In the same year (2007), the Dionisades shipwreck was relocated and photographed by a team from the EUA.[122] The team (from Athens) surveyed a cargo amphora discovered between the Dionisades islets in the northeast part of Crete. Following instructions from a local diver, archaeologists discovered tens of amphorae which were probably part of a Roman vessel.[123] The wreck was lying at a depth of 43 m. The artefacts were scattered over a distance of around 200 m. Two types of amphorae were recognised: the Cretan amphorae II (Crétoise 2), a very popular product of the coastal amphora workshops of Crete, and Tripolitanian I, which originated along the coasts of North

[115] Ibid.
[116] Theodoulou 2012: 98.
[117] Ibid.: 98
[118] Delgado 2008; Wachsmann, Tsoukala et al. 2009.
[119] Delgado 2008: 311.
[120] Delgado 2008: 313; Wachsmann, Tsoukala et al. 2009: 148.
[121] Wachsmann, Tsoukala et al. 2009: 148.
[122] Preka-Alexandri, Theodoulou et al. 2012: 103-105.
[123] Ibid.: 104.

Africa. Considering the Cretan amphorae, in 1995, the PhD thesis by Marangou changed how scholars approach Imperial Crete. She mainly focused on the production and distribution of the Cretan amphora during the Imperial times. The results showed that during the 2nd c. AD, Cretan amphorae constituted more than 1/3 of the total amphorae imported into Ostia from the Aegean and other regions in the eastern Mediterranean. Part of her research involved the identification of amphorae workshops around the island, the vast majority of which were found in coastal sites, probably for the better onward transportation of the products by sea.[124]

In 2007, this time in the western part of Crete, a team of the Ephorate of Paleoanthropology and Speleology, under the direction of the archaeologist Christos Agouridis, investigated an underwater cave with archaeological remains in the area of Kalathas Akrotiri, which had been indicated the previous year to the Ephorate of Antiquities. The cave, known to local divers as "Cathedral", has two entrances, one underwater at -15/16 m and a second from the land, which the retreat of the roof has formed. Several amphorae, tripod pots, and conical and bell-shaped bowls were recovered, the study of which suggests that the cave was in use during the Middle Minoan III to Late Minoan I period.[125]

In 2008 several surveys and investigations were conducted by the EUA (Athens) along various parts of the island's shore. At Priniatikos Pyrgos cape, specifically at the bay of Kalo Chorio (ancient Istron), the submerged remains of a building were reported.[126] The excavation results showed that the site was used from the Early Minoan period to the Medieval period. A survey followed on the site by the EUA, where they discovered some wall traces on the western side of the bay (Karavostasi) and the upper surface of a wall or terrace (quay?) on the seafront facing the retaining wall of the church of Agios Panteleimon. Based on the archaeological evidence, it becomes obvious that the ancient shoreline has been altered due to the river deposits and an undetermined change in the sea level.[127]

Lastly, as mentioned previously, different sites along the island have been uplifted or submerged due to local geological changes. After a survey conducted on the southwest

[124] Marangou-Lerat 1995: 109-110.
[125] Agouridis 2012.
[126] Hayden 2007/8; Theodoulou 2011b: 45.
[127] Theodoulou 2011b: 45.

coast of Crete by the EUA, it became clear that two sites need further geoarchaeological investigation. The first site was in Palaeochora. Specifically, at the west of the settlement, at the site of Chona, a quarry was discovered laying at the same level as the present-day sea level, which means that it was either first used as a quarry after the AD 365 earthquake or that the site was not affected by any geological changes. The quarry was probably used to produce millstones and could be dated from antiquity to the latest centuries. The second site is in Kalyves Armenoi. Following another survey by the EUA, at the northwest of the Castello Apricorno hill, the team identified scattered building material lying between the coast and a small rocky islet in a depth that does not exceed 0.5-0.6 m. Remains of walls can also be seen upon the islet.[128] The findings indicate that the site has been submerged probably during a process that occurred after the 4th century AD, indicating another local geological change.[129]

Establishment of the Department of the Ephorate of Underwater Antiquities in Crete

The newly formed Department, in collaboration with the Woods Hole Oceanographic Institute, conducted two maritime expeditions in 2011 and 2013 in the Gulf of Herakleion and the Gulf of Kissamos, respectively. During these investigations, several shipwrecks were discovered, among which were four Roman vessels. The research conducted in the Gulf of Heraklion verified the importance of the island of Dia during the Imperial period as an anchorage against the northern winds operating diachronically. It also identified Dia as the most significant '*navigational steppingstone*' between Crete and the Aegean since Prehistoric times.[130]

Similarly, during the survey in the Gulf of Kissamos in 2013, maritime activities were revealed to be taking place in west Crete during Antiquity, with several anchorages along the sea routes that connected west Crete with the Peloponnese, Aegean, and the Ionian Sea also documented.[131] The most impressive find was a shipwreck discovered on the east side of the Rhodopou promontory (Figure 1.4). The survey revealed a large stone-carrying vessel

[128] Ibid.
[129] Ibid.
[130] Theodoulou, Foley et al. 2015: 623. For the naval importance of Dia from Antiquity to the Ottoman periods in Crete see Chaniotis 1992.
[131] Theodoulou, Foley et al. 2018: 310.

from Roman times.[132] No, hull remains were discovered.[133] The underwater survey was part of a three-year exploration programme in western Crete, Antikythera and the area in between, aiming to investigate the maritime routes that connected Crete to the Peloponnese.

In 2012 following the surveys from EUA, the remains of several coastal settlements dated to the Imperial period were identified on the shoreline and underwater, close to the areas of Sisses and Kavousi.[134] Furthermore, at the coastal site of Tholos Kavousiou, the previously discovered storage building dating to the Roman period was revisited and surveyed.[135] The remains indicate an important use of the bay in connection with the island of Pseira.[136] Haggis' earlier work supports this hypothesis, arguing that the inhabitants of Kavousi could have used Tholos and Pseira as shelters during the winter rather than the Pacheia Ammos in the west, which was an *'exposed'* and 'vulnerable' harbour.[137] Furthermore, surveys were carried out on the beach of modern Hierapetra, where a Medieval jetty was documented. The harbour of ancient Hierapytna was first surveyed and studied by the geologist N. Mourtzas. Following geological surveys, Mourtzas reported the existence of some submerged antiquities, mainly from Hellenistic and Roman times, including two breakwaters. One still stands in the outer eastern harbour of the city, while the western breakwater is probably buried under the modern jetty. In 2012 an underwater survey was conducted on the site by mapping the submerged installations from high-resolution orthophotos and side scan sonar for the seabed.[138]

During the years 2014-2016, a shipwreck just outside the region of Zakros carrying a cargo of Egyptian and Rhodian amphorae from the 2nd c. BC was reported to the EUA. Furthermore, during the same period, other activities by the EUA brought to light various submerged Roman building remains in Gra Lygia, Lentas, and Tsifliki Elountas. Specifically, in 2014 around the coasts of Lentas, building remains from the Roman period were identified,

[132] Ibid.: 305.

[133] No further survey has been conducted on the site.

[134] Theodoulou 2015b: 44.

[135] Boyd 1901: 155-156; Haggis 1996a; 1996b.

[136] Haggis 1996a: 203.

[137] Haggis 1996b: 422.

[138] Recently, there was a presentation on the results of the underwater research done in area of modern Hierapetra by Yiorgos Tsimpoukis with title 'Νέα στοιχεία από την υποβρύχια έρευνα στον λιμένα της Ιεράπετρας' at the ΙΓ΄ Διεθνές Κρητολογικό Συνέδριο (12th Conference of Cretological Studies) in Ayios Nikolaos, Lalisthi.

while on the islet of Chryssi, a possible ancient breakwater was discovered.[139] In shallow water off Tsifliki Elountas, further potential Roman structures were also found.[140] In 2016, Roman remains were discovered in the region of Stomion at Gra Lygia, Hierapytna. A collaboration between the EUA and the Ephorate of Antiquities in Lasithi found Roman pottery shreds and the remains of a stone wall that was probably part of a now-submerged Roman installation. In the same location, just 100 meters west of the river mouth, the remains of a large construction were surveyed, which has been identified as a coastal Roman villa. Recently, on the island of Chryssi a pair of fish tanks were discovered but have yet to be studied in detail.

In 2015 an investigation by the EUA, in collaboration with the Institute of Mediterranean Studies - Foundation for Research & Technology Hellas, inaugurated the study of the submerged relics of ancient Olous (Elounda). The deepest remains are lying at a depth of about 2.5 m, which suggested that the remnants could be dated to the Hellenistic period.[141] During the 2015 fieldwork, underwater geophysical techniques were used for the first time to map the submerged archaeological structures[142] 3D electrical resistivity tomography (ERT) was mainly used, due to the shallow waters on the site. This quick, non-destructive technique improved the picture of the buried archaeological structures. From 2017 to 2021, a 5-year systematic survey of the general area of Elounda Bay was conducted. Since then, various large structures and wall foundations have been mapped and measured.[143] During the surveys, submerged structures around the bay of Elounda (Poros, Melissos, Vathi, Tsifliki) were mapped, several of which seem to belong to the Roman period (Fig. 1.5). However, in Poros (the urban centre of ancient Olous), there are indications of earlier structures at greater depth. The Ancient Olous Project is expected to continue with a new 5-year programme 2023-2027 as an excavation project, with the potential to shed further light on our knowledge about this important ancient harbour city.

Most recent discoveries

[139] Theodoulou 2015b: 46.
[140] Ibid.
[141] Theodoulou 2011b: 45.
[142] Simyrdanis, Papadopoulos et al. 2016: 11.
[143] Simyrdanis, Papadopoulos et al. 2016: 7, 11, 13.

The summer of 2021 was a great one for the maritime archaeology of Crete. Two intact ancient shipwrecks were surveyed that have the potential to give new insights into the maritime and trade networks that connected Crete with the rest of the Mediterranean Sea. The first discovery was conducted in the framework of a collaboration between EUA and Toronto University via The British School at Athens (BSA) during their investigation of the gulf of Palaikastro.[144] Specifically, they disocvered the remains of the cargo of a Roman shipwreck just outside the gulf of Chiona. Most of the cargo was Spanish amphorae (Fig. 1.6). The recent discovery constitutes a rare example of intact cargo discovered off Crete. The shipwreck will be investigated in the coming years since it could provide strong evidence of maritime routes used during the Imperial period. A month later, the EUA surveyed a shipwreck dating to the Classical era. The wreck was discovered in 2019 during the visual survey of the electricity transmission wiring between Kissamos, Crete and Neapoli at Peloponnese.[145] The shipwreck is located at a depth of 222 m between the straits of Neapoli and Kythera. What is impressive about this site is that the cargo consists of several different types of amphorae from various geographical regions, including both the Ionian and Aegean Sea. This indicates the complexity of ancient trade networks and, of course, how cautiously one should proceed to their interpretation.

1.2 Aims and Objectives

Research Goals

This thesis explores the changes that occurred in the coastal environment and society of Crete from the Hellenistic, to the Imperial, and late Roman periods. Particular emphasis is placed on the role of the sea in influencing these changes. As part of this endeavour, my research focuses on a number of case studies in order to identify the circumstances under which several harbour sites developed, expanded, and became the new commercial centres of Crete during this transition. The interpretation of the changes that occurred in the trading relationships of the island between the two periods discussed is pivotal. In order to accurately reconstruct the MCL of Crete during Imperial times, a comprehensive analysis of the island's trading patterns must be conducted. Special attention should be given to the

[144] Press Release: https://www.culture.gov.gr/el/Information/SitePages/view.aspx?nID=3946.
[145] Press Release: https://www.culture.gov.gr/el/Information/SitePages/view.aspx?nID=3993.

various scales of interactions that emerged among the Cretan poleis and harbours, as well as the interactions with external regions involved in maritime trade with the island. All of these aspects must be meticulously examined and considered. In the following chapters, the different scales and ranges of seafaring will be examined, from 'small worlds' through to inter-provincial trade, [146] as well as the division of the island into different 'economic maps'. This interpretation aims to show the extent to which the new conditions affected the ports, by gradually turning them into centres with administrative and commercial power. By applying different methodological approaches and cognitive hermeneutical tools to each chapter, a series of new hypotheses concerning the economy and society of Crete will be formulated, leading the thesis into its final discussion, the MCL. Finally, the production of a new dataset of information about Cretan shipwrecks and their cargoes will be presented, which will be the first attempt to gather evidence of all known Roman shipwrecks from the island.

Research Questions

For the reconstruction of the MCL of Crete, the study of the available coastal and underwater archaeological remains (e.g., harbours, ports, and shipwrecks) is essential.[147] The study of these sites highlights the importance of the environment of the coastal seascape in transforming the economic, social, and political framework of the island during the Imperial period. Throughout the interpretation of the available material will be undertaken using specific methodological approaches, in order to examine the following principal questions:

1. Did harbours adopt a new economic role that transformed the social and economic importance of the coasts? Based on the material evidence, what changes occurred on the coastal landscape after the arrival of Rome?

2. Did the island retain its contacts with its traditional trading markets in the East? Or did these contacts shift towards the West following the island's annexation into the Empire? What kind of information can be derived from the analysis of ceramic imports regarding the development of new trading patterns along Crete?

[146] Tartaron 2013; 2018.
[147] Westerdahl 1992.

3. What kind of information can the shipwrecks from Cretan seas offer through comparative research of their cargoes and from their submerged locations offer regarding the origins, trade purposes, and types of journeys of the vessels?

4. How was the gradual development of Crete linked to the success of the Empire in creating an inextricably linked Mediterranean, and how did Crete manage to contribute to the maintenance of the great trade networks along/in the Empire?

5. What are the main changes that Cretan society faced during the transition from the Hellenistic to the Imperial era, and what was the role of the sea in this transformation?

1.3 Methodology

In this introductory section, we will delve into the methodologies and models employed in addressing the queries raised earlier. We shall also scrutinize the sources of evidence at our disposal for this project, as well as the primary datasets we intend to utilize. Furthermore, we will examine each phase of interpretation, including the criteria that guided the selection of specific case studies. Overall, a great diversity of interrelated, interdisciplinary evidence was used to reconstruct Crete's MCL during Imperial times. The collection and interpretation of all available data from previously published reports regarding ceramic imports arriving in Crete during the periods discussed were included (Chapter 3). This aims to answer questions regarding the trading patterns that occurred on the island following the Roman annexation. Furthermore, a thorough survey of the coastal sites and marine installations was also undertaken (Chapter 4), enriched by data collected through personal surveys on land and water. Finally, the study of shipwrecks (Chapter 5) included the partial examination of their underwater sites and cargoes.

The aims and objectives used for the interpretation of each chapter are presented below, in order to provide readers with the fundamental methodological approaches and ideas used to complete the thesis. In addition, it is essential to mention that all available evidence in the following chapters has been presented in a logical and consecutive order, each step drawing from the previous and providing the necessary insights and tools for the gradual unfolding of the different aspects of MCL. As a result, each chapter sets the basis for the analysis and interpretation of the next. For example, the pottery study (Chapter 3) and the

results from the harbour and shipwreck analyses (Chapters 4 and 5, respectively) are fundamental prerequisites for the structure of the final chapter (maritime networks, chapter 6), which concludes the thesis. Chapter 2 is also vital to the thesis as it contains all the essential historical information that the reader needs to understand the time periods discussed.

Pottery Analysis (Chapter 3)

One of this thesis's primary goals is to analyse the maritime trading patterns that developed in Crete following the arrival of the Romans. Quantified pottery assemblages from specific case studies on the island are analysed.[148] Ceramics have the potential to reveal significant information concerning the trading relationships of the ancient world. Throughout the analysis, one should remember that amphorae and finewares were '*being traded with a different economic logic'*.[149] Amphorae seem to have a more regional distribution, while finewares have a more 'empire-wide' character.[150] Similar kinds of studies have shown well-developed trading patterns during the Roman times and a trade that continued over a long period.[151] The pottery chapter provides an image of the developments that occurred in the external maritime trade of Crete from the Hellenistic (3rd and 2nd c. BC) to the Imperial (1st c. BC – 3rd c. AD) and late Roman times (4th – 7th c. AD). The different types of ceramics presented reveal some of the eastern Mediterranean's main pottery trends, while it also distinguishes the different trading patterns that developed in different regions around the island, by making comparisons between the three periods. The extension of the research further that the imperial period, specifically up to the late Roman times, offers useful insights to a period were crucial political and social changes were happening both in Rome and across the Empire, which of course affected the whole island and the maritime networks connected to it. At the same time, the earthquake of 365 AD certainly left its mark on Crete, where it must have taken quite a long time to recover. Comparing the imported material from the three discussed periods, provide us with substantial evidence to analyse and comprehend the transformations and advancements that these networks underwent throughout history.

[148] Chersonesos, Knossos, Hierapytna, Itanos, Eleutherna, Kydonia, and Gortyn.
[149] Rice 2011: 91.
[150] Ibid.
[151] Peacock, Williams et al. 1991; Wolff 2002; Munn 2003; Lawall 2005.

The ceramic research will be concentrated on previous studies and published archaeological reports from the sites of interest. The case studies that will be used for this analysis comprise key archaeological sites. In some cases, extensive archaeological reports are available (e.g., Knossos, Gortyn); in others, further research must be conducted to extract safer results (e.g., Chersonesos, Itanos). It is important for the reader to be aware of the main interpretive problems that the author encountered in writing this chapter In terms of archaeological discoveries, there are still many sites that have not been fully explored or studied in depth. While certain major urban areas like Knossos and Gortyn have been thoroughly excavated and are well understood, other sites have not yet been investigated to the extent necessary to draw definitive conclusions. This is especially true for sites that are located near modern urban areas, which may have been impacted by development and other changes over time. In particular, at most of them, the recorded material is limited. In any case, the author has proceeded to analyse the existing data, aware of the difficulties that may arise from their interpretation.

As a result of this analysis, it will be possible to interpret the types of ceramics arriving on the island in each century and note the overseas regions with which Crete retained or abandoned trading contacts. The results will be presented using tables for each case study. Each table will demonstrate the import type, production area, and approximate date. The tables presented are divided into 'amphorae' and 'finewares' and are distinguished between the periods (Hellenistic, Imperial, Late Roman).[152] Through this, it will be possible to identify the main flows of imported ceramics into the island during the centuries and, as a result, the changes and developments that occurred in the trading patterns. Overall, imported pottery constituted primary evidence in the analysis of the following chapters and a core hermeneutical tool for the overall aims and goals of the thesis. In terms of the multiscalar analysis of harbours, pottery provides evidence for the connection between coasts and the hinterland and evidence for the existence of dependent harbours to administrative centres (e.g., Gortyn and Matalon). Simultaneously, the proposed results (trading patterns) are vital for the division and examination of the different scales of interaction and, consequently, the reconstruction of maritime networks presented in Chapter 6.

Multiscalar Harbour View (Chapter 4)

[152] See Table of Tables (XV).

In this chapter, a multiscalar view of harbour sites attested along Cretan shores during the Imperial period will be presented, with a range of them categorised in different scales mainly based on their characteristics in matters of the harbour and transport infrastructure, trade and economic potential, and their contribution in local or external networks. What is the importance of a multiscalar harbour analysis? The categorisation of each case study into a different scale creates a new analytical model for comparing the different harbours in Crete, as well as their interaction with one another and with the hinterland, while at the same time providing valuable insights regarding the analysis and interpretation of the different maritime networks and tiers of connectivity attested along the Cretan coasts.

Harbours as centres of commerce and interaction influence various aspects of past societies, including the surrounding cultural landscape, which usually adjusted and developed according to the region's social and economic demands. For the interpretation of a harbour site, according to the principles of the MCL, it is essential to investigate different aspects of the surrounding area and a variety of datasets since a harbour does not only consist of its marine installations but of a series of other material and immaterial features.[153] These data break down into imported goods, political and sacred structures, inland networks, local production facilities and more. Such an approach allows me to investigate a harbour site in its extended space and to produce a comprehensive image of the interdependent relationship between the sea and the hinterland. The coastal sites will be studied holistically, not simply from their capacity as shelters for ships. Even though the study and interpretation of marine installations comprise a vital part of this thesis, further coastal and terrestrial archaeological material will also be investigated. To comprehend the character of a harbour site, one should also investigate aspects of life that developed around a port.[154] Furthermore, it is crucial to note that the importance of a harbour can also be determined by its relationship with its associated port town and how this develops in economic, political, and religious terms. As a result, the study will include surveys on public building remains, such as storerooms, agoras, aqueducts, baths, and theatres, as well as private

[153] Westerdahl 1992; Knapp 1997; Ilves 2004; Westerdahl 2006; Ford 2017.
[154] Beaven, Bell et al. 2016.

buildings (houses, villas).[155] Potential sites of coastal amphorae workshops will also be investigated as well, since this economic activity was entirely focused on maritime trade.

Shipwrecks (Chapter 5)

The Hellenistic and Roman periods have provided archaeologists with a great range of shipwrecks from all over the Mediterranean Sea,[156] demonstrating the enormous increase in the number of vessels during these periods, which are to be considered the busiest in terms of maritime mobility and trade.[157] Several large-scale analyses of ship traffic have been undertaken in scholarship.[158] But what kind of information can the study of Roman shipwrecks from Crete offer? Naturally, shipwrecks can provide information about the type, size, and equipment of ancient ships, including the types of cargoes, their provenance, and evidence concerning their operation. But what kind of information can they provide vis-à-vis maritime routes or trade relations?

The expansion and development of direct trade and the formation of *emporia* created a more complicated system of maritime transactions and, as a result, a more complex sequence of voyaging and transportation. The evidence deriving from the analysis of shipwrecks can shed light on the different types of trade attested in the Cretan ports and the types of voyaging they were undertaking. Furthermore, potential hypotheses considering the vessels' origins and loadings stops are also proposed. What makes this thesis' proposed model different to previous shipwreck models is that Crete constitutes a provincial-scale case study, while other models interpreted case studies from larger parts of the Mediterranean.[159] Through this analysis, specific questions emerge considering the scale of trade, the level of planning and organisation which went into the cargo's loading composition, the degree of information available concerning the markets themselves, and the potential taxation included. Furthermore, a great source of evidence can be gained by considering the participation of Crete in the vast Imperial trade networks.

[155] A catalogue of sites can be found at the end of the thesis. The catalogue aims to provide further information regarding the case studies discussed in Chapter 4, for the purposes of the multiscalar harbour analysis.
[156] Parker 1992.
[157] Wilson 2011.
[158] Malkin, Constantakopoulou et al. 2009; Leidwanger 2011; Malkin 2011; Wilson 2011; Leidwanger and Knappett 2018.
[159] Boetto 2012; Rice 2016.

This analysis thoroughly examines Imperial-era connectivity and trade, with a primary focus on the evidence obtained from twelve shipwrecks. This study provides an all-encompassing and perceptive understanding of maritime activity on Crete during this period. What makes such an interpretation unique is the fact that it will present the movement of products at a provincial scale level, with its characteristics and limitations. This reflects the multiscalar view of harbours presented in chapter 4.

Maritime Networks Analysis (Chapter 6)

Finally, the results of the three previous chapters (pottery assemblages, harbour/landscape infrastructure, and shipwreck cargoes) will be used to reconstruct the final aspect of the MCL in Crete, its maritime networks. Specifically, the proposed model emerged from the previous chapters' interpretation, for which most data were primarily collected during primary fieldwork by the author and published evidence. The previously mentioned methodological tools will be used for the in-depth analysis of the different scales of connectivity along the coasts and interior of the island. Specifically, for the purposes of this model, two main categories of connectivity have been proposed: 1. large-scale (maritime) interactions, which can be subdivided into two tiers of connectivity, the multiregional networks and the small worlds networks, and 2. small-scale (maritime) interactions, subdivided into two network tiers of connectivity, the regional networks, and the local networks. In such a well-connected world like the Roman Mediterranean Sea, a great variety of networks is expected to have existed. The different scales of interaction presented in the final chapter will be used to provide a fuller economic characterisation of Crete and its role as a new market in the Roman world. Furthermore, ancient literary sources can help to provide information on navigation and seamanship, the lived experience and human activities behind these broader ‘mechanical’ trade networks. The art of sailing and seafaring is tied to immaterial evidence that does not survive today, but literary sources have the potential to provide researchers with the cognitive aspect of their nature. The literary sources, combined with the results from the pottery chapter (3), will set the basis for the reconstruction of the sailing routes connected to Crete.

The Maritime Cultural Landscape (Chapter 7)

The underwater and coastal remains set out in detail in this thesis will be processed to reconstruct the region's tradition of seafaring and the natural topography in which it occurred. Moreover, in conjunction with the study of the available Roman shipwrecks, a better understanding of the type of trade that occurred from the case study ports and coastal sites will be revealed. Christer Westerdahl, the pioneer of the MCL, in his paper in *The Oxford Handbook of Maritime Archaeology*, stated that for the examination of the MCL '*sources should include interviews*, *archaeological surveys*, *archival material*, *place-names*, *historical sources*, *cartographic material*, *iconographic sources*, *and so on*. *The need for source criticism would require considerable versatility on the observer's part'*.[160] As many of these approaches as possible will be included in this research. Most works discussing the MCL have indeed focused on the reconstruction of past coastal societies in Northern European countries (i.e. Scandinavia), and few attempts have been made to discuss this framework using Mediterranean sites.[161] On the other hand, Crete has sufficient evidence to make this form of research possible. Indeed, similar kinds of studies have been conducted elsewhere in the Mediterranean, aiming at the holistic study of the coastal site from both the land and the sea, even though they often prefer to use other names like 'seascape', 'waterscape', 'island archaeology' rather than the MCL.[162] Additionally, the work done by Fernard Braudel,[163] and of course that of Horden and Purcell in the 'Corrupting Sea',[164] is close to the concept of the MCL in their founding principles. Another example is the work conducted by Justin Leidwanger in the northeast Mediterranean and Cyprus,[165] which can also be used as a comparative model for further understanding the correlative maritime activities that were taking place between the shore and the sea, as well as the useful concept of 'opportunistic ports'.[166]

For the investigation and interpretation of the case study sites, the Ephorate of Underwater Antiquities kindly granted all of the necessary permits. The data produced are the outcome of personal surveys and investigations. The three years of fieldwork included first-hand observations from field walking, snorkelling, and diving. No excavation was undertaken. By

[160] Westerdahl 2011: 738.
[161] Knapp 1997; Parker 2001; Harpster 2017.
[162] Westerdahl 2011: 755.
[163] Braudel 1949.
[164] Horden and Purcell 2000.
[165] Leidwanger 2011.
[166] Leidwanger 2013.

conducting research visits to each site under study, a first-hand experience and knowledge of their function and features was gained and an understanding of them in their natural setting, both from the land and the water. Each site constitutes a unique case study. Hence the methodology used was applied flexibly and adjusted according to each site's particular parameters. As a result, the proposed models combine previously used methods and newly founded interpretations of the material.

As noted above, each case study was approached from both the land and sea to experience and understand it from the perspective of its coastal inhabitants and mariners. The researcher's perception of the landscape constitutes a very important element of maritime archaeology, and it is crucial for reconstructing the ancient MCL. This thesis reveals Crete's broader Maritime Cultural Landscape from this more emic-lived perspective, and new hypotheses, reconstructions, and conclusions about the island's rich maritime focus in the Hellenistic and Roman periods are revealed, posited, and substantiated.

Chapter 2: The Transition from Hellenistic to Roman Crete

This chapter will set out the historical background in Crete from the Hellenistic to the Roman period. It will concentrate mainly on the historical and epigraphic sources to trace the events and instruments that led to the island's development from an inward-looking and occasionally mutually antagonistic collection of city-states to the Roman conquest and incorporation into the developing Roman Empire. Furthermore, the whole discussion will be developed in conjunction with the integral relationship between the sea and the prosperity of Crete during Hellenistic and Imperial times. The political and diplomatic events during this transition and their impact on the Cretan society and economy are presented. The results emerged via a critical review of the known ancient literary sources, the epigraphical record, and work produced by historians and archaeologists during the previous decades.

Overall, the lives of many Cretans were related to all kinds of activities on the sea. In antiquity, fishing, trade, and even piracy were amongst the most popular sources of income. To this day, the sea retains its undisputed role in the lives of its inhabitants, primarily via the exploitation of its coasts for the sake of tourism. In the last four decades, tourism has changed the Cretan seascape and landscape tremendously, so the comparison with the past is inevitable. Similarly, following the arrival of the Romans in 67 BC, the island gradually altered, with the sea adopting a new commercial role as Crete flourished from the 1st c. BC up to the 3rd c. AD. The Roman conquest, in combination with the end of piracy around the Aegean and coasts of Asia Minor, allowed the island to become a safe and essential node in the developing seafaring networks of the Roman Mediterranean. As a result, its inhabitants re-orientated their economy from it being inward-looking and self-sufficient towards an interconnected Imperial market. This was partially due to the island's unique location, which allowed a great range of transactions between the eastern and central Mediterranean, an advantage the Romans heavily exploited. Below I present some of the most critical historical events and how they shaped Crete's political and social sphere during the timeframe of this thesis. It is also important to mention that this chapter constitutes an essential part of the overall discussion as a point of reference for the following chapters.

2.1 The Island of Crete

Crete is characterised by a mountainous environment of cliffs, sharp highlands, and elevated plains. In combination with its rocky hill shores and the rough seas surrounding the island, the scene of a large mountain emerging out of the blue is created in visitors' eyes. Besides, according to travellers' narratives[167] and ancient literary sources, one comes to the assumption that Crete was a well-wooded island from at least during the time of Strabo up to the 15th c. AD when it was under Venetian rule.[168] Modern scholars, however, do not support the idea that Crete had extensive forests.[169] Due to its steep morphology and the absence of proper road systems, transporting products and people in antiquity was perhaps much more manageable and safer via the sea than the island's interior. According to a number of treaties,[170] 'xenikai hodoi' existed along Crete during the Hellenistic period, mainly to support and protect the transhumant shepherds.[171] These treaties were formed to protect the interests of the various poleis involved.

From antiquity to modern times, the island's strategic location has acted as a valuable instrument of connection, economic growth, and imperialism. Traces of the Minoans have been discovered all over the Aegean,[172] while their presence in Egypt and other regions in the east has been archaeologically confirmed.[173] During the Hellenistic period, the participation of Cretan archers in the mercenary armies of the Hellenistic kings,[174] in combination with their notorious piratical activities, indicate a strong presence at sea.[175] Under Roman rule, their maritime commercial presence increased significantly, mainly via the distribution of local products, like wine[176] and medical herbs.[177] Following the Roman conquest, Crete came under the control of several different powers, such as the Arabs in

[167] Buondelmondi 1415; Barozzi 1577; Belli 1583; Sieber 1823; Spratt 1865.
[168] According to Strabo the island of Crete was mountainous and thickly wooded, but it has fruitful glens (10. 4. 4). On the other hand Theophrastus describes an image of Crete similar to the modern day (Theophr., *Caus. Pl.* 2.6.9, 2.6.10, 3.1.7, 3.3.3). See Chaniotis 1999: 219-220, for further discussion upon the vegetation (and medical herbs) in ancient Crete.
[169] Rackham and Moody 1996: 130; Chaniotis 1999: 208.
[170] I. *Cret. I.XVI. 5*, see also Chaniotis 1996b, no. 61, Kopie A11. 34-38, for the treaty between Olous and Lato and the reference to 'odos tas xenikas'.
[171] Chaniotis described xenikai hodoi either as 'roads of the aliens' or 'roads leading to foreign territory' (Chaniotis 1999: 201).
[172] Davaras and Betancourt 2012; Nowicki 2014; Papadatos 2018.
[173] Warren 1969; Nowicki 2014.
[174] Launey 1949: 276; Petropoulou 1985: 58; Chaniotis 2005b.
[175] Brulé 1978; De Souza 1998; Chaniotis 2004; 2005a.
[176] Marangou-Lerat 1995; Marangou 1999.
[177] Rackham and Moody 1996: 71-73.

828, the Venetians in 1204, and the Ottomans in 1669, before the island's integration into the modern state of Greece in 1913.[178] In all cases, Crete became an integral part of its conquers expansionist policies. The German occupation of the island, including its heavy fortification during WWII, and the foundation of the NATO naval base in the Gulf of Souda (Chania), demonstrate the continuing strategic importance of the island in the heart of the eastern Mediterranean.

2.2 Hellenistic Period

During the Hellenistic period, the whole Mediterranean turned into a battlefield. On the eastern Mediterranean, the Successors fought over the control of an immense unruled Empire, while on the west, Carthage was challenged by the rising power of Rome. From the death of Alexander in 323 BC, to the sack of Corinth in 146 BC,[179] and the annexation of Egypt in 30 BC, the ancient world watched the rising and falling of kings and their kingdoms until the final establishment of Rome as the undisputed ruler in the Mediterranean. Despite their involvement in different military expeditions and annexations during the 3rd and 2nd c. BC, the Cretan poleis managed to retain their independence until 67 BC.[180] Overall, the political situation across Crete was complicated since the various Cretan city-states retained the political system of the polis. The fact that Cretan centres did not join Alexander in his expeditions against Persia and that none of them was directly involved in any of the wars of Successors kept the island in neutrality and at a distance from the socio-political changes that occurred in the rest of the eastern Mediterranean. As a result, even during the Roman invasion in 69-67 BC, some of the Cretan poleis stood on their own in the battle against the intruders or joined the Cretan League (see below), while others welcomed the Roman invasion.[181]

Homer describes Crete as the *hekatompolis*,[182] the land with 100 cities. Based upon the archaeological and historical sources, some tens of different city-states must have existed on the island during the Archaic and Classical periods,[183] while according to Chaniotis at least

[178] Detorakis 1990.
[179] Polyb. 39.2.1, 39.3.3.
[180] Except for the eastern part of the island, which must have been under the Ptolemaic influence only for specific periods.
[181] Sanders 1982: 3-4; Lippolis 2016: 158.
[182] Hom., *Il.* 2.645; Strabo 10.4.15.
[183] For a detail catalogue of the Cretan poleis in Classical and Hellenistic times see Perlman 2004: 1144-1196.

60 poleis must have existed during the Classical and Hellenistic periods.[184] The influential cities of Knossos and Gortyn dominated the island and remained the main antagonists for at least three centuries. Historical sources provide scholars with a plethora of incidents considering the military conflicts that took place in the Cretan landscape.[185] The Cretan coasts and seas were also unsafe; they were exposed and only used for monetary and military operations.[186] As a result, many strong poleis, such as Eleutherna, Knossos, Gortyn, and Polyrrhenia, were miles from the waterfront, with their acropoleis' found up hills and slopes. The poleis were fortified but often had a clear view of the open sea and their harbours. As seen in Chapter 4 (Multiscalar view of Cretan Harbours), several administrative centres located in the interior of the island retained their dependent harbours for commercial activities, often in the form of a sympoliteia.[187]

Political System and Society

The Cretan polis formed a society based on military values, tradition, and descent. A strict hierarchy prevailed among its residents, both citizens and noncitizens. In a few words, Hellenistic Cretan society can be characterised as conservative, like the Archaic period. The analysis of inscriptions from different regions around the island showed that the Cretan political system during the Hellenistic period was based upon social criteria and a population of free citizens who ruled over a dependent population with different legal statuses.[188] Cretan society was divided into the eleutheroi (free) and the doloi (slaves). Specifically, among the different classes of Cretan society were the poliatai (citizens), apetairoi (free but in lower status), allopoliatas (citizens of another place), doloi and woikeis (slaves and serfs).[189] Compared to other Greek poleis, women in Crete seem to have more rights, such as the ability to own property and land, the right to divorce their husbands, and being able to leave their possessions to their children.[190] Young males followed a military education,

[184] For a catalogue of the Cretan poleis see Chaniotis 1996b: 12-13, footnote 36.
[185] Chaniotis 2005b: 9-17.
[186] At least three sites have been identified as potential slipways/ship sheds that might have been used as a naval base or defending system and in service of the military and expeditions.
[187] *I. Cret. IV.165 (SEG 13-466)*, regarding the sympoliteia between Gortyn and Phaistos; Chaniotis 1996b: 422-425 (No.71); Di Vita 2010: 57.
[188] Hadjisavvas and Chaniotis 2012: 164.
[189] Petropoulou 1985: 123-128; Chaniotis 1996b: 19-21, 133; Chaniotis 1999: 185; Gagarin and Perlman 2016: 77-84; Lewis 2018: 151-154.
[190] Gagarin and Perlman 2016: 84-85.

while freemen spent their time in the andreia.[191] Andreion was a men's hall, where all free native-born males (including boys) had shared meals (the syssistion) after contributing a share of their agricultural goods. Agricultural production was probably in the hands of non-citizens or performed by the serfs and slaves. At the same time, the poliatai were involved in other occupations such as military training and religious activities, participation in governance and more.[192]

According to surviving evidence from several sites in Crete, including Dreros and Gortyn, the leading official in Cretan poleis were the kosmos or the kosmoi. Kosmoi consisted of further officials, including the ksenios kosmos, in charge of foreigners in the city, and the dikastas as kosmos, in charge of legal cases. Kosmoi were chosen on an annual base.[193] The body of kosmoi must have been similar to the Spartan 'Ephors'.[194] Landownership was the primary power source and divided into three ownership types: klaros, aphamia, and oiketeia.[195] In addition, the old tradition of syssitia,[196] the shared meals, continued in the Hellenistic period and were funded mainly via a taxation system.[197] Overall, land was concentrated in the hands of a few affluent citizens who affected and shaped the Cretan economy to such an extent that the less fortunate Cretans (the masses or plethos) had no choice but to follow a career on the sea from a very young age, either as mercenaries in foreign armies, or though piracy. Via such activities Cretan soldiers managed to afford their contribution to the syssitia and maintain their social status.[198] The 'Cretan expansion wars, the massive migration to Asia Minor *and* Egypt, the efforts to colonise abandoned or uninhabited areas in the island and the economic clauses of interstate agreements have been interpreted as efforts to solve the social and economic problems generated by the fact

[191] Strabo 10.4.16, 10.4.20; Ath., 4.143.
[192] Gagarin and Perlman 2016: 105.
[193] Ibid.: 67-73.
[194] Strabo 10.4.18. The inhabitants of Lyttos (Lyktos according to Homer) were referred to as colonists from Sparta '*the Lyktians were colonists from Sparta, and the settlers that went out to the colony found the system of laws already existing among the previous inhabitants of the place*' (Arist., *Pol.* 2.7.1/1271b 28-31).
[195] Petropoulou 1985: 47; Chaniotis 1996b: 19-22.
[196] Petropoulou 1985: 48; Chaniotis 1996b: 133. Syssitia was the system of everyday meals were everyone had to contribute to them as a part of the taxation system, including the dependent population. The funding of syssitia was the primary goal of the Cretan economic system during the Classical and Hellenistic periods. The existence of syssitia probably forced small landowners to provide a specific amount of goods which probably represented a significant amount of their total production. According to Aristotle, the Hellenistic syssitia were probably different compared to those in classical times.
[197] Link 1991: 119-121; Chaniotis 1999: 193-194.
[198] Chaniotis 2005b: 136.

that many citizens had lost their land'.[199] Further discussion regarding the external military missions of Cretans is included below.

The Kretan Koinon

The Kretan Koinon (Cretan League) has been proposed as an institution formed by the independent poleis of Crete, ready to face external military threats and war.[200] The Cretan League was formed, but no historical or epigraphic source indicates the existence of a pan-Cretan union at any point in the history of Crete. Furthermore, the Cretan poleis never faced any serious external threat, at least during the Classical and Hellenistic periods, while during the Roman invasion in 69 BC, several poleis fought against the intruders while others chose to support them (e.g., Gortyn, Polyrrhenia). Cretan poleis never managed to form a successful pan-Cretan union. On the other hand, there is evidence for the formation of a regional scale of institution. Specifically, the Koinon tōn Oreiōn, formed in SW Crete, was active at least since the 3rd c. BC.[201] Such a union constitutes a potential indication of a sympolity, and a 'sense of regional identity that the Cretan Koinon never achieved'.[202] Specifically, the city-state members of the Oreioi shared same citizenship, coins, and even a federal sanctuary.[203]

During the Hellenistic period, the body of the Koinon altered several times, with various poleis changing their participation status. For example, during the Chremonedean war (267-261 BC) Knossos did not join the other Cretan poleis.[204] At the same time, during the Lyttian war, several city states united under Knossos and Gortyn, against Lyttos.[205] Nevertheless, Lyttians were later joined by the Koinon of the Oreioi and other poleis such as Aptera, Kydonia, and Eleutherna. Moreover, following Philip V's involvement in Cretan affairs in 216,[206] the Macedonian king was acknowledged as protector of the Cretans, an indication for a further reestablishment of koinon, although this time Itanos (Ptolemaic interests),

[199] Chaniotis 1999: 186, see also Chaniotis 1996b: 169-175.
[200] During the Hellenistic times it was called the 'Κοινὸν τῶν Κρηταιέων', while in the Imperial times changed to 'Κοινὸν τῶν Κρητῶν'.
[201] See Chaniotis 2015: 377, for further discussion regarding the *Koinon tōn Oreiōn*.
[202] Ibid.: 378.
[203] Ibid.: 379.
[204] Chaniotis 1996a: 32-33 (notes: 147,148). Gortyn, including the poleis of Aptera, Eleutherna, Itanos, Olous, Polyrrhenia, were in support of the anti-Macedonian alliance formed by Antigonos, Gonatas, Athens, and Sparta.
[205] Polyb. 4.53.3.
[206] Polyb. 7.11.9.

Knossos (and its allies) did not participate.[207] Perhaps, the 183 BC treaty between the king of Pergamon Eumenes and 31 Cretan city-states provides the most substantial evidence of the Koinon ton Kreton.[208] Several poleis, however, such as Kydonia, Phalasarna, Itanos, and Olous did not participate.[209] Consequently, while a Kretan Koinon existed it never managed to unite the entire island.

A 'self-sufficient' Economy

Agriculture, Pastoralism, and Trade: Throughout the Hellenistic period, the Cretan economy could be described as introverted. No substantial evidence indicates organised commercial external trade via exports during this period. The Cretan poleis produced their goods and were self-sufficient, with local harvests being sufficient for the population's needs but perhaps not enough for its commercial exploitation. Local producers were probably active in trade along the island but not with exterior markets. They probably used the coasts rather than the island's interior to move and trade their products. The sea was preferred for two fundamental reasons. Firstly, the mountainous environment of Crete rendered the inland transportation of bulk products a challenging task, especially in the absence of road networks. Secondly, crossing through multiple borders controlled by different and possibly rival poleis made the journey potentially complex, unsafe, and more expensive (they would also have needed to pay regional customs).

Vines and their by-products were an essential element of pre-Roman Cretan society and a product used for local economic transactions. In a way, Crete was a 'civilisation of the vine', although viticulture was again limited to local needs.[210] According to the archaeological record, there is strong evidence for wine production in different regions across the island, even though there is a gap in scholarship for understanding Cretan amphorae production in the Hellenistic period.[211] This constitutes further evidence for the introverted character of the island's economy during this. The low number of amphorae relates to the low levels of exports.[212] Overall, many previous studies seem to not have consider the existence of

[207] Chaniotis 2015: 381.
[208] *I. Cret.* IV. 179 (SEG 16-534); *Staatsverträge* IV 646.
[209] Chaniotis 2015: 381.
[210] Marangou-Lerat 1995: 9-13; Marangou 1999: 269; Hadjisavvas and Chaniotis 2012: 165-166.
[211] Ibid.: 270.
[212] The only known Cretan vessel found in large quantities outside Crete is the 'Hadra Vase', see the 'Mercenaries' section below.

trading patterns in Crete during the Hellenistic period. Cretan poleis were involved in the trade of booty, deriving from their military expeditions, but also, according to new archaeological evidence, it seems like some harbours (e.g., Chersonesos) were also involved in a broader sphere of trade with Attica or Aegean (see more info in chapter 3, Ceramics Analysis). On the other hand, the evidence from the Imperial period indicates that trade was by contrast massive, with Cretan amphorae being extensively exported during the Imperial period, as is discussed later in this thesis.[213] Local amphora workshops from the Hellenistic period have been identified only in Gortyn, Keratokambos and Knossos.[214] Nevertheless, wine must have been used daily in the Syssitia organised by the different city-states of the island.[215] The main, or perhaps unique, Cretan export at this time was the exploitation of Cretan forest products, including cypress and juniper.[216] Wool was another possible export, as may have been cereals.[217] Another Cretan export was whetstones, which were shipped to the Roman Republic from the Hellenistic period.[218]

Pastoralism was the safest economic activity on the island since the transport of sheep and goat flocks was usually allowed between neighbouring territories.[219] According to the epigraphic record, treaties between the Cretan poleis were signed that consider matters of cultivation and pastoralism. An early 3rd-century treaty between the neighbouring cities of Hierapytna and Praisos in east Crete includes a detailed regulation about the right of the citizens of one city to use the pasture of the other.[220] Chaniotis, who presented at least five treaties from the 2nd c. BC considers similar agreements.[221] Another example consists of the treaty between Hierapytna and Priansos, where one can see that individuals from both poleis were allowed to safely move products from one region to the other either via the inland routes or the sea.[222] No customs (tolls or taxes) were paid in these cases.[223] But none

[213] See Chapter 6.4, 'Large-Scale Interactions'.
[214] Hierapytna: Marangou 1995: 123-24; Keratokambos: Marangou 1995: 67; Knossos: Eiring, Boileau et al. 2002; Chaniotis 2008.
[215] Marangou 1999: 269.
[216] Chaniotis 1999: 209.
[217] Viviers 1999: 229.
[218] Plin., *HN* 36.47.
[219] Chaniotis 1999: 200.
[220] For the treaty between Hierapytna and Praisos see: *I.Cret*. III. IV. 1; Chaniotis 1996b: 236 (No.21); *Staatsverträge III 554*.
[221] Chaniotis 1999: 199.
[222] For the treaty between Hierapytna and Priansos see: *I. Cret*. III. 3.4; Chaniotis 1996b: 255 (No.28); *Staatsverträge IV 605*.
[223] Ibid.: 200.

of the above was as profitable as the following two activities, mercenaries and piracy. To return to the previous discussion about trade and commercial activities, for Cretan poleis, trading and sea transactions during the Hellenistic period 'was primarily a side-effect of war'.[224] Cretan pirates (and mercenaries) were bringing back home luxury items and war captives (slaves), which they were then selling or trading along the shores or moving along to other markets.[225] Below are some insights into the available evidence of these two primary 'professions'.

Mercenaries

Cretan poleis were partially involved in the Hellenistic wars via their mercenaries.[226] Overall, they did not officially participate in any wars outside of the island (individually or as the Cretan League), except possibly the conflicts with the island of Rhodes (mainly with Hierapytna, see below), although this was probably associated with a backlash against piracy. Nevertheless, ancient sources reveal that Cretan soldiers took part in numerous battles of the Hellenistic Kingdoms as mercenaries between the 3rd and 2nd c. BC. Cretan soldiers were famous for their archery skills, a reputation that offered them careers in the armies of the Hellenistic Kings and later jobs in the Roman legions. According to Launey, Cretan mercenaries fought alongside the 'Lacedemonian, Achaean, Athenian, Macedonian, Pergamenian, Rhodian, Milesian, Seleucid, Pontic, Lagid, and Roman armies'. [227] At the same time, their presence can even be spotted in the armies of small towns like Hermionè.

Cretan mercenaries were often employed in the armies of the Ptolemies; for example, just in one battle, that of Raphia in 217 BC more than 3,000 Cretans fought under the commands of Cnopias of Allaria.[228] Cretans fought on both sides during the 2nd Macedonian war in 171-168 BC. Some fought on the side of Rome,[229] while the soldiers from Phalasarna and Knossos fought on the side of Perseus.[230] Scholars have described Cretans as 'the best light-armed soldiers of Hellenistic Greece',[231] or as 'by far the most prominent Greek soldiers'.[232] Knossos

[224] Chaniotis 1999: 185.
[225] Ibid.
[226] Petropoulou 1985: 15-31; Ducrey 1986: 130-132; Launey 1987: 248-286; Chaniotis 2005b: 80-85, 93-95
[227] Lanuey 1949: 276.
[228] Polyb. 5.65.6. Other 1000 Neocretans fought under the command of Philo of Knossos.
[229] Livy 42.35.6-8 (on the side of Concul P. Licinius).
[230] Livy 42.51 (under Susus of Phalasarna and Syllus of Knossos); Polyb. 29.8.6.
[231] Spyridakis 1992: 48.
[232] Griffith 1935: 245.

had also aided King Mithridates Euergetes with soldiers while the city kept friendly relations with his son Mithridates IV Eupator,[233] an incident that the Romans later used as propaganda against the Cretan poleis. Moreover, during the second half of the 1st c. BC, Julius Caesar employed Cretan troops (archers) on his expeditions in Gaul, [234] and later in Alexandria.[235] While Cretan slingers assisted Pompey during the civil war against Caesar.[236] On their expeditions, Cretan soldiers were accompanied by their wives and families carrying personal items during their military journeys, with many of them migrating permanently to the areas of their service.[237] Examples of permanent migration can be seen in Miletos,[238] Kretepolis in Pisidia,[239] Demetrias,[240] and Egypt.[241] It is not a coincidence that several Hellenistic Cretan amphorae, as well as 'Hadra vases',[242] have been discovered in locations where Cretan mercenaries served.[243] Furthermore, several pedimental steles (epitaphs) have also been discovered outside Crete, evidence of the soldiers' presence.[244] Cretans who managed to return to their homeland with mercenary salaries and plunder were usually involved in the exchange and trade of booty on the island.[245]

Piracy

Several ancient sources claim that piracy was among the most profitable Cretan activities during the Hellenistic period,[246] with Plutarch naming Crete the second most significant source of piracy after Cilicia.[247] Cretan pirates seem to be active all over the eastern Mediterranean, plundering foreign merchant ships and small harbours. Their main booty was usually valuable objects and hostages that were to be sold in the slave markets.[248] Of

[233] Strabo 10.4.10.
[234] Caes., BGall. 2.7.
[235] *BAlex.* 1.1.
[236] App., *B Civ*. 2.10.71.
[237] Chaniotis 2005b: 82.
[238] Ibid.: 84.
[239] Cohen 1995: 345-346.
[240] Pouiloux and Verdelis 1950: 47; Chaniotis 2005: 21, 78-81; Stamatopoulou 2018: 365.
[241] Launey 1987: 1068-1072.
[242] Chaniotis 2005a: 100. For a detail description of the Hadra vases see Egglezou 2005: 350-385.
[243] Hadjisavvas and Chaniotis 2012: 168.
[244] SEG 53 - 523. Κρής Λύττιος, Demetrias. Epitaph of Chaironides (?) of Lyttos, ca. 300-275 B.C, Pedimental stele with a painted representation of a man and his slave. For a list of the Cretans depicted on the Demetrias pedimental stelai see Pouiloux and Verdelis 1950: 47.
[245] Chaniotis 1999: 185.
[246] Diod. Sic. 40.1.3; Flor. 1.4.1.
[247] Plut., *Vit. Pomp*. 29.1.
[248] Chaniotis 1999: 183.

course, there is no visible evidence of slave markets in Crete or any transaction or area for the gathering of captives for sale.[249] The oldest known reference to Cretan piracy derives from an inscription dated to the mid-5th c. BC found in Argos. The inscription discusses a treaty of alliance between Knossos and Tylissos. The two poleis agreed on land delimitation and tax exemptions, while they also defined how the plunder from their joint military expeditions, either on land or sea, would be shared. Specifically, 'from the booty which we shall make together from the enemies, they (e.g., the Tylissians) shall retain, upon division, one-third of all the things taken by land and one-half of all the things taken by the sea; the Knossians shall receive the tithe of whatever we capture jointly'.[250] Such an example gets at the definition of piracy. This would appear to be more about booty captured during a legitimate war between states or a raid against a seaside community rather than 'Caribbean' piracy in the sense of western pop culture. According to historical records, individuals involved in these missions were often referred to as piratai or leistes.[251]

Another example comes from the east side of Crete, where two neighbouring Cretan poleis were in dispute considering the share of the loot. In the late 2nd c. BC, the cities of Olous and Lato were involved in an actual war over the claim of cargo belonging to a foreign vessel that was captured or sunk just outside Olous. According to the documentary evidence, the loot consisted of two free men, a slave, a few silver coins, and other valuable wares.[252] Another incident of Cretan piratical activities is mentioned by Diodorus Siculus. It considers a raid against a small island: 'The Cretans, putting in at Siphnos, assaulted the city and by intimidation and deceit gained admission within the walls. Having pledged their word to commit no wrong, but acting with customary Cretan faithlessness, they enslaved the city, and after sacking the temples of the gods (set sail) for Crete, laden with their spoil'.[253] The story continues with the Gods sinking the Cretan fleet due to the blasphemy they had conducted. More treaties regarding joint operations and the division of booty between Cretan poleis are attested from the archaeological record. In a treaty between Lyttos and Malla, [254] we learn that share of the booty should be divided based on the number of

[249] No evidence regarding slave markets in Crete, similar to those in Delos (Zarmakoupi 2015: 123), occurred from the archaeological or epigraphic record of Crete.
[250] Viviers 1999: 221.
[251] Perlman 1999; De Souza 2002: 3; Chaniotis 2005b: 134.
[252] Chaniotis 1996b: 327 (No.54-56); Chaniotis 1999: 185.
[253] Diod. Sic. 31.45.1.
[254] Chaniotis 1996b: No. 11; 2005b: 134-135.

soldiers that each side provided during the expedition, while a similar type of division was agreed in a treaty between Hierapytna and Priansos.[255] Overall, there are nine such treaties from Crete in which the following poleis are mentioned: Aptera, Eleutherna, Gortyn, Hierapytna, Lato, Lyttos, Malla, Olous, Phalasarna, Polyrrhenia, and Priansos.[256]

Except for these alliance treaties, several decrees of asylia between Cretan poleis and other regions are known from the epigraphic record. These decrees are probably connected again with the piratical activities of the Cretans during the Hellenistic period. Cretan piracy was among the reasons so many Cretan asylia decrees have been found, with several of them associated with wars and the right of reprisal.[257] Among the known examples is an asylia between the Apollo temple in Anaphe and the Cretan League towards the sanctuary, the polis, and the whole island.[258] Another reason for offering personal inviolability to the Anaphiotes, had to do with the fact that Cretan laws indicated that temples had immunity.[259] Further asylia treaties were formed between the island of Tenos and the Cretan poleis of Phaistos, Gortyn, Aptera, Lappa, Axos. [260] These could have either be treaties to protect Teos from the pirates, or they were alliance treaties in case of war. Finally, another asylia degree with Crete was found at the temple of Apollo of Claros, colophon that was previously destroyed by pirates in the 5th c. BC.[261]

The Cretans were not the only pirates in the Mediterranean Sea. As mentioned previously, the Cilicians were the most notorious, causing troubles throughout the Hellenistic east. Cilician pirates are recorded as being defeated by M. Antonius (father of M. Antonius Creticus, and grandfather of Mark Antony) in 102 BC;[262] Following that expedition, Cretans were probably the only substantial pirate group left. Following M. Antonius' campaign, the so-called 'lex de provinciis praetoriis' formed the piracy law.[263] Piracy was portrayed as one of Rome's greatest enemies until Pompey's campaigns finally settled this problem. Cretans were leading piracy during at least the early 1st c. BC and were therefore considered

[255] Chaniotis 1996b: No. 28; 2005b: 135.
[256] Chaniotis1996b: No. 11, 26, 28, 38, 46, 59–61; 2005b: 135. See also Bielman 1994.
[257] Rigsby 1996: 16-17.
[258] Ibid.: 358-361.
[259] Ibid.: 360. See also Chapter 4.2, 'Coastal Sanctuaries' regarding the use of Asylia in Crete.
[260] Ibid.: 157-163.
[261] Ibid.: 351-352.
[262] Livy, *Per.* 68e.
[263] Tröster 2009: 21; Crawford and Cloud 1996: 231-270.

enemies of the Roman Republic. Overall, it has been s that suggested that the Romans 'took the idea of piracy and fashioned it into a flexible, pejorative label, which they used for political purposes and that the Roman elite found in the suppression of piracy a justification for the application of military might against maritime communities'.[264]

Endemic warfare and foreign intervention

Hellenistic Crete was defined by endemic warfare throughout the 3rd and 2nd century BC. Even though the Cretan poleis were not officially involved in any of the Wars of the Successors, conflicts in the island's interior were costly for its inhabitants. Several treaties were signed between different poleis in the Hellenistic period to retain peace, or as outcomes of warfare,[265] with several disputes and wars occurring during this time. One of the most significant conflicts among the Cretan poleis was the Lyttian War, which took place between the years ca. 222-220 BC,[266] and ended with the victory of Gortyn and the strengthening of Lyttos.[267] The war against Lyttos was coordinated by the poleis of Knossos and Gortyn, while Lyttos' final destruction was interpreted as an example to terrorise the rest of the Cretan poleis.[268] Aside from the financial losses, the need for external help to settle internal disputes caused further trouble on the island. Foreign powers became more involved in Cretan issues and policies, which gradually became severe threats to the island's independence. Around 145 BC, the large Cretan poleis reached the peak of their expansion with the end of the period of endemic warfare around 110 BC.[269]

Ptolemies

From 270 BC onwards, several poleis of Crete, especially those located on the island's eastern side, were under Ptolemaic influence. Specifically, during the reign of Ptolemy II Philadelphus, the admiral Patroclus arrived in Crete as a defender of the interests of the Cretan cities that had allied themselves with the Ptolemies, Athenians and Spartans during

[264] De Souza 2008: 71.
[265] For a detailed analysis of the known treaties from the Hellenistic period see Chaniotis 1996b 'Die Verträge zwischen kretischen poleis in der hellenistischen Zeit'. Furthermore, a detailed table with all the available treaties existed on the SEG 46-1206. See also Chaniotis 1995; 1996a: 258-260; 1996b: 114-122 ; 1999: 197-205.
[266] Chaniotis 2005b: 97.
[267] Polyb. 4.53.3, 4.54.3.
[268] Polyb. 4.53.3.
[269] Chaniotis 2008: 90.

the Chremonidean War.[270] Their impact was strongly seen in eastern Crete and the city of Itanos, where they established a garrison.[271] It is evident that in the early 3rd century BC, the Itanians were grappling with grave social and economic challenges that culminated in severe political crises.[272] These internal disturbances likely led to expansionist aspirations in other cities like Praisos. This forced the Itanians to seek protection from foreign powers such as the Ptolemaic Egypt.[273] The stability given to the Ptolemies by their garrison remaining in Itanos, played an important role in their successful action on the rest of the island.[274] According to the epigraphic sources, following the death of Ptolemy VI Philometor, the Ptolemaic garrison left Itanos for good.[275] Except Itanos, poleis like Olous, Phalasarna, Eleutherna, Lappa[276], and Gortyn appear to have connections with the Ptolemies.[277]

At some point between 217 and 209 BC, Lucius, son of Caius, dedicated a well and nymphaeum at the site of Itanos to Ptolemy IV Philopator and Arsinoë.[278] This is also considered to be the first-ever evidence of the presence of a Roman (as a mercenary) on the island.[279] During the reign of Ptolemy Philopator (221-204 BC), the Ptolemaic Kingdom financially supported several construction works in Gortyn, including the erection of some parts of the city wall (8 stadia in length).[280] Moreover, several Cretan mercenaries accompanied the Ptolemies and specifically Ptolemy Philopator in the battle of Raphia.[281]

The Ptolemies were involved in various disputes between the Cretan poleis, especially those between Gortyn and Knossos. One of them was the year 168/167 BC.[282] Other evidence for the involvement of the Ptolemies in Crete is an inscription referring to the arrival of Egyptian troops in support of the polis during a dispute with Knossos in 163 BC that is associated with

[270] Van Effenterre 1968: 204, 261; Chaniotis 1987: 237. Regarding the Chermonedean war see Chaniotis 1996b: 32-33, (SEG 50-883). For a detail analysis of the involvement of Ptolemies to Itanos things see Kreuter 1992: 17-34.
[271] *I. Cret.* III. IV. 14 (SEG 31-1521).
[272] Papiomitoglou 2023: 506
[273] Ibid.
[274] Heuss 1998: 246
[275] *I. Cret.* III. IV. 9.
[276] *I. Cret.* II. XVI. 11; Bagnall 1976: 117.
[277] For further discussion regarding the involvement of Ptolemies to the Cretan things see Papiomitoglou 2023.
[278] *I.Cret.* III. IV. 18. (SEG 59 -1054).
[279] Baldwin Bowsky 2001: 35.
[280] Strabo 10.4.11; see also Lippolis 2016: 157.
[281] Polyb. 5.65.7; Chaniotis 1987: 238; 2021: 115.
[282] *I. Cret.* IV. 181.

Gortyn.[283] Furthermore, an honorific inscription found in Lebena indicates further relationships between the Cretan poleis and the Ptolemies. This inscription was probably dedicated to the Ptolemaic strategos Aglaos of Kos, with whom mercenaries of the Cretan League must have fought in 154/153 BC in Cyprus.[284] Overall, it seems that some Cretan poleis had formed a steady and supportive connection with the Kingdom of Egypt, a relationship which must have gradually collapsed due to the increased involvement of the Romans in the policies of both regions. Finally, it has been argued that in general, no Cretan city was part of the Ptolemaic territory.[285]

Macedonians and Rhodians

Between the years 205-201 BC, the 1st Cretan war took place, a conflict between the Macedonian King Philip V and the Cretan poleis against Rhodes. Cretan pirates were probably causing problems in Rhodes, especially those sheltered in Hierapytna, by attacking the various small islands of the south-east Aegean, a region traditionally under Rhodian influence. Diodorus Siculus, informs us that 'with a fleet of seven ships the Cretans began to engage in piracy and plundered a number of vessels. This had a disheartening effect upon those who were engaged in commerce by sea, whereupon the Rhodians, reflecting that this lawlessness would affect them also, declared war upon the Cretans'.[286] It is generally considered that Rhodes' naval and military intervention policies were against piracy, mainly because they wanted to retain open and safe maritime trade routes.[287] Along with their trade duties, they also tracked down pirates using specially designed vessels called triemiolia or triremehemiolia.[288]

In another passage from Diodorus we are informed that 'Philip the king of the Macedonians, induced Dicaearchus of Aitolia, a bold adventurer, to engage in piracy, and gave him twenty ships. He ordered him to levy tribute on the islands and to support the Cretans in their war against the Rhodians. Obedient to these commands Dicaearchus harried commercial shipping, and by marauding raids exacted money from the islands'.[289] But, for a successful

[283] *I.Cret. IV.195 (SEG 49-1224); Di Vita 2010: 60.*
[284] *I.Cret. I. 17.33* (SEG 49 - 1242); Chaniotis 1996b: 333 (No.57).
[285] *I.Cret.* II. XII. 25; Bagnall 1976: 117; Huß 1976: 137; Papiomitoglou 2023.
[286] Diod. Sic. 27.3.1.
[287] Casson 1991: 138-139.
[288] Ibid.: 139.
[289] Diod. Sic. 28.1.1.

expedition Phillip needed the support of the whole island.[290] The leading cities of Knossos and Kydonia did not favour the Macedonian Kingdom and stayed out of the war.[291] By the end of the conflict, Macedonia had lost its credibility on the island. Following this, it was Rhodes' turn to get involved in Crete, again with no success. In 201 BC, Rhodes allied with Hierapytna,[292] even though during the 1st Cretan war, the two of them had fought against each other. Rhodes continuing its involvement in Crete, gaining control of Olous, a site in the northeast part of Crete.[293] They also formed a treaty with Chersonesos.[294] The new circumstances allowed Rhodes to control a substantial part of eastern Crete for a short period of time.

The interest that Rhodes showed into Cretan affairs during the mid-2nd c. BC must be traced in the socio-political circumstances that existed along the Aegean during that time, mainly due to the gradual increase in Rome's involvement in the Hellenistic East. Rhodian trade must have suffered a setback in the Aegean, following the appointment of Delos into a free port.[295] According to Casson, 'within a year harbour receipts at Rhodes plummeted from one million drachmas to 150,000'.[296] The transactions of luxurious commodities, like slaves and caravan goods, were now controlled by the free port of Delos, while Rhodes restricted itself in the host of bulk commodities.[297] The Rhodians must have seen the commercial potential of Crete as a great chance to overcome the tremendous losses occurred by Delian dominance in the Cyclades. The 2nd Cretan war took place between 155-153 BC.[298] At the same time, an embassy from Rhodes convinced the Roman Senate in 154/153 BC to send a commission to help negotiate an end to their war with Crete.[299] Once again a dispute in the Hellenistic east was affected by Roman diplomatic involvement. The constant involvement

[290] Macedonian control over part of the island already under Antigonos Doson in treaties with Eleutherna (*I.Cret*. II.XII.20 (SEG 32-866), *Staatsverträge* III 501, and Hierapytna (*I.Cret*. III.II.1, SEG 32-866; *Staatsverträge* III 502); raids by Philip's Cretan allies on Kalymna and Nisyros (*Syll*.[3] 567; 673; SEG 29-750).
[291] *I. Cret*. III. 3.3 A LL. 74-77 (SEG 42-796), for example, Knossos supported Rhodes and not King Philip V.
[292] *I.Cret*. III.3.3A, (SEG 39-966); Papachristodoulou 2000: 544: The treaty was advantageous to Rhodes, allowing them to use the Hierapytna's harbours and facilities. At the same time, they were not supporting Hierapytna in case of dispute with Knossos (another alliance of Rhodes).
[293] Schmitt 1962: 552; Effenterre 1948: 226; Papachristodoulou 2000: 544.
[294] *I.Cret*. I.VII.1. (SEG 41-768).
[295] Polyb. 30.20.6, 30.31.9; Strabo 10.5.4.
[296] Casson 1991: 165. Furthermore, the island's funds were insufficient to support sea security, gradually leading to increased piracy.
[297] Ibid.: 165.
[298] Papachristodoulou 2000: 544. Rhodes had already shown an interested in Crete during the end of the 3rd c. BC and the first half of the 2nd c. BC (Effenterre 1948: 221-234; Gabrielsen 1997: 53-56).
[299] Polyb. 33.15.3.

of Rome in the Greek world had the opposite outcome to that which the Hellenistic poleis expected. The example of Rhodes and Crete is a significant one, with Casson stating 'Rhodes, following as always, its policy of maintaining the balance of power on the sea, was inviting the major power of the west, monarch of the western waters, to mix into the politics of the east. At the time it looked like a shrewd manoeuvre; a generation later it had become discouragingly clear that the guest had moved in to stay. And Rome was a most formidable guest'.[300]

The Presence of Rome

The earliest example of Roman involvement in Cretan politics, is the assistance provided in interstate arbitration that occurred in 189 BC when Q. Fabius Labeo helped to negotiate a treaty between Kydonia and an alliance of Gortyn and Knossos.[301] In 189 BC,[302] the combined powers of Gortyn and Knossos fought against Kydonia in the west of the island.[303] During the negotiations at Gortyn, Q. Fabius Labeo also managed to release more than 4,000 Romans who were kept as prisoners in Crete, probably captives from piratical activities.[304] Initially, Rome attempted to become involved in the war to release some of them, but only Gortyn accepted, which probably established the foundations for their future association. A few years later, in 184 BC, Roman aid was given to the Gortynians in a conflict against Knossos,[305] while they simultaneously interfered in the west of the island in a dispute between the harbour polis of Phalasarna and the polis of Kydonia.[306] According to Polybius, it seems like Rome was probably the most influential foreign power in Cretan affairs during the 2nd c. BC.[307]

At this time, Rome was constantly involved in the Hellenistic world. The conquest of Greece, and the addition of the province of Asia, made the Romans the undisputed rulers of Aegean

[300] Casson 1991: 142.
[301] Livy 37.60.
[302] Another very interesting incident is that at the same year, 189 BC, Hannibal fled to Gortyn after the battle of Magnesia at Sipylum (Nep., *Hann.* 9; Just., *Epit.* 32.4.3–5).
[303] Probably not a coincidence that Strabo wrote that 'There are several cities in Crete, but the greatest and most famous are three: Knossos, Gortyn and Kydonia' (Strabo 10.4.7).
[304] Livy 37.60.5–6.
[305] Di Vita 2010: 60.
[306] Polyb. 20.15.1-6.
[307] Polyb. 22.15.3. '*At this time Appius Claudius and the other commissioners arrived in Crete from Rome, for the purpose of settling the disputes existing on the island. When they had spoken on the subject in Cnosus and Gortyn, the Cretans gave ear to them and put their affairs into their hands*'.

and Asia Minor. Moreover, the declaration of Delos as a free port in 166 BC (the island reverted to Athenian control in 167 BC),[308] and the exploitation of Aegean trade by Italian traders, allowed them to control a significant part of maritime trade to the detriment of Rhodes.[309] Simultaneously, several Cretan poleis requested them to mediate in local or foreign treaties they conducted or as a negotiator in internal conflicts and disputes.[310] Roman involvement in the affairs of other Hellenistic regions gradually increased with their presence becoming even more frequent during the last quarter of the 2nd c. BC. They mediated in dispute between Itanos and Hierapytna in 115 BC,[311] which lasted only a few years. Roman involvement in eastern Crete during the last quarter of the 2nd c. BC may be related to their attempt to closely monitor Cretan piratical activities.[312] Finally, the increased involvement of Rome in the political life of Crete since the begin of the 2nd c. BC 'brought numerous embassies to the island's cities', and as a result, 'the Romans had had various opportunities to become familiar with the policies of Cretan cities and their antagonisms'.[313] The constant dispute between the Cretan poleis, especially the rivalry between Gortyn and Knossos, played an essential role in the final annexation of the island in the year 67 BC.

Discussion

Even though the Cretans do not appear to have commercially exploited the economic potential of the sea during the Hellenistic period, seafaring and 'interactions' had a tremendous significance to their lives. Beyond those involved in the traditional activities of cultivation and pastoralism, many Cretans would have experienced life at sea. Ships and harbours would have been an integral part of their lives through piracy, as points of embarkation for mercenaries, or even for migration in search of a better quality of life. Roman annexation brought dramatic changes to Cretan society. The new province gradually adopted the customs of the Empire and became part of the Roman world. Cretan poleis adapted to the new social and economic potential that spread across their shores and harbours, and its new role as a stepping-stone between the east and central Mediterranean.

[308] Polyb. 30.20; Strabo 10.5.4.
[309] Casson 1991; Zarmakoupi 2015.
[310] Chaniotis 1996b: 289-296 (No. 43); (SEG 49-1206). Peace treaty between Gortyn and Knossos.
[311] Chaniotis 1996b: 335-6 (No. 57).
[312] In 102 BC, Rome fought against the pirates of Cilicia under Marcus Antonius.
[313] Vivier 1999: 229.

The newly expanded Roman networks brought several changes to the coasts, including foreign traders, ships, products, and people, transforming the coastal and inland landscape.

Reasons to Conquer Crete (The crisis of the late Republic)

Rome indicated that it was piracy, and the presumed Cretan aid to Mithridates,[314] that was the main reason behind the island's siege.[315] Nevertheless, were there any other motives for the annexation of Crete? According to de Souza, 'the invasion of Crete was a deliberate act of Imperialism, motivated principally by the desire to plunder the island and exploit its economy for the benefit of Roman people'.[316] Indeed, the Romans designated several other areas associated with Mithridates as 'pirates' and also targeted by them.[317] During the first quarter of the 1st c. BC Rome was involved in several wars around the Mediterranean and the Italian peninsula that had a tremendous impact on its economy. A financial crisis emerged following the end of the Social War in 89 BC,[318] which in combination with the resurgence of the Mithridatic wars and consequentially Sulla's Civil wars in 87-80 BC,[319] must have pushed the Roman economy to its limits. The Third Servile War in 73 BC caused further economic losses for the Republic.[320] As the last Greek region outside of Roman control, the island of Crete must have been a target for boosting Rome's bleeding economy and a 'bridge' for further expansion in the east. Was it the natural wealth and sources of the island, including its agriculture production and wood supplies, that made the Romans want to conquer Crete? The Roman historian Florus, author of the 'Epitome of Roman History' admits that 'the Cretan war, if the truth is to be told, was due solely to our desire to conquer that famous island'.[321] Definitely, all the above constitute realistic reasons for the conquest of Crete, but in my personal opinion the nature of the island itself must have been the ultimate instrument in making Crete a must-conquer destination for Rome. The island's unique location in the heart of the eastern Mediterranean, its massive size, in combination

[314] The Cretan harbours were used as settlers from the Punic ships in their attempt to escape Roman fleets Memnon, *Die Fragmente der Griechischen Historiker*, 111B, No. 434, F. 29.5.
[315] App. *5*.6.1.
[316] De Souza 1998: 112.
[317] De Souza 1997: 480-481.
[318] De Souza 1998: 113.
[319] App., *B Civ*. 1.11.95; Urgen 87; Urgen-Sternberg 2004: 87.
[320] App., *B Civ*. 1.14.116; Flor. 2.8; Plut., *Vit. Crass*. 9.1.
[321] Flor. 1.42.

with its large agricultural production and natural resources, was a great addition, and valid source of income for the Romans. At the same time, the conquest of Crete was a move of great strategic importance, operating as a stepping stone for the occupation of the rest of eastern Mediterranean, that followed.

2.3 The Imperial Period

Following the events after the battle of Actium, Augustus became the sole ruler of the Roman world. The Empire was established during his reign, and a new era began for both the city of Rome and its citizens as well as the new provinces. For the first time in the history of the Mediterranean, the whole basin came under the rule of a single power. This new multicultural world was mainly built upon voyaging, trade, and maritime networks. The *mare nostrum*[322] changed how people interacted, while new economic opportunities appeared for its Mediterranean residents. Crete was affected by these developments. The archaeological record indicates that several economic, social, political, and architectural changes occurred on the island after the arrival of the Romans. Of course, the various changes did not happen overnight, but were the result of several decades of transformation of both the Cretan landscape and its society. The pace of change indicates that the Cretan landscape adopted an increasingly Roman character in the century following its conquest.[323] Strabo provides an idea of how much Crete changed with the following brief statement 'the Cretans succeeded to the business of piracy; their piracy was later destroyed by the Cilicians; but all piracy was broken up by the Romans, who reduced Crete by war and the piratical strongholds of the Cilicians. And at present, Cnossus is even a colony of Romans'.[324]

The Military Campaigns of 71 and 69 BC

Appian in his Civil Wars notes that 'there were wars and wars; the Sertorian was raging in Spain, the Mithridatic in the East, that of the pirates on the entire sea, and another one around Crete against the Cretans themselves, besides the gladiatorial war in Italy, which started suddenly and became very serious'.[325] In 71 BC, the praetor M. Antonius, father of

[322] Sall., Hist. 1.9.
[323] Sweetman 2013.
[324] Strabo 10.4.9.
[325] App. B Civ. 1.13.109.

Marc Antony, attacked Crete from the west.[326] His campaign was the last of a series of military expeditions he had undertaken since 74 BC against pirates.[327] According to Florus, he felt so confident of victory that 'he carried more fetters than arms on board his ships'.[328] Ultimately, Antonius was defeated in a naval battle just outside the polis of Kydonia against the Cretan koinon who fought under the command of Lasthenes. Following his defeat, M. Antonius became known as Creticus. In the wake of their victory against him, an embassy of 30 Cretans attended Rome to negotiate peace. On the nights before the senate's hearing, the envoys visited senators in their houses and expressed their friendship and support.[329] The senate was satisfied by their speech and 'issued a decree, by which they not only acquitted the Cretans of the crimes laid against them but declared them confederates and friends of the state'.[330] On the day of the hearing, the tribune Lentulus Spinther interposed his veto by asking Cretans to surrender Lasthenes, all their warships (all ships with more than four oars), all Roman captives and pay to Rome 4,000 talents.[331] The amount that the Cretans were asked to pay as a tribute to Rome was equivalent to the annual revenue submitted by the province of Asia (4000 talents), one of the biggest and wealthiest provinces of the Empire.[332] According to Plutarch, the total taxes paid by the eastern provinces before Pompey's conquests was 8,500 talents.[333] The provocative new terms proposed by Rome were immediately rejected by the Cretans, eventually leading to a brutal war two years later. Through further examination of the terms requested by Rome, some compelling evidence emerges. Firstly, they highlight the importance of the naval power of Cretan Koinon, which must have been quite strong, especially if one considers that they managed to win a naval battle against Octavius in 72 BC. Also, it provides information about the type of vessels in the Cretan fleet, mainly warships and probably in large numbers. Moreover, the 4,000 talents that Cretans were asked to contribute indicates that the Romans would provoke a new conflict while simultaneously strengthening the hypothesis that they were aware of the island's natural wealth.

[326] Flor. 1.42.2.
[327] Linderski 1990: 157.
[328] Flor. 1.42.2. See also De Souza 1994: 129.
[329] Diod. Sic. 40.1.1.
[330] Diod. Sic. 40.1.2.
[331] App. 5.6.4.; Diod. Sic. 40.1.3; For further comments upon the negotiations between Cretan Poleis and Rome see also Sanders 1982:3; De Souza 1998: 113.
[332] Ibid.: 113.
[333] A tribute of 8,500 talents was the equivalent of half of the tribute the Romans received from all their Eastern provinces (Hadjisavvas and Chaniotis 2012: 167).

69 BC: Metellus' Campaign

Consul Quintus Caecilius Metellus, later named Creticus, was chosen to lead three Roman legions against Crete in 69 BC.[334] According to Dio Cassius, Hortensius was initially selected to fight the war against the Cretans following the defeat of Antonius.[335] For political reasons, however, he chose to stay in Rome and 'voluntarily relinquished the campaign in favour' of Metellus.[336] This time, the Romans were more prepared and aware of the military potential of the Cretans. Nevertheless, their venture was not easy. More than three years, and several battles, were needed to conquer the island. 'For three years this island, under the leadership of Panares and Lasthenes, who had collected a force of twenty-four thousand men, swift in their movements, hardened to the toils of war, and famous in their use of the bow, had worn out the Roman armies'.[337] Internal disputes, however, decided the fate of the Crete. The polis of Gortyn, one of the biggest and wealthiest Cretan centres, chose not to participate with the Cretan Koinon in the war against the invaders.[338] Simultaneously, on the island's west side, the city-state of Polyrrhenia aided the Romans in the battles against Phalasarna and Kydonia.[339] Polyrrhenia even dedicated a statue to Metellus as 'savior and benefactor' of their city.[340]

Metellus sailed to the west of Crete and started his campaign with the brutal siege of Phalasarna. The port city was burned to the ground, while its harbour basin was filled with big stone blocks so the port could never be used again. According to Hadjidaki, it is a high possibility that the Romans followed a similar method to the one they used to destroy the harbour of Carthage, namely dismantling the quay walls, and using the material to block the harbour mouth.[341] Following the destruction of Phalasarna, the Roman legions gradually moved eastwards, battling several poleis, including Kydonia, Knossos, Lyttos and others. Metellus won the first battle in Kydonia, and the Cretan general Lasthenes retreated to his hometown Knossos. Later, Metellus agreed with Panares, the general of Kydonia, to

[334] Phlegon, *Die Fragmente der Griechischen Historiker*, Part I-II, 257 F 12. Μέτελλος ἐπὶ τὸν Κρητικὸν πόλεμον ὁρμήσας, τρία τάγματα ἔχων, ἦλθεν εἰς τὴν νῆσον, καὶ μάχη νικήσας τὸν Λασθένη αὐτοκράτωρ ἀνηγορεύθη καὶ τειχήρεις κατέστησε τοὺς Κρῆτας.
[335] Dio Cass. 36. 1.
[336] Dio Cass. 36. 1.
[337]Vell. Pat., 2.34.1.
[338] Di Vita 2010: 60; Lippolis 2016: 158.
[339] Hadjidaki 2001: 159
[340] *I. Cret.* II. 23.14. See also: https://inscriptions.packhum.org/text/200052?bookid=291&location=1506.
[341] Hadjidaki 1988; Frost and Hadjidaki 1990; Hadjidaki 2001: 159.

surrender the polis in exchange for his life.[342] The war continued at Knossos, where the city was besieged. Lasthenes, however, managed to escape before his house and property were set on fire.[343] Following this, the Cretans approached Pompey to surrender. According to Plutarch, Pompey considered it not right to continue fighting against people who had offered to surrender, and he ordered Metellus to withdraw from the island.[344] Metellus ignored his orders and continued his military campaign.[345] The Roman legions managed to conquer Eleutherna thanks to inside treachery and then moved against Lappa, were they faced an unexpected enemy.[346] According to Plutarch, Pompey sent his general Lucius Octavius and his Cilician allies to fight on the side of the Cretans against Metellus.[347] Metellus won the battle against Octavius, defeated the city, captured and punished his pirate allies and humiliated him in front of his men.[348] Following his defeat, Octavius went to the help of Aristion, who had taken control of Hierapytna in the southeast side of the island. The final chapter of the war took place there. When Metellus arrived in Hierapytna, Aristion tried to escape from the sea, but his fleet sank after a storm burst outside the city.[349] Metellus took the last Cretan fortification and became the first man to conquer the entire island.[350] Nevertheless, Pompey helped Lasthenes and Panares to get away.[351] The end of the war was described by Dio Cassius: 'in this way the Cretans, who had been free through all preceding ages and had never had a foreign master, became enslaved'.[352]

Following the Conquest of 67 BC

In 67 BC, Rome commissioned Pompey to eliminate the remaining pirates from the Mediterranean.[353] Within the next two decades, significant political and military events shaped the path to the birth of the Empire, with Crete retaining a neutral role in a period where the Mediterranean had turned into a battlefield. The occupied island did not officially

[342] App. 5.6.5
[343] App. 5.6.
[344] Plut., *Vit. Pomp.* 29.2.
[345] App. 5.6.
[346] Dio Cass. 36.18.1.
[347] Plut., *Vit. Pomp.* 29.2.
[348] Plut., *Vit. Pomp.* 29.3; Dio Cass. 36.18.
[349] Dio Cass. 36.19.1
[350] Vell. Pat. 2.38.2. '*Crete was punished by Metellus by the termination of the liberty which she had long enjoyed*'.
[351] Dio Cass. 36.19.3
[352] Dio Cass. 36 .19 .3.
[353] Plut., *Vit. Pomp.* 25.1; De Souza 1994: 130.

participate in the Roman Civil Wars but was used several times as a stepping-stone between east and west. Troops from the island, however, certainly did participate in the various conflicts, with Cretan archers accompanying Caesar on his expeditions in Gaul,[354] and Alexandria,[355] for example. In 44 BC, Mark Antony restructured the Cretan League (Koinon) and placed Kydas of Gortyn in command under the title of Cretarch.[356] The new Koinon was the 'concilium provinciae' of Crete,[357] like in most Roman provinces. Following the assassination of Caesar, Crete was assigned to Brutus, while Cyrene was offered to Cassius.[358] Both regions were considered insignificant and had no Roman troops during 42 BC, which was probably why the Senate offered them to the two generals.[359] In 27 BC, Octavian reorganised the whole province of Crete and made Gortyn the island's capital.[360] Gortyn enjoyed special treatment from Rome since they refused to fight against the legions of Metellus. In this war, Knossos was destroyed, leaving Gortyn the most powerful polis in Crete and, as a result, the ideal candidate for the province's new capital.

The New Province

In 27 BC, the single province of Crete and Cyrenaica was established.[361] The new province was one of the 'Provinces of the People' and was controlled by the senate through annually appointed praetors or proconsuls.[362] The limited historical and archaeological record does not give scholars an accurate image of the relationship between the two areas. As a result, the reasons behind the formation of such a province, whose regions were divided by more than 300 km of sea, are still unclear. The traditional connections (trade, pilgrimages, service of mercenaries, control of both areas by Marc Antony and Cleopatra) between the two

[354] Caes., *BGall.* 2.7.
[355] *BAlex.* 1.1.
[356] Di Vita 2010: 60-61; Lippolis 2016: 158.
[357] *Concilium* or *commune*, *koinon* in the east, the provincial council, an important element in the Roman system of provincial administration; although never, it seems, standardised. The councils held (? annual) meetings attended by representatives (local notables) from the constituent communities of part or all of a province or even several associated provinces. OCD: https://doi.org/10.1093/acrefore/9780199381135.013.1764.
[358] App. *B Civ.* 3.1.8, 3.2.12.
[359] App. *B Civ.* 3.5.36. Specifically, according to Appian '*Cyrene and Crete, devoid of troops, provinces which even our enemies despise as not sufficient for their safety*'.
[360] Lippolis 2016: 158.
[361] Dio Cass. 53.12.3; Strabo 17.3.25.
[362] Strabo 17.3.25. There was a reason why specific provinces were offered to the Senate. According to Dio Cassius, Augustus offered the senators regions who were unarmed and unprepared for battle while he kept those with organised legions and soldiers (53.12.3).

territories might have been one reason that drove Rome to this decision, but, surprisingly, they did not choose to follow the Ptolemaic example and join Cyrene with Egypt. The motive behind forming such a province could be explored in matters of geography, economy, and defence.[363] The distance between the two regions is smaller compared to the distance between the site of Cyrene and Alexandria, which is around 800 km of desert. Furthermore, Crete and Cyrene were not considered significantly rich in resources, while their locations might have helped control the Libyan Sea.[364] During the 2nd century BC, Cyrene often defected from the rest of the Ptolemaic Kingdom during this period of endemic warfare, which might have been another reason why the Romans did not want to join Cyrene with Egypt. Ptolemy Apion gave Cyrene to the Romans following his death in 96 BC. The region was officially announced as a Roman province two decades later, in 74 BC.[365] As a result, in the year 27 BC, when the union with Crete took place, Roman power had already been established in the so-called 'Green Mountain'.[366] The surviving sources do not provide enough evidence about the new province's circumstances, while the archaeological record is insufficient to support a detailed hypothesis. In AD 295-97, following the introduction of Tetrarchy, Crete was separated from Cyrene and turned into a single province that joined the Diocese of Moesia.[367]

The new Colony

The existence of the colony in Knossos is mentioned for the first time by Strabo, but without offering the date of its foundation.[368] The name of the new colony was Colonia Julia Nobilis Cnosus. It was probably founded soon after 27 BC, following the end of the Civil Wars. In 36 BC, land worth 1,200,000 HR around Knossos[369] was granted to the colony of Capua by Augustus.[370] Specifically, territories like Tylissos, Kasteli Maleviziou, Raukos, Assites and Lykastos were some of the regions where the new population settled.[371] Sackett notes the

[363] Chevrollier 2016: 15.
[364] A war against pirates or quick responses against rebellions?
[365] Oost 1963: 11.
[366] Horden and Purcell 2000: 67.
[367] Verona List V11; Sanders 1982: 6.
[368] Strabo 10.4.9.
[369] Vell. Pat. 2.81.1. '*Lands in Crete were given in return for these* (of the Campanian lands that were offered to the Veterans), *which yielded a richer revenue of a million two hundred thousand sesterces, and an aqueduct was promised which is today a remarkable agency of health as well as an ornament to the landscape*'.
[370] Dio Cass. 49.14.5.
[371] Baldwin Bowsky 2004: 100 (map 1).

colony must have founded later than the 36 BC and based his argument on a group of Knossos coins minted later in the early principate.[372] Furthermore, the colony is not mentioned in the Res Gestae since it was a civilian colony and not a military one.[373] The population of Colonia Iulia Nobilis Cnosus consisted of people arriving from Campania, and possibly a percentage of the old population (Cretans) that received Roman citizenship.[374] Furthermore, a group of traders existed in Gortyn (more about that in chapter 6). Considering the Capuans mentioned by Dio Cassius, they were probably provided with land around the new colony because their territories in Italy possibly had been allocated to veterans by Augustus.[375] Harrison notes that land must have also been given to veterans, but he is probably referring to the Capuan lands that were given in Italy.[376] Overall, Knossos was abandoned at the end of the 4th c. AD,[377] probably following the earthquake of AD 365.

Society and Economy

What was the impact of Rome upon Crete? Did the island turn into a 'Romanised' territory?[378] Following the arrival and establishment of the Roman administration, Crete came under a series of severe political and social changes that affected the island to such a degree that its character and landscape were transformed within less than a century. The Romans were aware of the island's economic potential and took advantage of the developing social and economic circumstances. Consequently, Crete became a commercial and cosmopolitan island that hosted traders, businessmen, and people from different ethnicities, regions, and cultural backgrounds.[379] Diverse populations settled, including Italians, Campanians, people from Cyrenaica, other immigrants, and Jews.[380] Also, many different imported religious cults have been identified, including the Egyptian gods (brought by the mercenaries),[381] the cults of Asklepios (sanctuaries in Lebena and Lissos, see chapter 4) and Serapis, the gods of the mystery cults, and more.[382]

[372] Sackett and Branigan 1992: 324
[373] Sanders 1982: 14
[374] Baldwin Bowsky 1997: 481; Baldwin Bowsky 2004; Chaniotis 2008: 86; Baldwin Bowsky 2011
[375] Sanders 1982: 14; Bowsky 2004: 97-98.
[376] Harrison 1993: 182.
[377] Ibid.: 14.
[378] Harrison 2000; Sweetman 2006. See also Wardle and Wardle 2004: 479-480.
[379] Chaniotis 2008: 94.
[380] Ibid.: 95.
[381] Hellenistic Crete: Di Vita 2000; Bricault 2005, for Imperial Crete: Vassilika 2004; Bricault 2005
[382] Chaniotis 2008: 95

In Hellenistic times the legal criteria of freedom, citizenship, and family defined the social structure of Crete. During the imperial periods, existing aristocratic families were replaced by a wealthy oligarchy active in various occupations and businesses, mainly traders.[383] The new circumstances brought changes to the island's political and social life, which in turn affected the entire economic system of Crete. The abandonment of *syssitia* freed agricultural production, which was formerly confined to a privileged warrior class who controlled most of the land. The changing circumstances allowed people from different classes to become involved in agricultural production. Furthermore, merchants and artisans appeared on the island, whose services were essential to this new economic world. These changes were mainly supported by the arrivals of foreign populations who seem to have taken advantage of the new circumstances.

One of the most significant reforms in Cretan society following the arrival of the Romans was the introduction of a new social criterion, which was based on class.[384] Previously the political system of the polis was based upon citizenship and descent, while the new economic circumstances allowed the existence of new businesses, which were supported by the arrival of foreign negotiators and emporoi.[385] Based upon previous studies of the epigraphic record, women seem to have had a more active role in the social life of Imperial Crete,[386] with the appearance of 'gynaikonomoi'[387] in Gortyn and the existence of communal baths used by the women in Arcades.[388] Furthermore, centralising power under one authority in Gortyn provided a greater chance for the island's interior, especially after the Hellenistic borders between poleis were abolished. As Chaniotis stated, 'the innovation of the Roman period is the development of an elite whose activities were not limited to a single city but extended to the entire island'.[389] Alongside this, more extensive tracts of land for agriculture improved and expanded the cultivation of more specialised products.[390]

[383] Ibid.: 91.
[384] Ibid.: 92.
[385] Baldwin Bowsky 1999, 'Citizenship was not important in an ideological sense since the end of the Cretan wars marked the end of a militant local patriotism (Chaniotis 2008: 92).
[386] Bowsky 1999: 333-336, 2000.
[387] *I. Cret.* IV. 252 (p.308-309).
[388] Ducrey and Effenterre 1973; Chaniotis 2008: 93.
[389] Chaniotis 2008: 93.
[390] Hadjisavvas and Chaniotis 2012: 166

Following the arrival of the Romans, only 15-16 settlements retained the status of polis on the island, with the remaining city-states solely united under the authority of the new Koinon ton Kreton for the first time in their history.[391] Previously, the division of the island and lack of central authority made joint-building activities impossible.[392] Consequently, the erection of large architectural constructions such as aqueducts is a feature that can only be seen after the arrival of the Romans since such works required a combination of knowledge, techniques, and labour for their construction, and of course, freedom in the crossing of inland borders.[393] Theatres also appeared for the first time in Crete during the Imperial times.[394] Theatres constituted an entirely Roman element and the most obvious evidence for the architectural and cultural changes that took place on the island. Other critical architectural additions following the Roman conquest were the introduction of new roads and highways that connected the inner cities.

Local Production and Trade (imports/exports?)

The social and political changes in Crete following the Roman conquest affected the local economy and its scale of production. The new political system, under the single authority of the proconsul, allowed faster decisions to be made, while the abandonment of the poleis' borders enabled the cultivation of more extensive lands, leading to higher levels of agrarian production.[395] The individual producer (landowner) was released from the previous social commitments (e.g. syssitia), and could decide the fate of their products/services. Consequently, the elimination of piracy, combined with the introduction of the island into the Roman sphere of influence, attracted foreign traders interested in exploiting Crete's local resources and its commercial potential. Based upon inscriptions and epigraphic sources, several Italian names appeared in Crete after the Roman conquest,[396] with very few examples of Cretan names being known.[397] While some of these would have been veterans offered land on the island, while Italian traders from Rome and Italy also arrived.[398] The Italian trading families that arrive in Crete, must have also been aware of 'the risks, of an

[391] Chaniotis 2008: 85; Rouanet-Liesenfelt 1994.
[392] Chaniotis 2008: 94.
[393] Ibid.: 85.
[394] Ibid.: 93.
[395] Chaniotis 1999.
[396] Baldin-Bowsky 1999.
[397] Chaniotis 2008: 87.
[398] Baldwin Bowsky 1994: 39-44; Baldwin Bowsky 1999; Baldwin Bowsky 2011; Trainor, Mitsotaki et al. 2019.

agrarian production oriented towards the exports',[399] since they were experienced in the eastern Mediterranean trade and sea transactions (more details in chapter 6). Compared to the Hellenistic period, where wine was made only for local consumption, the industry was booming during Imperial times. Simultaneously, the large number of amphora workshops by coasts indicates a great commercial activity for the island, entirely focused upon the agricultural power of Crete. Italian traders were likely the first to get involved in trade by exporting Cretan products. This can also be seen in Roman names inscribed in Cretan amphorae discovered outside Crete.[400] Their involvement can also be seen through the establishment of the production techniques of latifundia,[401] and the concept of the familia.[402] The introduction of latifundia and the decades of experience regarding long-distance trade were perhaps some of the founding elements that Italian trading families brought to Crete. Examples of new Roman rural sites are found in the valleys at Tourtouloi and Piokephalo in the east, Galatas valley and Stalos in the west, and Mesara valley in central Crete.[403] Furthermore, elite Cretans themselves became active in Imperial trade and other economic activities later and even adopted Roman names.[404] As a result of these changes, the increased levels of local production enabled exports to the rest of the Empire, which took advantage of the new trading and sailing routes introduced by incorporating the island into larger patterns of Roman maritime trade.[405]

The archaeological record and written sources provide scholars with information about the range of goods exported from Crete. Cretan wine, the famous *passum*, appears to have been the most popular Cretan product, with amphorae used for its transportation being found all over the Mediterranean (the role of wine in Cretan economy is discussed in

[399] Chaniotis 2008: 87.
[400] Baldin Bowsky 1999: 318.
[401] Chaniotis 2008: 87. As it was mentioned in the previous paragraphs, the low level of research development in Roman Crete causes interpretative difficulties in this particular case. Unfortunately, we do not yet know of specific areas where the *latifundia* could have been present due to the lack of large surveys along the plains. Of course, if one looks at the island more inclusively, the two most likely areas for research are the valleys of Messara and Kastelli (Kissamos). Future research, entirely focused on the agrarian means of production from the Imperial times, could shed light to valuable insights regarding the overall economy of the island.
[402] Bowsky 1999: 307. The term familia describes a large group of people under the authority of paterfamilias. Familia included free and unfree people who worked and served in the household's fields and covered their needs through their work (Finley 1999: 18).
[403] Sweetman 2011: 447.
[404] Baldwin Bowsky 1999; Baldwin Bowsky 2011.
[405] Another useful source of evidence for the identification of the developments of Cretan economy and its role in the Imperial market, comes from the analysis of the assemblages of imported pottery (see chapter 3).

Chapters 3,4, and 6). Cretan medical herbs and plants were also popular among the Roman Empire's high society,[406] with Theophrastus calling Crete the richest place in plants and medicinal herbs,[407] with more than 1200 species located on the island, the greatest variety in Europe.[408] Several healing recipes (miracles) containing Cretan herbs were found in inscriptions from Lebena.[409] They were perhaps connected to the healing procedures followed by the Asclepium (healing centre). Furthermore, Athenaeus refers to some Cretan recipes made from walnuts, filberts, almonds, and sesame,[410] and also mentions some medicinal herbs like anise, 'goat-thorn' and certain seaweeds. Consequently, it is clear from the textual sources that Cretan herbs were probably famous throughout the Roman world,[411] and that the island's conquest led to their export.[412] Other sources of economic activity appeared via the introduction of fish tanks, the export of lamps to Asia Minor and North Africa,[413] the murex industry for the extraction of purple dye,[414] and the export of Cretan whetstones,[415] which were famous even before the arrival of the Romans.

Conclusions

The political and military events that occurred in the Mediterranean during the 2nd and 1st c. BC brought the Hellenistic world to an end. The island of Crete was not exempted from these seismic social and political changes. Despite their inner differences, most Cretan city-states remained neutral in their foreign policy during the 3rd and 2nd c. BC, although this did not stop the Roman conquest of the island in 67 BC, which 'set an abrupt end to the conflicts of the Cretan cities and at the same time to their archaic social and economic order'.[416] Combined with the arrival of foreign populations, including traders and businessmen, and the introduction of the island to the Roman maritime networks, Crete entered into a period of profound cultural and economic transformation that today is mainly visible through the archaeological record. As a result, from an introverted economy

[406] See Chaniotis 1999: 219-220, for a detailed catalogue with the known medical herbs attested in Crete.
[407] Theophr., *Caus. Pl.* 9.15.8 and 9.16.3.
[408] Chaniotis 2008: 88.
[409] *I.Cret*. I. XVII. 8-21 (SEG 45-1237, SEG 50-734). See also Detorakis 1995.
[410] Ath., 14.57. See also Sanders 1982: 32.
[411] Raab 2001: 13
[412] Chaniotis 1999: 210.
[413] Sapouna 1998; Chaniotis 2008: 91.
[414] Papadakis 1983: 61.
[415] Tziligaki 2014; 2018. See also chapters 5 and 6.
[416] Chaniotis 1999: 212.

entirely based upon local production and transactions and a society based upon descent, Crete turned into an extroverted market, highly influenced by its new cosmopolitical character. Furthermore, the end of the endemic wars introduced a 'peaceful' period for the island, which lasted for several centuries.

The sea retained its importance in the daily life of Cretans, only this time its shores were safer than before, while the new economic activities developed that were different and less violent. The sea played an integral role in the economic flourishing of Crete, especially during the 1st and 2nd c. AD. The new province enabled better commercial control of the Libyan Sea and the south Aegean. At the same time, one should imagine that foreign ships from all over the Mediterranean must have been passing along the Cretan coasts following several different sailing routes, carrying various types of cargo from one part of the Empire to another.[417] Simultaneously, some massive construction works were introduced in the Cretan landscape, including the erection of aqueducts, cisterns, roads, several public buildings, and theatres. All the above-mentioned changes are highly supported by the archaeological evidence presented in the following chapters. Specifically, the next chapter 'Pottery Analysis', constituted the foundation for the overall interpretation of the archaeological material of this thesis, with imported pottery from key case studies setting the first stage for the analysis of the various maritime and trade networks, and consequently the reconstruction of Crete's maritime cultural landscape.

[417] See Chapter 6 for a detail analysis of the various sailing routes reaching Crete.

Chapter 3: Trading Patterns and Imports

The study of fineware imports and amphorae has the potential to reveal important information about the trading patterns of past societies. This chapter will draw upon the analysis of imported pottery from seven case studies on the island (Fig. 3.1). In terms of chronology, this chapter presents the developments and changes that occurred in the maritime trade of Crete during the Hellenistic (4th – 1st c. BC), Roman/Imperial (1st c. BC – 4th c. AD) and late Roman times (4th – 7th c. AD). While reading the current chapter, one should remember that amphorae, the main transportation vessels, show indications for a plethora of different production and trading networks around the Mediterranean. In contrast, finewares provide more precise evidence regarding connectivity, not only in matters of geography and distribution but also chronology since specific types of finewares were related to certain regions in particular periods.

The data collected from all seven sites allowed me to identify the different trading networks that the island was engaged with. These patterns are partially discussed at the end of this chapter, while the reconstruction and interpretation of the actual maritime networks that Crete was involved in are included in Chapter 6. Similar studies have shown well-developed trading patterns in Roman times, which continued over a long period.[418] The material was collected from published archaeological reports and earlier studies. The dates proposed for each case study refer to the broader date range of the vessels' production (fineware or amphorae) and not specifically to the chronology of the layer where these were found. The case studies comprise the harbour cities of Chersonesos, Kydonia, Hierapytna, and Itanos, and three cities located inland, Knossos, Gortyn, and Eleutherna. Knossos and Gortyn were chosen because of their undisputed leading role in Crete during the Hellenistic and Roman periods. In addition, both cities constitute the two most well-excavated sites on the island[419] and are favourably positioned on the north and south coasts.[420] As a result, a significant

[418] Peacock, Williams et al. 1991; Wolff 2002; Munn 2003; Lawall 2005.
[419] The fact that excavations have taken place in each site for more than a century provides scholars with a great range of evidence.
[420] Different harbours served different trading routes. For example, ports located on the north coast of Crete had more frequent relations with the Aegean or Attica, while ports in the south of Crete had more connections with the north African coasts.

number of imported ceramics ended up in the markets of these cities, presumably via their dependent harbours.[421]

On the other hand, the sites of Aptera or Lappa are not discussed in this chapter due to the thesis's overall economy.[422] The harbour sites of Phalasarna and Kissamos have not been considered either, despite their essential role in western Crete in the Hellenistic and Roman periods, respectively. This is because neither of them provides reliable ceramic data, [423] and because Phalasarna was no longer an important centrecrisi following the destruction of its harbour in 69 BC. For similar reasons, harbours, such as Matalon and Lebena (ports of Gortyn), or the islets of Dia and Leuke are also not included. Nonetheless, the role of these sites in the development of Imperial Crete will be illuminated in the following chapter, based on hitherto unknown evidence that was collected from fieldwork I conducted during my research.

Before presenting the case studies, it is important to mention that most of the coastal sites have been insufficiently studied, not least with regard to ceramic analyses. The lack of archaeological reports, even on sites that had been excavated relatively recently, has been an obstacle to the collection of primary data. The material was collected from published archaeological reports and earlier studies, as result this chapter shows the potential that such an analysis could bring to the Cretan studies.[424] Meanwhile, the continuous occupation of coastal sites restricts archaeological investigation and an increasing number of rescue excavations have produced an enormous amount of archaeological material that remains unpublished. As a result, what follows is a first attempt at bringing all the available published material together.

3.1 Case Studies

Chersonesos

Chersonesos was one of the most important harbours of the north coast and perhaps the greatest commercial centre of eastern Crete (Fig. 3.2). According to Strabo, Chersonesos

[421] See chapter 4.2, 'Depended Harbours and Administrative Centres'.
[422] Baldwin Bowsky and Gavrilaki 2010: 214; Baldwin Bowsky 2019. In a future study regarding the trading patterns introduced in Imperial Crete these two sites would have been more than useful.
[423] For Phalasarna see Hadjidaki 2019; Valle 2020.
[424] The author's main interpretive problems in writing this chapter were brought to the reader's attention in chapter 1, 'Methodology'.

operated as the harbour of Lyttos, and had a temple dedicated to Britomartis.[425] Alongside its two great natural anchorages, there was also a concrete-made marine installation, probably for mooring. The remains of this installation hint at a harbour with high commercial activity. The first coastal and underwater expedition in Chersonesos took place in 1955 by the British pioneers John Leatham and Sinclair Hood.[426] Their contribution remains essential, as no other systematic research has been conducted in the harbour.[427] Most of the archaeological investigations that have taken place and produced evidence of the Hellenistic and Roman periods are mainly rescue excavations necessitated by the rapid expansion of the tourist industry. While these excavations brought to light quantities of imported ceramic assemblages, very little has been studied. Our only source for pottery imported to Chersonesos is a brief overview of relevant finds from these excavations, recently published by Nikos Vasilakis.[428] Even though his study does not present any statistics or numbers of finds, it still offers a general picture of the ceramic imports arriving in Crete from the Hellenistic through to the Byzantine period. The material discussed here emerged from the tens of rescue excavations conducted in Chersonesos by the Ephorate of Antiquities (Herakleion) either by the side of the port or at the central part of the modern town.

Hellenistic Period

Finewares: The finewares attested from this period were mainly imported from Athens and Asia Minor. The most common types are relief bowls, flasks with white bottoms, and red-glazed pelikes from Athenian workshops, mainly found in cemetery burials (Fig. 3.3).[429] These imported finewares largely emerged from rescue excavations in the coastal parts of western Chersonesos.[430]

Amphorae: Vasilakis notes the presence of sealed commercial wine amphorae but does not elaborate any further.[431]

[425] Strabo 10.4.14.
[426] Leatham and Hood 1959: 266-273.
[427] See chapter 1 Introduction and the catalogue of sites (**1**) for more.
[428] Vasilakis 2020.
[429] Galanaki and Chaniotis 2006.
[430] Vasilakis 2020: 423.
[431] Ibid.: 422.

Roman Period

Finewares: Roman imported finewares appear in the archaeological record of Chersonesos in the 1st c. BC with Eastern Sigillata B (ESB) (Fig. 3.4) and continue into the 4th c. AD with evidence of Italian Sigillata (ITS), Çandarli ware (Fig. 3.5), and Africa Red Slip ware (Table 1). The principal supply region is North Africa, with African Red Slip (ARS) being the dominant fineware import from the 2nd to the 4th c. AD (ARS-D). It should be noted that cooking wares also accompanied these finewares (Hayes Forms 23, 181, 182, 196 and 197). These are the only imported cooking wares recorded to date in Chersonesos. At the time of the earthquake in AD 365, the main fineware continued to be ARS, with Hayes 50 being the most common form (Fig. 3.6). No firm indications of these types of pottery can be seen in Chersonesos after AD 365, demonstrating a significant break in the nature of the site.

Type	Form	Region of Production	Date
Italian Sigillata	-	Italy	1st – 2nd c. AD
Eastern Sigillata A	-	Syria	1st c. AD
Eastern Sigillata B	-	Western Asia Minor	1st c. BC – 1st c. AD
Çandarli ware	-	Western Asia Minor	1st – 3rd c. AD
African Red Slip ware	Hayes 8 and 9	North Africa coasts	

Table 1: Roman Finewares from Chersonesos (data from Vasilakis 2020).

Amphorae: A few amphorae dated between the 1st and 4th c. AD have also been attested along the assemblages studied by Vasilakis, with the most common being the Benghazi MRA 7 and 5, the Spanish Dressel 14 (Fig. 3.7), and the Mauritanian Dressel 30 (Table 2).

Type of Amphora	Region of Production	Date
Benghazi MRA 7	Aegean	2nd – 4th c. AD
Benghazi MRA 5	Black Sea	3rd – 4th c. AD
Dressel 14	Spain	1st – 3rd c. AD
Dressel 30	Mauritania	3rd – 4th c. AD

Table 2: Roman Amphorae from Chersonesos (data from Vasilakis 2020).

Late Roman Period

Finewares (Table 3).: The finewares attested in Late Roman layers from Chersonesos (4th– 5th c. AD and onwards) are the African Red-slip ware (ARS), mainly the category of big dishes (pinakia), and the Late Roman C ware/Phocaean Red Slip ware (LRC/PRS), which conquered the markets in the 5th c. AD (Fig. 3.8).

Type	Form	Region of Production	Date
ARS-D	32/58, 58, 59	North African coasts	4th c. AD
ARS-D	60, 61, 64,67, 68, 70	North African coasts	4th – 5th c. AD
ARS-C	50	North African coasts	4th c. AD
LRC/PRS	Hayes 1, 2, 3, 4, 5	Phocaea	5th c. AD – onwards

Table 3: Late Roman Finewares from Chersonesos (data from Vasilakis 2020).

Amphorae: During the Late Roman period (from the 4th to the 7th c. AD), the LRA (Late Roman Amphora) amphorae are the main transportation vessels, as suggested by the rescue excavations in Chersonesos. In particular, the archaeological record from Chersonesos produced five types of amphorae, mainly from the eastern Mediterranean: the Benghazi

LRA 1 (Fig. 3.9), the Benghazi LRA 2 (Fig. 3.10), the Carthage LRA 3,[432] the LRA 4 and 5 (Table 4). These vessels were mainly used to transport wine, honey, and garum. Finally, the Tunisian LR8 is also attested among the assemblages.[433]

Type of Amphora	Region of Production	Date
Benghazi LRA 1	Cyprus, Cilicia, Antiochia	5th – 6th c. AD
Benghazi LRA 2	Aegean	4th – 6th c. AD
Carthage LRA 3	Asia Minor	4th – 7th c. AD
LRA 4/5	Palestine	4th c. AD
Benghazi LRA 8	Tunisia	4th – 6th c. AD

Table 4: Late Roman Amphorae from Chersonesos (data from Vasilakis 2020).

Knossos

Knossos controlled north-central Crete in Hellenistic times and became a Roman colony a few decades after the Roman occupation of the island (Fig. 3.11). The new colony is mentioned for the first time by Strabo, who does not provide a date for its foundation.[434] This probably occurred soon after 27 BC, following Octavian's domination in the Mediterranean.[435] The site of Knossos has been under excavation since the late 19th, early 20th century,[436] and a rich archaeological record is available today.[437] In 1935, the excavations of the Roman 'Villa Dionysos' by R. W. Hutchinson and M. R. E. Gough brought to light some remarkable mosaics.[438] The pottery analysis results presented in this chapter were processed during excavations that were conducted by O.T.P.K. Dickinson (1967), P.

[432] The carthage LRA 3 has a very strong presence all around the city, and it is probably associated with the overall growth that the Aegean undergoes following the growing importance of Byzantium.
[433] Vasilakis 2020: 425-426.
[434] Strabo 10.4.9.
[435] See chapter 2.3, 'The new Province'.
[436] Hogarth 1899.
[437] Coldstream, Eiring et al. 2001.
[438] Hayes 1983: 97.

Mountjoy and P. A. Cartledge (1971), J. E. Jones (1973), and L. H. Sacket.[439] The pottery from Knossos was mainly studied by J.W. Hayes.

Hellenistic Period

Finewares: Most of the finds dated to the Hellenistic period are of local production, with dozens of cylindrical drinking cups attested in various sizes.[440] The earliest Hellenistic finewares imported at Knossos date around the 2nd c. BC,[441] and pertain to mould-made bowls and a small number of unguentaria from unidentified regions in Asia Minor (Figs. 3.12, 3.13).[442] Eastern Sigillata A probably represents the main type of finewares imported during the 1st c. BC. From the central Mediterranean only Italian thin-ware has been found in Knossos.

Amphorae: Only two examples of Hellenistic amphorae have been attested in Knossos, which were imported from Cos and Paros respectively. The Parian amphora has a stamp with the letters 'ΠΑ' on its handle (Fig. 3.14).[443]

Roman Period

Finewares: The Eastern Sigillata A (ESA) found in Knossos probably originated from the regions of Syria or eastern Cilicia (Fig. 3.15).[444] Both ESA and Cypriot Sigillata (Fig. 3. 16)[445] were replaced by the Italian Sigillata (ITS),[446] which monopolised the markets of Knossos in the first half of the 1st c. AD (Fig. 3.17, 3. 17A).[447] Between the second half of the 1st c. AD and the 2nd c. AD, Eastern Sigillata B (ESB) became the main imported fineware in Knossos (Fig. 3.18).[448] Pontic Sigillata only appears for a short period in the 2nd c. AD (Fig. 3.19),[449] before the introduction of finewares originating from Çandarli, a coastal site next to

[439] Sacket et al. 1992: 148.
[440] From miniature cups to jugs. Coldstream, Eiring et al. 2001: 92.
[441] Ibid.: 90. From the Classical period down to the 3rd c. BC, Attic wares mainly imported in Knossos.
[442] Ibid.: 90.
[443] Ibid.: 129. The 'ΠΑ' probably belongs to the word 'ΠΑΡΙΩΝ'.
[444] Coldstream, Eiring et al. 2001: 139. Three different shapes are found: 1) platers with broad bases and decorated floors (1st c. BC); 2) flat-floored Italian shapes (1st c. AD); 3) flat based dishes and bowls (1st c. AD). For a description of the ware see Kenrick 1985: 223.
[445] For a detailed description of the ware see Hayes 1967: 66.
[446] Coldstream, Eiring et al. 2001:143. For a detailed description of the ware see Kenrick, Berenice III, 1, 128.
[447] Ibid.
[448] Ibid.: 143. Since the first phases of this new trend borrowed elements from the Italian tradition, it has been suggested that the workshops at Tralles were under Italian control. The main wares observed in Knossos are conical bowls, shallow bowls, and large and small dishes.

Pergamon, which supplied the needs of the settlements of the north coasts of Crete for the following century. [450] By the end of the 2nd c. AD, Çandarli ware was the most popular imported ware in Knossos (Fig. 3.20).[451] It was later replaced by African Red Slip wares, which conquered the markets of the eastern Mediterranean and Crete in the end of the 3rd c. AD (Table 5).[452]

Type	Forms (main)	Region of Production	Date
Italian Sigillata	205, 206, 208, 218, 217, 228, 208,210, 224	Italy: Arretium (Tuscany), Puteoli	1st c. BC – 2nd c. AD (1 AD to AD 125)
Cypriot Sigillata	4B, 5, 10, 31A, 34, 37, 38, 40, 44/6, 48	Cyprus	1st c. BC – 1st c. AD, (25 BC to AD 25)
Eastern Sigillata A	3, 4, 7, 9, 12, 22, 24, 30, 33, 35, 42, 101	Syria, Eastern Cilicia	1st c. BC – 1st c. AD
E. Sigillata B (1, 2)	5, 9, 23, 5-7, 29-30, 35, 58, 59, 60, 62B, 70, 80	Western Asia Minor: Tralles, Ephesus	1st c. BC – 1st c. AD
Pontic Sigillata	K387, K393, K389	BlackSea: Crimea	1st - 4th c. AD
Çandarli Ware	L19, L26/AB, L17, 9, H1, H2, H3, H4, H5	Western Asia Minor	2nd - 3rd c. AD

Table 5: Roman Finewares from Knossos (data from Coldstream 2001).

[449] For a description of the ware and fabric, see Coldstream, Eiring et al. 2001: 143. The Knossos finds consisted of a series of bowls and shallow dishes usually decorated with different ornaments, but mainly with vegetal designs.
[450] Ibid.: 145.
[451] Ibid.: 145. For a detailed description of the Çandarli ware and its fabric see Hayes 1972: 252.
[452] Ibid.: 147.

Amphorae: The excavations at the Villa Dionysos have furnished more than 50 different types of amphorae from various regions across the Mediterranean (Table 6).[453] In particular, North Italian amphorae, Spanish amphorae, sub-Koan types, African Types, Aegean, and eastern Mediterranean types are attested among the excavated layers in Knossos and Villa Dionysos. (Fig. 3.21-3.25). Most of the amphorae date between AD 150 – AD 250.[454]

Type of Amphora	Region of Production	Date
N. Italian: Hayes 7, 8	Italy: Tuscany, Puteoli	1st – 2nd c. AD
Spanish: Hayes 9,11	South Spain	1st c. BC – 1st c. AD
Sub-Koan: Hayes 19, 21	Syria, Eastern Cilicia	1st c. BC – 1st c. AD
African: Tripolitanian, Mauritanian	North African Coasts	1st c. BC – 1st c. AD
Aegean: Hayes 34	Black Sea	1st – 4th c. AD
Eastern Med: Hayes 35	Western Asia Minor	2nd – 3rd c. AD

Table 6: Roman Amphorae from Knossos (data from Hayes 1983).

Late Roman Period

Finewares: Red gloss terra sigillata was gradually replaced during the 3rd and 4th c. AD by a type of smooth ware with red-slipped surfaces that first appeared around the 1st c. AD in Carthage. Similar kinds of production centres were occur later in Tunisia and eastern Algeria. Based on archaeological data, the most extensively produced and exported ware of the

[453]Hayes 1983: 158.
[454] Ibid.: 141.

period was ARS (Fig. 3.26).[455] At the end of the 3rd c. AD, ARS, dominated the markets of the Empire, including the eastern Mediterranean and Rome. [456] Several regional imitations, including from western Asia Minor, appeared between AD 350-500. In Knossos, ARS constituted the main fineware dating to the late Roman period, with more than 200 sherds found among the studied assemblages.[457] On the other hand, the quantities of LRC/PRS are distinctively less (Fig. 3.27). The main ware was a shallow dish with two different forms (Table 7).[458]

Type	Form	Region of Production	Date
African Red Slip ware	8A, 27, 31, 45A, 50A/B, 58, 59B, 61A, 171.	North African coasts	1st – 4th c. AD
LRC/PRS	Shallow dishes and bowls	Phocaea	5th – 7th c. AD

Table 7: Late Roman Finewares from Knossos (data from Sackett and Branigan 1992; Coldstream, Eiring et al. 2001).

Amphorae: Unlike the imported finewares, no clear evidence is available about any imports of Late Roman amphorae in Knossos.[459]

Others

A few more finewares from the Late Roman period were discovered in Knossos (Table 8), including thin and fragile tableware, represented by cups and beakers that accompanied the Sigillata-made dishes and bowls (Fig. 3.28). Some of these were produced using moulds,

[455] Coldstream, Eiring et al. 2001: 147. See also Hayes, LPR, 13-14.
[456] Ibid.: 147.
[457] Ibid.: 149. Sackett and Branigan 1992: 162. For a detailed description of the ware and the type of fabric, see the process Hayes 1972: 323 and Kenrick 1985: 379, respectively.
[458] The first form was influenced by Çandarli ware, while the second is similar to the ARS, not only in matters of shape but also in matters of decoration, with stamps and a band of rouletting usually decorating the outside part of the rim. Both shapes seem to have been replaced by the so-called 'Classic' Phocaean ware shape, which remained in markets from AD 450 to AD 550.
[459]According to Sanders no pottery dated to the late Roman times attested in Knossos, evidence for the city's abandonment/destruction, perhaps due to the AD 365 earthquake (Sanders 1982: 152).

while most of them were decorated with rouletting and barbotine ornaments.[460] A small number of angular carinated bowls from the region of Knidos have also been discovered in Knossos (Figs. 3.29, 3.29A).[461] Two well-preserved examples have survived, a bowl and a lagynos with plant-motif decoration on their exterior. Moreover, a shallow cup (probably a skyphos) decorated with vines in relief dating to the 1st c. AD and an impressive glazed vessel with a symposium scene, also in relief, were found in excavations at the Villa Dionysos. Unfortunately, the unique example of the decorated symposium vessel is not enough to provide scholars with a clear hypothesis about its dating.[462]

Type	Form	Region of Production	Date
Thin-Walled ware	Knossos Hayes BSA 66, no. 17	Italy, Aegean, Asia Minor	1st – 3rd c. AD
Knidian ware	Bowls, lagynos, jug	Black Sea	2nd c. AD
Glazed ware	Skyphos, relief-decorated vessel	Western Asia Minor	2nd – 3rd c AD

Table 8: 'Other' Finewares from Knossos (data from Coldstream 2001).

Hierapytna

Hierapytna was one of the most prosperous centres of eastern Crete, particularly during the Imperial period (Fig. 3.30).[463] Marine facilities have been located in the bay and underwater.[464] To the north of the city lies the Gulf of Mirabello. Based on previous studies,

[460] Coldstream, Eiring et al. 2001: 151. Three different groups of thin-walled ware have been discovered in Knossos. The first dates in the mid-late 1st c. AD and was imported from North Italy. This black slip ware (the glaze covers both the interior and exterior of the ceramic) has been discovered in several contexts. The other two types of thin-ware discovered in Knossos probably derived from the Aegean and western Asia Minor, and constituted imitations of the North Italian one.

[461] Ibid.: 151. Knidian ware is considered a rare find in Knossos. Nonetheless, it was a popular import in the rest of the Mediterranean, while it has also been found in the northern provinces of the Empire.

[462] Ibid.: 151-152.

[463] Gallimore 2011.

[464] Mourtzas and Kolaiti 2017.

the Gulf was probably under the influence of Hierapytna,[465] especially the site of Mochlos and its strategic port along the north coast.[466] The harbour of Hierapytna was first surveyed and studied by Nikos Mourtzas, who reported some submerged antiquities, mainly from Hellenistic and Roman times, including two breakwaters.[467] Although several rescue excavations have recently been undertaken,[468] the evidence presented in this chapter derives entirely from the pottery analysis conducted by Scott Gallimore as part of his PhD thesis.[469] The three assemblages come from three rescue excavations in the Assariotaki, Pangalou, and Yiomelaki plots.[470] All three plots are located in the Viglia district, in the western part of the town. Gallimore's work constitutes the only available contribution to the study of ceramic assemblages from Hierapytna. A significant portion of the ceramic material is comprised of Hellenistic pottery (one quarter of the total number of sherds). Many of the vessels from the Hellenistic period are identified by a type of material called East Cretan Cream Ware, also known as ECCW.[471]

Hellenistic Period

Finewares: Finewares from various regions were imported in Hierapytna during the Hellenistic period (Table 9). They comprise of ceramics from Attica, mainly cups, kantharoi, dishes, and kraters (Fig. 3.31),[472] a small number of Aegean cups (Fig. 3.32),[473] a single rim sherd of a lagynos from Western Asia Minor (Fig. 3.33) and a large quantity of a type of grey ware from the Ionian Sea and Sicily (Fig. 3.34).[474] Furthermore, several fragments of a type of mould-made bowl have also been found, which was probably produced in Attica (Fig. 3.35).[475] Finally, a well-decorated sherd of Pergamene relief ware was also among the imports[476] (Fig. 3.36). Most of the wares date between the 4th and 1st c. BC.

[465] Haggis 1996a; 1996b.
[466] Vogeikoff-Brogan 2004: 217.
[467] Mourtzas 1990.
[468] See chapter 1.1, 'A New Archaeological Discipline'.
[469] Gallimore 2011; 2015.
[470] From the Assariotaki plot Gallimore studied approximately 70% of the pottery assemblage, while from the other two, approximately a 20-25% of the respective material (Gallimore 2015: 54).
[471] Gallimore 2015: 71.
[472] Gallimore 2011: 209.
[473] Ibid.: 210. Unfortunately, no further information is given regarding the 'Aegean' origins of these cups.
[474] Ibid.: 213. Made out of Campana C fabric, see Scott 2008: 9.
[475] Gallimore 2011: 216-217.
[476] Ibid.: 218. For a description of the decoration, see also p. 218.

Type of ware	Form	Region of Production	Date
Attic ware	Cups, kantharos, plates, Krater	Attica	1st – 4th c. BC
Aegean ware	Bolsal cup, Carinated cup	Knidos	1st c. BC – 2nd c. AD
Lagynos ware	Lagynos (1 piece)	Western Asia Minor/ Pergamos	3rd – 2nd c. BC
Grey ware	Cups. Bowls, plates, jars	Aegean/Ionian, Sicily (?)	Late Hellenistic
Mould-made bowls	Bowls	Attica, Asia Minor	3rd – 1st c. BC
Pergamene Sigillata	Skyphos(?)	Western Asia Minor	1st c. BC

Table 9: Hellenistic Finewares from Hierapytna (data from Gallimore 2011; 2015).

Amphorae: All amphorae imported into Hierapytna during the 2nd and 1st c. BC originate from the Aegean Sea and Asia Minor (Table 10). The only exception is a single Dressel 1B amphora from Italy (Fig. 3.37).[477] The most commonly found amphora in the three plots were from Knidos (Fig. 3.38),[478] followed by Rhodian (Fig. 3.39).[479] On the other hand, the Kydonia amphorae constituted a rare import not just for the archaeological record of Hierapytna but generally for Crete in the Hellenistic period (Fig. 3. 40). A single Thasian stamped amphora was also found, dating probably after the mid-3rd c. BC (Fig. 3.41). Finally, three stamped amphorae handles (two Knidian, one Rhodian) were also attested among the assemblages studied by Gallimore (Fig. 3.42).[480]

[477] Gallimore 2011: 237.
[478] Ibid.: 238.
[479] Ibid.: 239.
[480] Gallimore 2011: 242-244.

Type of Amphora	Region of Production	Date
Dressel 1B	Italy	1st c. BC
Knidian	Knidos	2nd c. – 1st c. BC
Koan	Cos	2nd c. – 1st c. BC
Rhodian	Rhodes	2nd c. – 1st c. BC
Thasian	Thasos	3rd c. BC

Table 10: Hellenistic Amphorae from Hierapytna (data from Gallimore 2011; 2015).

Roman Period

Finewares: In Hierapytna, Roman finewares appear in the archaeological record around the 2nd and 1st c. BC and are mainly represented by ESA[481] (Figs. 3.43, 3.43A) and ESB[482] (Fig. 3.44). They continue into the 4th c. AD if the evidence from a single fragment of Cypriot Sigillata is taken into account (Fig. 3.45).[483] There is a strong presence of ITS during the 1st and 2nd c. AD (Figs. 3.46, 3.46A),[484] with Çandarli ware coming to dominate the markets from the 3rd c. AD onwards (Fig. 3.47).[485] A small sample (four pieces) of Pontic sigillata (Fig. 3.48)[486] and a single sherd of Corinthian Relief Ware was also identified.[487]

[481] Schneider 1995: 416; Schneider 2000: 531-532. Most of the finds are sherds of big dishes.

[482] There are two main types of ESB, the ESB1 and ESB2, with their main difference being that EBS1 is considered finer since it is harder and contains less mica.

[483] Generally, in Crete, Cypriot sigillata is quite rare, with Knossos being the only site where a significant number of fragments have been identified. Specifically, 62 fragments were discovered in Knossos (Sackett and Branigan 1992: 152). Even during the Ayiofarango survey, only one piece was identified as Cypriot sigillata (Blackman and Branigan 1975: 31).

[484] Italian Sigillata forms: 20 (203-204), 21 (205), 22 (206), 23 (207), and 34 (208). Three planta *pedis stamps* have also been recorded. Baldwin Bowsky 2009: 160-162, tables 1a-c; 2011: 1201-121, tables 8.1a-b.

[485] This type of ware is quite common in Crete; it has been found in excavations at Chania, Eleutherna, Gortyn, Knossos, Kommos, Lappa, Chersonesos, and recently in Lyttos. Chania: Raab 2001: 72. Eleutherna: Yangaki 2005: 103-104. Gortyn: Gortina II, 130-1; Gortina V.3, 33-5. Knossos: Coldstream 1973: 47; Hayes 1983: 104; Warren 1988: 91, 93; Sackett and Branigan 1992: 158-159. Kommos: Shaw, Shaw et al. 2000: 314-315. Lappa: Gavrilaki-Nikoloudaki 1988: 61-2 nos. Π4341-4341β.

[486] Elsewhere in the island, Pontic Sigillata has only been found in Knossos and Kommos. More than 50 shapes of Pontic wares have been catalogued by Zhuravlev with at least three subdivisions: A, B, and C (Zhuravlev 2002: 255-260).

[487] Gallimore 2015: 101

Type	Form	Region of Production	Date
Italian Sigillata	Hayes: 20, 22, 23, 34	Italy: Tuscany, Puteoli	1st – 2nd c. AD
Cypriot Sigillata	*Atlante II* form P40 (crater)	Cyprus	1st c. BC – 1st c. AD
Eastern Sigillata A	*Atlante II*: forms 3, 4 + forms 22, 17	Tarsos and Antioch	2nd c. BC
Eastern Sigillata B	*Atlante II*: ESB1: 14, 29, 36, ESB2: 53, 60, 62A, 70, 80	Tralles and Ephesus	1st c. BC – 1st c. AD
Pontic Sigillata	Atlante II: forms 4, 10	Black Sea	2nd c. AD (?)
Çandarli Ware	*Atlante II* form L19, H1, H2, H3, H4	Western Asia Minor	3rd c. AD

Table 11: Roman Finewares from Hierapytna (data Gallimore 2011; 2015).

Amphorae: Most of the Imported amphorae arriving in Hierapytna during the Roman period were originally produced on the North African coasts (Fig. 3.49).[488] A smaller number of examples derives from Italy[489] (Fig. 3.50) and the Iberian Peninsula (Fig. 3.51),[490] with a single rim sherd from an Amphore Egyptienne 3 (Egypt 46) attested among the assemblages studied and presented by Gallimore (Fig. 3. 52).[491]

Region of	Type of Amphora	Date

[488] Gallimore 2011: 345-346. For the Tripolitanian see also Zevi and Tchernia 1969.
[489] Ibid.: 350. The Dressel 2-4 (Italian), one of the most important western wine transportation vessel, and on the analysis of its toe suggested that it was produced in Campania (Peacock 1977: 149-153).
[490] Gallimore 2011: 351. The Beltran 1/Dressel 7 was probably used for the transportation of garum (Beltrán Lloris 1970: 388-420). See also: University of Southampton (2014) *Roman Amphorae: a digital resource* [data-set]. York: Archaeology Data Service [distributor] https://doi.org/10.5284/1028192
[491] Ibid.: 347. For the Egyptienne see Empereur and Picon 1989: 234-235.

Production		
Italy: Campania	Dressel 2-4 (Italian)	1st – 2nd c. AD
Spain: Cadiz	Beltrán 1/Dressel 7-11	1st – 2nd c. AD
North Africa: Libya (?)	Tripoliatanian	2nd c. AD
North Africa: Tunisia	Africana 1/Keay 3A	1st – 2nd c. AD
North Africa coasts	Dressel 30/Keay 1	2nd – 3rd c. AD
Egypt	Amphore Egyptienne 3 (AE3)	2nd c. AD

Table 12: Roman Amphorae from Hierapytna (data from Gallimore 2011; 2015).

Late Roman Period

Finewares: African Red Slip ware (ARS) was the most popular ware imported to Hierapytna during the Late Roman period (Table 13). Most of the evidence consists of dishes (Fig. 3.53).[492] Moreover, the LRC/PRS was first introduced to Mediterranean markets around the mid-4th c. AD and remained in use until the 7th c. AD (Figs. 3.54, 3.54A).[493] With regard to Cypriot Red Slip (Late Roman D) ware, only one piece of this kind was identified in the excavations at the three plots. It is a rare find in Crete, considering that it has only been found in a handful of sites across the island.[494] Similarly, only one piece of Egyptian Red Slip has been attested in Hierapytna, which is again a rare find in Crete (and generally in Greece), except for Gortyn, where several examples of this type of ware were found in the Praetorium.[495]

[492] Gallimore 2011: 276. Most of the wares in Hierapytna are production C, which dates from around AD 200 and was mainly produced in east-central Tunisia (Atlante, Carandini et al. 1981: 14).

[493] Around the 5th c. AD, it replaced ARS and is the most well-attested Late Roman ware in Crete since it has been found in more than 20 sites (Gallimore 2011: 281). Dello Preite showed that more than 57% of the imported ware in Late Roman Crete was PRS (Dello Preite 1984: 197, table 13).

[494] These include, the sites of Gortyn, Knossos, and in smaller quantities at Itanos, Ayios Savvas, and Kissamos (see Gallimore 2011: 287).

Type	Form	Region of Production	Date
African Red Slip	ARS-A, ARS-C (forms 33, 45A, and 50)	Carthage, Tunisia	4th c. AD, (6th–7th c. AD, fewer examples)
LRC/PRS	Hayes: 3 and 10	Phocaea or Grynion	4th – 6th c. AD
LRD	Dish	Syria, Eastern Cilicia	6th – 7th c. AD
Egyptian Red Slip	Flask	Egypt	?

Table 13: Late Roman Finewares from Hierapytna (data from Gallimore 2011; 2015).

Amphorae: Amphorae from across the Mediterranean were imported to Hierapytna during the Late Roman period (Table 14). From the 3rd c. AD onwards, several types were imported from the eastern Mediterranean, such as Cilicia and Pamphylia (Fig. 3.55).[496] Simultaneously, large quantities (most of the LR are Aegean) of vessels from different islands and coastal regions around the Aegean are attested among the ceramic assemblages (Fig. 3. 56), [497] with amphorae from the north African coasts also arriving in the 4th and 5th c. AD (Fig. 3.57).[498] Significantly smaller numbers of imports were coming from Italy and Spain (Fig. 3.58),[499] with even fewer from Egypt; just a few fragments of the LR7 type (Fig. 3.59).[500] Finally, wine containers from the Gaza region[501] and more generally from Syria-Palestine appear in the city for a period of three centuries, 4th - 6th c. AD (Fig. 3.60).[502]

[495] Egyptian Red-Slip A has also been identified in small quantities at Gortyn (Gortina V.3: 68), Eleutherna (Vogt 2004: 930), and Hierapytna (Gallimore 2011: 288).
[496] For the Agora G199/MR4 see Gallimore 2011: 338, 340; for the Pamphylian see Gallimore 2011: 341.
[497] For the Kapitän II/Niederbieber 77 see Gallimore 2011: 338. Generally, Aegean amphorae constitute the second largest category of amphorae discovered around Crete. See also Arthur 1998: 167 considering the Agora M273 and the LRA2.
[498] For the Africana 1/Keay 3A see Gallimore 2011: 343-34; for a detailed description, see Zevi and Tchernia 1969. For the the Keay 25 and the Keay 62 see Gallimore 2011: 345; and for the amphora's description see Keay 1984: 335-338.
[499] Gallimore 2011: 348.
[500] Ibid.: 346. For the LR7 see Bailey 1998: 129.
[501] Mayerson 1992.
[502] Gallimore 2011: 352.

Region of Production	Type of Amphora	Date
East Med: Cilicia	Agora G199/MR4	3rd – 4th c. AD
East Med: Pamphylia	Pamphylian	4th c. AD
Aegean	Kapitän II	5th – 6th c. AD
Aegean	Agora M273	5th – 6th c. AD
Aegean	LRA1	3rd – 6th c. AD
Aegean: Chios, Knidos, Kounoupi (Argolid)	LRA2	4th c. AD
North Africa: Tunisia	Africana 1/Keay 3A	4th c. AD
North Africa coasts	Keay 25	4th – 5th c. AD
North Africa coasts	Keay 62	6th – 7th c. AD
Egypt	LRA7	4th - 7th c. AD
Italy: Calabria	Keay 52	3rd – 4th c.AD
Italy: Sicily	MR1	5th – 6th c. AD
South Spain	Beltrán 2A	7th c. AD
Syria-Palestine	LRA 4	4th – 6th c. AD

Syria Palestine	LRA 5/6	5th – 6th c. AD

Table 14: Late Roman Amphorae from Hierapytna (data from Gallimore 2011; 2015).

Itanos

Itanos was one of the most significant centres of eastern Crete during the Hellenistic and Imperial periods (Fig. 3.61). Itanos remained the most important centre in northeast (NE) Crete and was a point of connection with the southeast (SE) Aegean islands and Asia Minor. The seismic tomography that took place on the site in 1997 demonstrated that the port was located onshore and west of the Gulf of Itanos at a distance of about 100 m from the modern bay.[503] Various geophysical surveys over a five-year project, initially searched for the ancient port and then mapped the buried features of buildings, streets and walls of the ancient settlement.[504] A series of excavations also occurred on the site during the 1990s by the École Française d'Athènes.[505] Unfortunately, most of the evidence remains unpublished, with only a few papers discussing Hellenistic and Late Roman/Byzantine Itanos. There are no studies of the ceramics from the Imperial period.

Hellenistic Period

Finewares: Several imported finewares from the Hellenistic period have been excavated at Itanos. Most were found in the inhabited area of the ancient polis, with a smaller number from the necropolis (Table 15). These comprise a group of vases from Rhodes,[506] a crater, and an amphora with West Slope decoration probably originating from Pergamum.[507] A few fragments of a lagynos date to the Hellenistic period. A small number of Megarian bowls dating from the 2nd to 1st c. BC, originating from the Aegean or Asia Minor, have also been identified.[508] Moreover, a series of local and imported unguentaria have been attested.[509] A type of Grey ware of non-local fabric is also attested in the assemblages studied, but it does

[503] Vafidis, Manakou et al. 2003: 173. The harbour lies under a layer of sediments (colluvium): no excavations were undertaken at the site of the port. Sites like Itanos and Zakros were under the influence of Ptolemies during the Hellenistic period (see chapter 2.2., 'A self-sufficient Economy').
[504] Vafidis, Manakou et al. 2003; Vafidis, Economou et al. 2005.
[505] Kalpaxis, Schnapp et al. 1995; Greco, Kalpaxis et al. 1996; 1997; 1998.
[506] Apostolakou, Greco et al. 2004: 1001.
[507] For a detailed description of the two vases, see Apostolakou et al. 2004: 1001-02.

not constitute a coherent group.[510] Most of the imported finewares to Itanos were similarly popular in other large Hellenistic centres (Fig. 3. 62), such as Athens, but they are not attested in any other Cretan city.[511]

Type	Form	Region of Production	Date
Rhodian	Vases	Rhodes	4th – 3rd c. BC
West Slope ware	Crater and Lagynos	Pergamon	2nd c. BC
Megarian bowls	Bowls	Aegean/Asia Minor	2nd – 1st c. BC
Grey ware	-	-	Hellenistic

Table 15: Hellenistic Finewares from Itanos (data from Apostolakou, Greco et al. 2004).

Amphorae: Most known amphorae are of local production, like most Cretan sites. A 2nd c. BC amphora from Pergamum has also been found, with the rest being imported from the island of Cos, between the 4th and 3rd c. BC. These mainly come from burials.[512]

Roman Period

No ceramic reports pertaining to the Roman period in Itanos have been published.

Late Roman

Finewares: ARS constitutes the main fineware imported to Itanos during the Late Roman period. Many different forms and shapes, mainly dishes and bowls, were discovered in the excavation of the basilica and the inhabited area (Table 16).[513] LRC/PRS is also attested in the

[508] Ibid.: 1002. Unfortunately, no other evidence considering the origins of these 'Aegean' and 'Asia Minor' Megarian bowls is presented in the publication.
[509] Ibid.: 1003 (the production centres are not Cretan, according to the authors).
[510] Apostolakou, Greco et al. 2004: 1001.
[511] Ibid.: 1003. This probably has to do with the fact that Itanos was under the Ptolemaic influence. As a result the city was exposed to different and probably more complicated types of trade compared to the rest of the Cretan cities.
[512] Ibid.: 1003.
[513] Xanthopoulou 2004: 1016.

assemblages, with several fragments from the Late Roman periods also being found.[514] Cypriot Red Slip ware (LRD) is also attested among the assemblages. Finally, a fragment of a grey fabric probably represents Macedonia's 'TS. Grise' ware (Figs. 3.63, 3.64, 3.65).[515]

Type	Form	Region of Production	Date
African Red Slip ware	50, 91, 99, 104, and 105	North African Coasts	4th – 7th c. AD
LRC/PRS	3, 4, 5, 6, 8, 10	Western Asia Minor	3rd – 4th c. AD
Cypriot Red Slip (LRD)	1, 2, 7.1, and 9	Cyprus, Syria, Eastern Cilicia	6th – 7th c. AD
Grey ware	'TS. Grise'	-	Late Roman periods

Table 16: Late Roman Finewares from Itanos (data from Xanthopoulou 2004).

Amphorae**:** Most amphorae in the excavated layers of Itanos were of local production.[516] The imported vessels were mainly from Aegean, Asia Minor, Cyprus, and Syria-Palestine (Table 17). Moreover, Egyptian amphorae, North African ones, such as the Africana Grande, and some vessels from the Iberian Peninsula, such as the Almagro 50,[517] have also been discovered.[518] Several imported lamps from North Africa and Asia Minor have been documented as well, with two examples carrying a planta pedis.[519]

Type of Amphora	Region of	Date

[514] Ibid.: 1016.
[515] Ibid.: 1016. For a detailed description of the above types of finewares.
[516] This is quite common in all Cretan cities, from the Hellenistic to the Later Roman periods.
[517] Kiln sites are known in the Tejo and Sado valleys and coastal Algarve in the Iberian Peninsula. See University of Southampton (2014) *Roman Amphorae: a digital resource* [data-set]. York: Archaeology Data Service [distributor] https://doi.org/10.5284/1028192.
[518] Xanthopoulou 2004: 1022.
[519] Ibid.: 1027.

	Production	
LR2, LR3	Aegean	3rd – 4th c. AD
LR1	Asia Minor, Syria, or Cyprus	1st c. BC – 1st c. AD
LR5, LR6	Palestine	1st c. BC – 1st c. AD
LR4	Gaza	3rd c. AD
Almagro 50	Iberian Peninsula	3rd c. AD
Africana Grande	North Africa coasts	

Table 17: Late Roman Amphorae from Itanos (data from Xanthopoulou 2004).

Eleutherna

Located at the heart of the island, the ancient polis of Eleutherna has been excavated by the University of Crete for more than three decades (Fig. 3.66).[520] The site was inhabited since Geometric times and was a stronghold of resistance during Metellus' campaign in 69 BC.[521] Excavations have revealed several buildings with ceramic assemblages dating to the Imperial period. Combined with other discoveries, including epigraphic testimonies (e.g., honours to the emperors[522]), and coin minting,[523] the Roman presence is more than evident. The results of the ceramic analysis from the Hellenistic and Roman periods presented here come from the excavation of 'Sector II'. The ceramic analysis of the Late Roman assemblages was conducted by Yangaki, with mainly the assemblage from the western side of the basilica in the region Valanos.[524]

Hellenistic Period

[520] Yangaki 2005; Themelis 2009.
[521] Livy 100.3; Diod. Sic. 40.1; Sanders 1982: 162.
[522] Tzifopoulos 2009: 103-152.
[523] Baldwin Bowsky 1987: 506-507, fn 16; 2009: 165.
[524] Yangaki 2004: 904

Finewares: Most of the ceramics attested in Eleutherna are of local production, but several imported wares were also included among the assemblages. These finewares mainly come from the regions of Attica, Eastern Crete, and Asia Minor (Table 18). Most probably arrived in Eleutherna between the end of the 3rd c. BC and the first half of the 2nd c. BC.[525] Several wares dating between the 3rd c. BC and the first half of the 2nd c. BC were discovered, containing many black and red glazed dishes (Fig. 3.67) that were probably imported from the city of Pergamum.[526]

Type	Form	Region of Production	Date
Attica wares	Skyphos[527], Flasks[528] Plates and fish-dish[529], Cantharus	Attica	4th – 2nd c. BC
Black glazed	Oinochoe[530]	Eastern Crete, Knossos	3rd – 2nd c. BC
Black/Red glazed dish	Lagynos	Asia Minor, Pergamum	3rd – 2nd c. BC

Table 18: Hellenistic Finewares from Eleutherna (data from Avramidou 2015).

Amphorae: A small number of unidentified amphora fragments survive from Hellenistic Eleutherna (Fig. 3.68), dating to the 2nd c. BC.[531] More amphorae were discovered in layers dating to the 3rd and the 2nd c. BC. Moreover, two imported vessels were discovered in the

[525] Avramidou 2015: 413. In the same layer where one of the assemblages from sector B was collected, excavators also discovered the inscription which describes the alliance between Eleutherna and the city of Aptera. With regard to the ceramics, the assemblages included drinking wares, such as cups, kantharoi, jugs, and bowls (ibid.: 408), as well as dishes, while even some Oinochoai were also attested in sectors B, D, and E of the building called 'Tetrakoncho' (ibid.: 412).
[526] Avramidou 2015: 410.
[527] Kalpaxis, Furtwangler et al. 1994: 85.
[528] Ibid.: 97.
[529] Ibid.: 100-101 and 102.
[530] Ibid.: 83.
[531] Avramidou 2015: 410.

Loutra rescue excavations: an amphora neck with a double-barrelled handle and a body sherd from an amphora in a white-buff clay with mica.[532]

Roman Period

Finewares: Several imported finewares were found in the excavations of 'Sector II', including two Arretine dishes dated to the 1st c. AD, as well as a Conspectus 18 and a Conspectus 22 (Fig. 3.69).[533] An Italian cup of Conspectus 34 form, probably produced in the region of Pisa, bearing *in planta pedis stamp* 'SEXMF/P?' (Fig. 3.70),[534] dating after AD 75, was also found (Table 19). Two more in planta pedis stamps wares have been discovered in Eleutherna, which are probably connected with specific potters and workshops active at the end of the 1st c. BC and the 1st quarter of the 1st c. AD (Figs. 3.71-3.72).[535] One of them probably dates between AD 30 and 80.[536] Consequently, Eleutherna was in contact with the Arretine and Pisa markets around the early-mid and late 1st c. AD, respectively.[537] Overall, sector II, provides strong evidence about the Italian influence on this part of Crete almost 100 years after the Roman invasion.

Type	Form	Region of Production	Date
Arretine ware	Conspectus 18 and 22	Arrentium, Toscany	1st – 2nd c. AD
Arretine ware	Conspectus 34	Pisa	1st c. AD

Table 19: Roman Finewares from Eleutherna (data from Kelly 2012).

Amphorae: Ceramic reports regarding the amphorae imported to Itanos are yet to be published.

Late Roman Period

[532] Tsatsaki and Nodarou 2014: 295.
[533] Kelly 2012: 452.
[534] Ibid.: 454 (the possible name of the potter is Sex. Murrius Festus or Sex. Murrius Pisanus).
[535] Ibid.: 454-455. The first one <A^T^E(?)V^O> indicates the potter [Gnaeus] Ateius Euhodus (Fig. 3.71), while the <CN.AA> indicates the potter [Gnaeus] Ateius Arretinus (Fig. 3.72).
[536] Ibid.: 455.
[537] Ibid.: 458.

Finewares: The most common forms of ARS attested in Eleutherna were the Hayes 50 and 67.[538] Hayes 50 dominated the first half of the 4th c. AD, while Hayes 67 was very popular during the 2nd half of the century.[539] It is interesting to note that there is no evidence of LRC/ PRS from Eleuthera, even though the same ware is attested elsewhere in the other case studies (Fig. 3.73).[540]

Amphorae: Amphorae from different geographical regions were recorded in the excavations on the southern side of the basilica. Some of the LR vessels discovered in Eleutherna were produced in the eastern Aegean and Black Sea,[541] while others have African origins and date from the end of the 3rd c. AD to the mid-4th c. AD (Table 20).[542] Furthermore, amphorae produced in workshops on the western coasts of Asia Minor are also attested among the Late Roman assemblages from Eleutherna (Fig. 3.74).[543]

Type of Amphora	Region of Production	Date
Agora M273	Eastern Aegean	3rd – 4th c. AD
Keay XXV	North African coasts	3rd – 4th c. AD
Carthage LRA 3	Asia Minor: Ermos, Meandros, Ephesus	1st c. BC – 6th c. AD

Table 20: Late Roman Amphorae from Eleutherna (data from Yangaki 2004).

[538] Yangaki 2004: 921 (for a detailed description of the dishes).

[539] Hayes 1972: 73 and 106 (type 50 and type 67 respectively); Yangaki 2004: 922.

[540] Yangaki 2004: 922.

[541] Ibid.: 916.

[542] Yangaki 2004: 918 (see also p.917 for a detailed description of the amphora). In Eleuthera during the 4th c. AD Cretan amphorae constitute 70 % of the total amphorae finds, while LRA 3 represents only 10 %. Amphorae of African origin constitute a very small number of the imported vessels. This compares with the situation in Gortyn. Moreover, according to Yangaki, a trade network that was mainly focused on the production centres of the Aegean and Asia Minor developed during the late Roman period, and specifically in the 4th c. AD. Products from the African coasts were largely absent from this network. The huge number of Cretan amphorae discovered indicates that cities fulfilled their needs largely based on local production with some imports from the Aegean or Asia Minor.

[543] Sodini 2000: 184-185; Yangaki 2004: 918.

Kydonia

Kydonia was a strong polis during the Hellenistic period and one of the most important on the island. According to Strabo, it was the region where the Cretan Koinon and its fleet defeated M. Antonius.[544] Kydonia probably developed significantly during the Roman period (Fig. 3.75). Today, however, little remains of the ancient city, most probably because of the Venetian and modern settlements built over the ancient remains. Based on Belli's descriptions and plans from the 16th c. AD, it is known that buildings such as a theatre, an aqueduct, and a temple existed in the city.[545] The plans contain no reference to the remains of the ancient harbour, but according to Guarducci's hypothesis, the Roman harbour was probably covered by the Venetian port.[546] Several types of imported finewares have been found in Kydonia with the data presented resulting mainly from two excavation projects, The 'Garage' project and the Greek -Swedish Excavations at 'Agia Aikaterini Square' in the Kastelli neighbourhood, with evidence from the 'Akrotiri Survey' also helpful. Given the small number of publications on ceramics from Kydonia, a systematic study of the material found in rescue excavations is needed, to understand the new trading patterns introduced during the transition from the Hellenistic to the Imperial period.

Hellenistic Period

Finewares: The Hellenistic period is not so well represented among the excavation layers in Kastelli Square, with just a handful of examples attested in the assemblages. Four fragments belonging to different orange-bodied vessels of foreign origin have been identified in Kydonia (from a kantharos, a skyphos, a cup, and a bowl respectively), dating from the 4th to the 2nd c. BC (Fig. 3.76).[547] Furthermore, a small group of thin-walled cups with '*rather gritty clay and dull black paint'* have also been found and date to around the 4th c. BC (Fig. 3.77).[548] According to Hallager, the shape of these cups compares with a type of bowl attested at Tocra, Libya.[549]

[544] Strabo 10.4.7. For the naval battle between the Roman fleet of M. Antonius and the Cretan Koinon see Flor. 3.7.2.
[545] Sanders 1982: 58; Spanake 1968.
[546] Sanders 1982: 170.
[547] For more information see Raab 2001: 170.
[548] Hallager, Hallager et al. 1997: 210.
[549] Ibid.

Amphorae: Like the rest of the Cretan poleis, locally produced amphorae constitute most of the finds from Kydonia. A smaller number of imported amphorae have been recorded in the two excavations under consideration and date between the 4th and 2nd c. BC. Similarly, most of the amphorae discovered in Akrotiri were of local production, with only a few examples pertaining to imported vessels. As Raab mentioned, the Akrotiri peninsula was a producer rather than an importer, at least during the Late Hellenistic period.[550] The group of imported vessels includes amphorae from Cos, Campania, Rhodes, and Knidos, as well as two possible Brindisi variants.[551] The amphorae date between the 2nd and 1st c. BC.

Roman Period

Finewares: The evidence from finewares in Kydonia is similar to those from the other case studies (Table 21).[552] Various pieces, including a cup, a dish, and bowls, represent ITS. Examples from both ESA and ESB are also present, while a rim from a Çandarli bowl has also been found (Fig. 3.78-81). [553]

Type	Form	Region of Production	Date
Italian Sigillata	Conspectus: 2, 18	Italy: Tuscany, Puteoli	1st – 2nd c .AD
Eastern Sigillata A	Hayes: HB	Syria, Eastern Cilicia	1st c. BC – 1st c. AD
Eastern Sigillata B	-	Western Asia Minor	1st c. BC – 1st c. AD
Çandarli Ware	Sacket: T 1-7	Western Asia Minor	2nd – 3rd c. AD

Table 21: Roman Finewares from Kydonia (data from Raab 2001).

[550] Raab 2001: 329.
[551] Ibid.: 330.
[552] No evidence regarding the Roman period provided by the Kasteli excavation; all the available data are from the Garage excavation.
[553] Ibid.: 171. Many local imitations of Çandarli and Italian Sigillata ware have also been identified.

Amphorae: Amphorae imported to Kydonia are mainly represented by examples from the Italian peninsula,[554] the Adriatic coast,[555] and the Aegean Sea,[556] mostly from Rhodes, Cos (Fig. 3.82, 3.85, 3.86), and the coastal site of Knidos (Fig. 3.87). Overall, it appears that both excavations under consideration produced similar types of amphorae.

Type of Amphora	Region of Production	Date
Dressel 6	Adriatic coast	2nd – 1st c. BC
Koan	Cos	1st c. BC – 1st c. AD
Rhodian	Rhodes	1st c. BC – 2nd c. AD
Knidian	Palestine	1st c. BC – 2nd c. AD
Dressel 1	Italy	1st c. BC – 1st c. AD

Table 22: Roman Amphorae from Kydonia (data from Hallager, Hallager et al. 1997, Raab 2001).

Late Roman Period (no evidence available from the Kydonia excavations)

Finewares: The data presented here was collected from the Akrotiri peninsula to the north of Kydonia. The distribution of finewares is wider compared to Early Roman times, mainly imported from North African coasts (Tunisia?), western Asia Minor and Phocaea. Finewares from other regions of the eastern Mediterranean were also found (Table 23).[557]

[554]GSE: 209, 211, Raab 2001: 172. The GSE mentions that the Italian Dressel 1 '*may be as early as the late 2nd c. BC*' (Hallager, Hallager et al. 1997: 211).
[555] Raab 2001: 172.
[556] GSE: 209-210; Raab 2001: 172.
[557] Raab 2001: 328-329.

Type	Form	Region of Production	Date
LRC/PRS	1, 3, 4, 10	Phocaea, Asia Minor	5th – 7th c. AD
African Red Slip ware	3, 61, 82, 83, 91, 99, 103, 105	North African Coasts	1st c. BC – 1st c. AD
Cypriot Red Slip (LRD)	9	Eastern Med	6th – 7th c. AD

Table 23: Late Roman finewares from the Akrotiri Peninsula (Data from Raab 2001).

Amphorae: 65 examples of amphorae were discovered during the Akrotiti survey, most of which were produced in the east Aegean (43 in total). The rest are mostly imports from Cilicia and Palestine (Table 24).[558] The identified amphorae date between the 5th and 7th c. AD.

Type of Amphora	Region of Production	Date
Peacock and Williams (Class 43)	East Aegean	5th – 7th c. AD

[558] Ibid.: 331-332.

Peacock and Williams (Class 44)	Cilicia	5th – 7th c. AD
Peacock and Williams (Class 46)	Palestine	5th – 7th c. AD

Table 24: Late Roman Amphorae from the Akrotiri Peninsula (Data from Raab 2001).

Gortyn

Along with Knossos, Gortyn was the most powerful city of Crete since at least the 4th c. BC (Fig. 3.88).[559] During the Roman period, the polis of Gortyn became the island's capital and probably also that of the new province *Creta et Cyrenaica* as well[560] The site of Gortyn constitutes one of the most significant archaeological sites of Crete with several reports concerning Gortynian pottery being published.[561] Following the discovery of the Law Code of Gortyn in 1884 by Halbherr and Hatzidakes,[562] several excavations were conducted there, mainly under the direction of the Scuola Italiana di Atene until 1940.[563] During the 1980s, Antonino Di Vita gathered all previous archaeological reports and diaries and put together four volumes containing all the work that had previously been conducted in Gortyn.[564] The results presented below derive from excavations in the 'Praetorium' of the city (Gortina V.3),[565] the imported material presented here derives mainly from the excavation of Di Vita, with reference to Colini's work.

Hellenistic Period

Finewares: Evidence of imported wares in Hellenistic Gortyn is limited.[566] Only a small number of plates and cups have been identified, which probably arrived from Knossos, while

[559] See Chapter 2.2, 'Endemic Warfare and Foreign Intervention'.
[560] In the year 27 BC, the single province of Crete and Cyrenaica was established (Dio Cass. 53.12.3; Strabo 17.3.25). The new province was part of the 'Provinces of the People' and was controlled by the senate, in the same way that other provinces of the Empire were controlled by annually appointed praetors or proconsuls (Strabo 17.3.25).
[561] Di Vita 1984; Di Vita and Martin 1997; Di Vita 2000.
[562] Willetts 2013: 3-4.
[563] Francis and Harrison 2003: 487.
[564] Di Vita 1984.
[565] See the Abbreviations (XVI).
[566] Gortina V.3: 4.

a fish-dish from Attica (3rd -2nd c. BC) and a cup with west-slope decoration are also attested among the imported finds.[567] Another cup of oriental style and bowls resembling Italian productions, both dated in the 1st c. BC, are also listed among the studied assemblages.[568] Egglezou also mentions the existence of an imported jar (2nd c. BC) and a kantharos (2nd c. BC), whose origins are not discussed.[569]

Amphorae: In the Hellenistic period, imported amphorae to Gortyn come from workshops on the north coasts of Africa, Italy, and the Aegean (Table 25). Most date to around the 2nd and 1st c. BC. The African amphorae come from central Tunisia (Fig. 3.89),[570] while the Italian examples (Fig. 3.90) originate from central Italy and Sicily[571] and mostly carried wine. Regarding Aegean imports, the available examples indicate connections with Knidos and Rhodes (Fig. 3.91).

Type of Amphora	Region of Production	Date
Mana C/ van der Werff	Tunicia (central)	2nd – 1st c. BC
Greco-Italic	Italy, Sicily	2nd c. BC (layer)
Dressel 1	Italy (Etruria,Campania)	2nd – 1st c. BC
Knidian	Aegean	1st c. BC – 2nd c. AD
Rhodian	Rhodes	2nd – 1st c. BC

[567] Ibid.: 4-5.
[568] Ibid.: 6.
[569] Egglezou 2005: 112.
[570] Gortina V.3: 266.
[571] Ibid.: 267.

Table 25: Hellenistic Amphorae from Gortyn (data from Di Vita 2001).

Roman Period

Finewares: Similar to Knossos, different trading patterns were introduced in Gortyn during each period discussed, revealing changes in trade and social networks between Crete and the rest of the Mediterranean. Imports of ITS appear in the 1st c. BC., while ESA finds may be sorted into three types: plates, bowls, and cups (Fig. 3.92).[572] A small number of Cypriot Sigillata is also known from Roman Gortyn (Fig. 3.93).[573] The undisputed dominance of Italian wares during the 1st c. AD (Fig. 3.94, 3.94A)[574] was gradually replaced by the largest group of imported ESB, numbering more than 90 fragments of mostly cups and plates (Fig. 3.95).[575] Çandarli ware (Fig. 3.96), can also be seen up to the 3rd c. AD (Table 26). [576]

Type	Form	Region of Production	Date
Italian Sigillata	Atlante IX, X, XXII, XXIII,XXXVI, XXXVII	Italy: Tuscany, Puteoli	1st – 2nd c AD
Cypriot Sigillata	P22A and P33/34, P40	Cyprus	1st c. BC – 1st c. AD
Eastern Sigillata A	**Plates**: 4A, 9, 13A,	Syria	2nd c. BC – 1st c. AD

[572] Ibid.: 26-27. Several fragments from this type of ware were discovered in both excavations with 60 fragments collected from Di Vita's and 16 from Colini's.

[573] Ibid.: 39.

[574] Gortina V.3: 36. Although this type of ware was quite popular in Knossos, there are not many examples from Gortyn. No more than 120 fragments (mostly cups and plates) have been found in the city, in the excavations of Di Vita, Colini, and the Metropolis one.

[575] Ibid.: 30-31.

[576] Ibid.: 33-34. It is possible to distinguish three key chronological phases in the distribution of Çandarli ware in Gortyn: the first dates to the 1st c. AD (AD 50- AD 70) and is characterised by forms L19 and L26B; the second phase, dated during the first half of the 2nd c. AD, sees a decline in the number of imports probably because of competition from another cheaper ware; in the third phase, which dates between AD 150 and AD 300, the number of the discovered Çandarli fragments is slightly increased, compare to the previous phase.

	29, 30, 34, 36, 37, 40, **Bowls**: B and 40,**Cups**: 12, 20, 22/22A, 42	Eastern Cilicia	
Eastern Sigillata B	1-3, 6, 29, 53, 56, 59, 60, 60B, 64B, 66, 70-71, 75, 78, 80	Tralles/Aydin Adriatic	1st – 2nd c. AD (AD 70 to AD 150)
Çandarli Ware	H1-H3, H10, L19 and L26A/B	Western Asia Minor	1st – 3rd c. AD

Table 26: Roman Finewares from Gortyn (data from Di Vita 2001).

Amphorae: Several types of amphorae that date to the Imperial period have been found in Gortyn and represent types associated with production centres all over the Mediterranean. Amphorae from North Africa were mainly used for carrying oil and sometimes garum or wine (Fig. 3.97, 3.97A).[577] The Spanish amphorae found in Gortyn were used for carrying fish (Figs. 3.98, 3.98A),[578] while those from Italy were used for wine (Fig. 3.99).[579] Examples belonging to amphorae imported from Syria-Palestine[580] (Fig. 3.101) are attested among the imported groups, as is a single example of a Gallic amphora.[581] Aegean amphorae,[582] used to transport sweet wine, like the Cretan *passum*, are also known from the site (Figs. 3.102, 3.103).[583] Most of the amphorae imported to Gortyn in the Roman period dated between the 1st and the 3rd c. AD (Table 27).

[577] Ibid.: 280-281.The Dressel 7-11 has been discovered in several shipwrecks from the 1st and 2nd c. AD. Several more Spanish amphorae have been discovered in Gortyn, including Dressel 14, Dressel 20 and 23, Hayes 12, Keay XVI, XV, and XXIII (Gortina V.3: 284-289). The Gallic examples are very rare, not only in Gortyn but also in the rest of the island.

[578] Gortina V.3: 284. A shipwreck carrying Spanish amphorae shipwrecks discovered outside Palaikastro. See Chapter 5.2, 'Shipwrecks consist of homogeneous cargo from a single region'.

[579] Gortina V.3: 290.

[580] Ibid.: 291. A similar kind of amphora was identified in Athens, dating between the 2nd and 3rd c. AD (Oleson 1994: 16).

[581] Ibid.: 291: The unique piece of a Dressel 2-4 (Gallic) from Gortyn is a double handle, which was discovered in a 2nd c. AD layer with a similar kind of amphora. A similar example is only attested in Knossos (Hayes 1983: 162).

[582] Gortina V.3: 291. Among the amphorae discovered in Gortyn were also examples of Dressel 2-4, Hayes 19, Riley MR4, Kapitan I and II, Hayes 27, 36, 3A, 42-43.

[583] Sealey 1985: 56.

Type of Amphora	Region of Production	Date
Ostia LIX	Tunisian	3rd – 4th c. AD
Keay IB	Mauritania, Algeria	1st c. AD
Tripolitana (II and III)	North Africa coasts	3rd c. AD
Dressel 7-11	Spain	1st c. BC – 1st c. AD
Pelichet 46	Spain	1st c. BC – 2nd c. AD
Dressel 2-4 (Catalan)	Catalonia	1st c. AD
Dressel 2-4 (Italian)	Italy	1st c. BC – 3rd c. AD
Riley MR1	Eastern Sicily	2nd – 4th c. AD
Dressel 2-4 (Gallic)	Gallia	2nd c. AD
Pelichet 4	Gallia	1st – 3rd c. AD
Agora K108	Syria - Palestine	3rd c. AD
Aegean amphorae	Rhodes, Chios, Knidos	1st– 2nd c. AD
Camulodunum 184	Aegean	1st – 2nd c. AD

Table 27: Roman Amphorae from Gortyn (data from Di Vita 2001).

Late Roman Period

Finewares: Only three fragments of Macedonian Sigillata are known from the excavations in Gortyn. This was a widely distributed ware in the Balkan region made of fine grey clay, mainly produced between the second half of the 4th c. AD and the 5th c. AD .[584] African Sigillata A, C, and D are all attested in Gortyn. Until the 3rd c. AD, African imports were not common, probably due to the popularity of the eastern sigillatas.[585] The importation of ASC started towards the end of the 3rd c. or the beginning of the 4th c. AD.[586] Hayes 50 dishes

[584] Gortina V.3: 40.

[585] Ibid.: 41. Crete was no exception.

[586] Ibid.: 42.

were probably the most common import. At the beginning of the 5th c. AD, African Sigillata D becomes abundant in Gortyn, a development reflected in most of our Cretan case studies. Similarly, LRC/PRS is a very well-attested ware in Gortyn, which is also found in most Cretan poleis (Fig. 3.104).[587] In Gortyn, the known examples date from the late 4th c. to the 7th c. AD,[588] with some forms not been seen in other Cretan sites (Figs. 3.105, 3.105A, and Table 28).[589]

Type	Form	Region of Production	Date
Macedonian ware	-	Western Asia Minor	2nd – 3rd c. AD
African Sigillata A	6A, 2A or 2B	North African Coasts	2nd – 3rd c. AD
African Sigillata C	42, 45A, 48B, 50, 50A/B	North African Coasts	3rd – 4th c. AD
African Sigillata D	32/58,58A/B,59A/B,60, 61/A/B, 63, 67, 69, 78-80B, 87A-89B, 91-93	North African Coasts	5th c.AD
LRC/PRS	1 (A-D), 2 (A-C), 3 (A-H), 4, 4A, 5-10, 10 (A-C)	Phocaea, A. Minor	4th – 7th c. AD

Table 28: Late Roman Finewares from Gortyn (data from Di Vita 2001).

Amphorae (Table 29): A great number of Late Roman amphorae were unearthed during excavations at the Praetorium. Most date between the 4th to the 6th c. AD, with some evidence for imports persisting to the 7th c. AD. In particular, North African vessels were mainly imported from Carthage and central Tunisia.[590] This contrasts with the rest of the island, where the evidence points to a decline in African imports after the foundation of Constantinople (Figs. 3.106, 3.106A, 3.106B).[591] Moreover, Spanish amphorae, mainly used

[587] Hayes 1972: 323-370.
[588] Gortina V.3: 56.
[589] Ibid.: 45-46.
[590] Ibid.: 315-321. Late Roman African amphorae from Gortyn: Other African types: Keay XXV (7 subdivisions), Keay LXII, Keay XXVI (7 subdivisions), Keay LXII (and its subdivisions), and the type Murialdo (A.1.6/A.10) see pages 316-321.
[591] See the conclusions of this Chapter.

for the transportation of garum and fish such as sardines (Fig. 3.107), [592] along with Italian wine amphorae, continued to be imported into Gortyn for more than two centuries after the establishment of the new imperial capital (Fig. 3.108, 3.108A).[593] Their presence reflects the ongoing connectivity between Gortyn and the western and central Mediterranean. Many amphorae from the eastern Mediterranean are also attested in late Roman assemblages from Gortyn. These include LR1 amphora and its variations,[594] likely produced in Syria, Cilicia, and Cyprus (Fig. 3.109), as well as amphorae (among which are LR4 and LR5)[595] from the region of Syria-Palestine (Figs. 3.110, 3.110A, 3.110B).[596] These vessels were mainly imported between the 4th to the 7th c. AD. Finally, several different types of Aegean amphorae were imported to Gortyn, either from the Aegean islands or the coasts of Asia Minor (Fig. 3.111).[597]

Type of Amphora	Region of Production	Date
Keay XXV	Carthage/N. Tunisia	3rd – 4th c. AD
Keay XVVI (*spathion*)	North African coasts	1st c. BC – 1st c. AD
LR8a	North Africa coasts	1st c. BC – 1st c. AD
Keay XXII	Spain: Algarve coast,	4th c. AD onwards

[592] Gortina V.3: 324.
[593] Ibid.: 326-327. Three different variants of the Keay LII are available (Ibid.:325-326).
[594] Ibid.: 328.
[595] The LR4 was mainly used for the transportation of wine, while the LR5 was probably used to transport fish sauces, olive oil, and even cereals.
[596] Ibid.: 332-336.
[597] Ibid.: 345-354. A small number of fragments from unguentaria that date to the 7th c. AD and were manufactured in Asia Minor have also been found in Gortyn. Given their size, these vessels were likely used for the transportation of luxurious products, such as oils or even holy water, a form of trade that was under ecclesiastical control (Hayes and Saguì 1998: 311).

	Lusitania	
Keay LII (3 variants)	Italy: Calabria, Sicily	4th – 6th - c. AD
Ostia I (456)	Italy: Calabria, Sicily	4th – 5th c. AD
LR1	Syria-Cilicia-Cyprus	4th – 7th c. AD
Agora M334	Syria - Palestine	Up to 7th c. AD
LR4	Syria – Palestine: Gaza, Ascalon, Northern Sinai, and Egypt	4th – 7th c. AD
LR5	Caesarea Maritima, Jordan Valley	4th c. AD
Hayes 3B	Asia Minor: Ephesus	4th – 6th / 7th c. AD
Late Koan	Aegean: Cos	5th – 6th c. AD
Agora m273	Torone, Berenice, Samos (?)	5th – 6th c. AD
Hayes 16/17	Aegean: Samos	4th – 7th c. AD
LR2	Aegean	7th – 8th c. AD

Table 29: Late Roman Amphorae from Gortyn (data from Di Vita 2001).

3.2 Discussion

Considering the ceramic material presented above, it is evident that different trading patterns developed across the periods discussed. The imported pottery from the Hellenistic period is limited compared to the evidence from the Roman and Late Roman periods. This confirms the relatively inward-looking nature of the island's trading economy at the time. However, the significance of external contacts, as suggested by finds from the Hellenistic period, challenges the introverted character of the island described by the ancient

sources.[598] In contrast, Roman imports from the 1st c. BC onwards not only arrived from several different regions across the empire but in large quantities too. This coincides with the Empire's busiest period of maritime trade, which is also confirmed by the impressive number of known shipwrecks dating to the 1st c. BC and 1st c. AD.[599] Interestingly, the examination of imported finewares reveals trading patterns that are occasionally different compared to the results that emerged from the analysis of imported amphorae reaching Crete during the three periods discussed.

Hellenistic

The Hellenistic period has been characterised as an introverted period for the island. According to the evidence presented above on imported ceramics, Crete was not an important market and had limited foreign commercial relationships. Previous scholarship was mainly focused on local ceramic production,[600] with few imported ceramics.[601] Indeed, at most of the examined sites, the results indicated small amounts of imports. At the same time, the imported pottery from the Hellenistic period is much less frequent in Crete compared to other sites in the Aegean area, due to the inward looking character of Cretan poleis.[602] Even in the well-excavated sites of Gortyn and Knossos, the number of imported finewares/amphorae is small. It is not until the 2nd c. BC, that imports mainly from Asia Minor, started arriving in Knossos.[603] The two sites that show a slightly different image are the harbours of Hierapytna and Chersonesos. Probably, that has to do with their natural maritime character and their direct access to activities regarding the sea. Several imports from Attica have been identified at Hierapynta, while most of the attested finewares constituted a type of grey ware from Asia Minor.[604] A similar image emerges from the harbour of Chersonesos. Despite the sizeable amount of unpublished material, Vasilakis notes the presence of various imported ceramics, including skyphoi, lagynoi, red-figured

[598] See chapter 2.2, 'Hellenistic Period'.
[599] Parker 1992: Fig. 3; Wilson 2011: 34, Fig. 2.1. Several shipwrecks loaded with amphorae from all over the Mediterranean have also been found around the Cretan coasts. A detailed analysis of these shipwrecks and their cargoes is the subject of Chapter 5.
[600] Kypraiou 1997; Egglezou 2005.
[601] See the introduction of this Chapter behind the reasons for this neglection.
[602] Chaniotis 1999: 186; 1996b: 169-175. See also Chapter 2 for a brief description of the Cretan economy and society in the Hellenistic period.
[603] Coldstream, Eiring et al. 2001: 91.
[604] Gallimore 2015: 101.

pelike,[605] and imported wine amphorae.[606] At the same time, according to Galanaki, luxurious vessels have been discovered in late Hellenistic tombs from Chersonesos (1st c. BC), originating from all over the Aegean, mainland Greece, Asia Minor and the eastern Mediterranean.[607] Additionally, the small number of amphorae constitutes further evidence regarding the insular economic character of Cretan poleis during the Hellenistic period, with most of the known examples dating to the 1st c. BC. Imported material is present in greater numbers in Gortyn, with amphorae originating from Italy, the Aegean, and Africa. The archaeological record is, however, small compared to the Imperial times and dates to the late 2nd and 1st c. BC. Finally, in Itanos, a few samples of the SE Aegean (Kos) are attested; similarly, the pottery from Kydonia indicates Aegean-oriented trade.

Overall, there is no evidence indicating strong commercial connections outside Crete during the Hellenistic period, for any of the previously discussed case studies, except for a handful of examples from Hierapytna and Chersonesos (again those wares date to the late Hellenistic, specifically to the late 2nd and 1st c. BC). The amphorae are of local production, indicating a self-sufficient economy and an island that could be characterised more as a producer than an importer. The main exported Cretan vessel during the Hellenistic period, with quantities found in Aegean and Egypt, was Hadra ware. The first Hadra vases were discovered in a Ptolemaic cemetery in Alexandria[608] and have been found in areas where Cretan mercenaries served, including Egypt, Rhodes, and Eretria.[609] Hadra was a type of hydriae, mainly produced in central Crete, in the regions of Messara and Knossos.[610]

Overall, it can be assumed that some economic relations between Cretan poleis and regions of the Aegean might have been established during the Hellenistic times, but further study of the available material is necessary to form secure hypotheses. Nevertheless, the absence of quantities of imported amphorae in all case study sites indicates that the island's economic focus was not on trade. Crete does not appear to actively participate in the trading networks of the Hellenistic world.

[605] For further evidence regarding the red-figured pelike see Tzanakaki 1997.
[606] He also notes that a great source of evidence remains unpublished.
[607] Galanaki 2006.
[608] Egglezou 2005: 350.
[609] Perlman 1999: 147; Chaniotis 2005a: 100.
[610] Egglezou 2005: 351. Regarding the various workshops attested in Crete see Egglezou 2005: 350-385.

Imperial

In contrast to the Hellenistic periods, the excavated layers from the Imperial period, especially those dating to the 1st and 2nd c. AD are the richest in imported ceramics, both in finewares and amphorae. The number of ceramics dating to the Roman period is numerous compared to the Hellenistic period, allowing the interpretation and analysis of specific trading patterns between the Cretan poleis. Overall, analysis of the imported material provides insights into the individual connections that each polis/harbour was involved in and the island's overall trading character. Most of the imports arriving in Crete were from the eastern Mediterranean or the Aegean/Asia Minor, while western imports, specifically the ITS, are also visible in large quantities in the assemblages of specific sites. This constitutes a clear indication of the different trading patterns that existed within the island during the Imperial times.

Regarding finewares, as shown in the previously discussed tables,[611] ESB and ITS were the most popular imports at the sites of Knossos and Gortyn, while ESA was present but in smaller numbers (Figs. 3.112, 3.113).[612] Similarly, at Eleutherna, eastern imports constituted most of the wares attested in the studied assemblages, followed by Candarli and ITS wares (Fig. 3.114). In all three case studies, ESA constitutes the main imported ware, but ITS also attested, a clear indication of the sites' contacts with the West. Especially in Knossos, the gradual increase of ITS along the assemblages constitutes a clear indication of Western influence on the site, with ITS ware representing '3% of the Augustan finewares, rising to 29% in the Tiberian period, peaking in the Claudian period, when it registers at 43% dropping to 7% in the Hadrianic'.[613] On the other hand, in Hierapytna, ESA is the most frequently attested type with ESB and Çandarli wares also found. What constitutes an exciting difference though is the low levels of ITS found on the site (Fig. 3.115). This demonstrates the different patterns and networks that existed along the island, with some poleis being commercially oriented towards the east (Hierapytna), and others towards the west (Knossos, Gortyn). Chersonesos is perhaps the only harbour with a great variety of imported wares, with ESA, ESB, and ITS wares attested along the excavated layers. Imports

[611] For Knossos see table 5, and for Gortyn see table 6.
[612] Knossos: Hayes 1983: 113 (Table 5). Gortyn: Gortina V.3: 26-35.
[613] Sackett and Branigan 1992: 153.

such as the Cypriot and Pontic Sigillata are similarly attested at the case study sites, but not in great numbers.

Similar to the Hellenistic layers, most amphorae found on Cretan sites dating to the Imperial times were locally produced. Unsurprisingly, Crete's role as a wine exporter justifies the large number of Cretan amphorae in the excavated layers.[614] Specifically, in Knossos, imported amphorae constituted only the 13.5% of the total amphorae, with locally produced vessels estimated at around 85.6%.[615] In Gortyn, 18% of the imported amphorae are of western origin.[616] This is significantly higher than the 3% of western imported amphorae attested at Hierapytna whose imports mainly came from Africa, Italy, and Spain, implying once again a more substantial Western influence for the two sites.[617] Most imported amphorae identified in Hierapytna originated from the Aegean, Asia Minor, and generally the eastern Mediterranean,[618] while 83% of the amphorae found on the site are of Cretan origin. Gallimore suggests that the consumption of wine and olive oil at Hierapytna was of local production and something that would also have happened in both Gortyn and Knossos. The self-sufficient character of the island offers further support to the hypothesis that Cretan harbours turned into redistributed centres.[619]

Regarding Chersonesos, no actual numbers/percentages of imported amphorae are yet available. Still, according to Vasilakis, the evidence indicates a more substantial connection towards the Aegean. The existence of a sizeable Cretan amphora workshop close to the harbour in comparison with the size and type of harbour infrastructure found on the site, as well as the connection with Lyttos — one of the leading wine production sites in Crete — indicates that Chersonesos' overall consumption of wine (and of olive oil) was locally supported. The vast local wine production and the evidence of Cretan amphorae found all over the Mediterranean, and especially in Italy, indicates the commercial focus that Cretan

[614] Marangou-Lerat 1995; Marangou 1999; Hadjisavvas and Chaniotis 2012; Gallimore 2016.
[615] Hayes 1983: 160, table 13.
[616] Gortina V.3: 279–91.
[617] Gallimore 2015: 280.
[618] Ibid.: 278. Gallimore 2015: 278.
[619] See Chapter 4.2, 'Multiscalar Harbours in Crete', regarding the different scales of harbours attested on the island, and Chapter 6.4, 'Large-Scale Interactions', regarding the participation of Cretan harbours in the Imperial maritime networks.

harbours had put towards the west, a fact that had a crucial role in the island's overall prosperity and the maritime networks of the Empire.[620]

The evidence indicates that different trading patterns existed in different geographical parts of Crete during the Imperial period. For example, Gortyn, located in the south of the island, had more imports from North Africa than any other site on the island, undoubtedly because of the Imperial role of the polis (new capital) and the strong connection with Cyrenaica. At the same time, Knossos, the Italian colony, had developed greater contacts with Italy and Sicily. Simultaneously, Chersonesos and Itanos, located in the eastern part of Crete, were in substantial contact with the Aegean islands, Asia Minor (especially Chersonesos), and the eastern Mediterranean, while Hierapytna seems more commercially focused towards the SE Aegean and eastern Mediterranean. These differentiations become more evident in the following chapter with the introduction of a multiscalar view of Cretan harbours and the concept of 'economic maps'.[621] Finally, apart from the Italian, Aegean, or Eastern ceramics attested in Crete, the existence of Tunisian, Gallic, and Iberian ceramics, as well as the discovery of shipwreck cargoes carrying other 'exotic' finds,[622] marks Crete out as a commercial stepping role in the heart of the Roman Mediterranean world.

Late Roman

The 3rd c. AD constituted a century of transition for Crete, which was probably connected with the crisis the Empire faced. The 3rd century AD changed the Roman Empire, resulting in Diocletian's Tetrarchy. Agricultural production, local populations, provincial towns, and of course, trade were all severely affected by the long-lasting uncertainty of the 3rd c. AD, which was inflamed by the various barbarian raids in the borders of the Empire (Germanic tribes, raids by Goths and the Vandals) and plague and famine, which had their own role in these circumstances. The exposed frontier provinces were abandoned, and several cities were destroyed, resulting in big territorial losses, especially in the provinces of the western Roman Empire. Simultaneously, Emperors had to fund new armies, equip them and

[620] Cretan amphora, and the distribution role of Crete in the Imperial times, is discussed in detail in Chapter 6.4, 'Large-Scale Interactions'.
[621] See Chapter 6, 'Small Scale Interactions: Regional Networks', and Fig. 6.16.
[622] Celtic bronze items from Ayia Galini wreck, vessels from Iberia and more. See chapter 5 'Shipwrecks in the Cretan Seas'.

transport them all over the Empire. [623] As a result, international trade and maritime networks were vastly affected, causing changes to the Cretan economy too.

While in the previous two centuries, both the exports and imports of the island were connected to markets and trade networks towards the west and the east, in the 3rd and 4th c. AD, the island's focus shifted towards North Africa. Except for the large number of African imports attested in the archaeological record, Cretan amphorae (specifically the AC1) seem to be exported in great numbers towards Cyrenaica, indicating a commercial 'turn' for the Cretan ports.[624] The establishment of Constantinople as the new capital of the Empire in AD 330 must have had a significant impact on the trading patterns in the eastern Mediterranean and Crete.[625] As a result, merchant ships setting sail from North Africa were guided along a new trading route towards the new capital, probably via Crete's coasts. The large number of ARS types attested throughout the case studies must have reached the island via this newly introduced route. At the same time, Crete retained its contacts with the eastern Mediterranean despite the increased appearance of ARS, with PRC/LRC constituting the most popular import on the island (with slightly bigger numbers than the ARS). Crete's markets were divided between these two areas. On the other hand, Western wares, like ITS, are absent from the pottery assemblages of late Roman Crete, another clear indication of the significant changes that the Imperial trading networks faced during the late 3rd and early 4th c. AD.

North African and eastern Mediterranean products dominated Cretan markets from the 4th to the 7th c. AD. Regarding ARS production, in Hierapytna the quantities studied are substantial, with type C constituting almost half (47%) the imported vessels known from that period.[626] What is notable about Hierapytna is the small numbers of LRC/PRS ware. In the late Hellenistic and Imperial periods, eastern imports constituted the majority among the pottery assemblages found on the site, something that was clearly not the case for the late Roman centuries (Fig. 3.116). On the other hand, there are few examples of both the ARS and LRC/PRS found in Knossos (Fig. 3.117). ARS represents only 5% of the total

[623] Williams 2000: 19.
[624] Riley 1979: 181; Gallimore 2015: 295.
[625] Sirks 1991; Vasilakis 2020: 428.
[626] Gallimore 2015: 297.

imported finewares attested in the unexplored mansion,[627] evidence that perhaps indicates the overall change that occurred on the site after the 4th c. AD.[628] In Gortyn, both ARS and LRC/PRS are found in large quantities (Fig. 3.118). Similarly, at Eleutherna, LRC/PRS constitutes the great majority of imported vessels on the site dating to the late Roman period (more than 75%), with ARS coming second (Fig. 3.119). At Chersonesos, more than 50 types of finewares have been identified, dating from the late Hellenistic to the early Byzantine period; 34 are African wares.[629] Both LRC/PRS and ARS appear in large quantities, and in several different types. According to Vasilakis, the absence of imitating wares constitutes evidence for the commercial importance of Chersonesos, with the city's inhabitants having access to a great range of imported finewares.[630]

Similar to the previous centuries, locally produced amphorae remained the most widespread vessel in Crete during the late Roman period, even though almost no kiln sites dated to the 4th – 7th c. AD are known.[631] The foreign amphorae found on the island dating to the late Roman period were mainly imported from the Aegean, Asia Minor, North Africa, Cyprus, and generally the eastern Mediterranean (Syria-Palestine). The difference compared to the Imperial period is the obvious decline in local vessels, while excavations at the sites of Eleutherna and Gortyn show an increase in the imported amphorae during the late Roman period.[632] For example, amphorae evidence from Eleutherna, Gortyn, and Hierapytna suggests an increase in imported goods compared to the Imperial period. According to Portale and Romeo in Gortyn, the proportion of Cretan amphorae in ceramic assemblages drops from approximately 87.5% in the 3rd century to 51.2% in the 5th and 61.2% in the 6th c. AD.[633] At Hierapytna, according to Gallimore, the local amphorae drop from 84% in the early Roman period to 64% in late-Roman times.[634] Moreover, at Hierapytna, most of the

[627] Sackett and Branigan 1992: 164.
[628] Forster 2004.
[629] It is not a coincidence that similar types of finewares to those excavated in Chersonesos appear in the new excavation project in Lyttos (Personal observations). One should imagine that imports reaching the harbour of Chersonesos were then transported towards Lyttos. A combined study of both sites' pottery assemblages could shed further light on the relationship between the two sites, as well as further insights into Hellenistic and Roman Crete's overall economy.
[630] Ibid.: 428.
[631] Marangou refered to the existence of one kiln located at Chersonesos that produced TRC6 amphorae (Marangou-Lerat 1995: 44-46).
[632] Gortina V.3: 387, Eleutherna: Yangaki 2005, 302, Gournia: Hayes and Kossyva 2012, 168–9.
[633] Gortina V.3: 387.
[634] Gallimore 2016: 300.

imported amphorae found in the assemblages are from eastern Mediterranean sources and in similar amounts as the percentages of finewares, especially after the 5th c. AD. Furtmermore, a smaller number of late Roman amphorae of Western origin are attested in Crete. Late Roman western amphorae are rare at Eleutherna and comprise almost the same suite of types as found elsewhere on the island.[635] They are also relatively uncommon at Gortyn, except the LRA8 or Spatheion amphora,[636] which was unattested at Hierapytna. Similar evidence derives from the harbour of Chersonesos. Here it is worth pointing out that African amphorae were mainly used to transport olive oil, one of the main exports of North African coasts. Following the 4th c. AD, however, the imports of African amphorae in Chersonesos reduced, while the imports of African finewares increased. The imbalance between the quantities of imported finewares and amphorae probably indicates that finewares were shipped and traded independently. In addition, the low frequency of African amphorae suggests that Chersonesos was self-sufficient in olive oil.

Overall, a few hypotheses arising regarding the overall decline in locally produced ceramics (especially amphorae), always in comparison with the Imperial period. One explanation might be the use of other types of containers such as skins or barrels,[637] evidence which is obviously hard to identify in the archaeological record. Another one is the Crisis of the 3rd c. AD that was already discussed in the previous paragraphs, that affected trade and harbours all over the Mediterranean coasts. Thus, the most convincing answer must be sought in Crete itself, and the massive earthquake of 365 AD, that transformed the coastal landscape of the island. According to the archaeological record, big centres like Gortyn,[638] Eleutherna,[639] and Lyttos,[640] as well as harbour cities such as Chersonesos,[641] Kissamos,[642] and Hierapytna were massively affected by the seismic activities of the 4th c. AD. Specifically, Hierapytna's inner harbour must have been abandoned since the 4th c. AD, an event that most probably brought into decline the entire city. Gallimore noted 'as the largest port city on Crete during the Early Roman period, any limitation to the use of its harbor would have

[635] Yangaki 2005, 210–15.
[636] Gortina V.3: 315–20.
[637] Gallimore 2016: 301; For the use of barrels see also Wilson 2011: 37, 51.
[638] Di Vita 1979-80.
[639] Yangaki 2005: 43-62.
[640] Harrison 1993: 2320.
[641] Chaniotiaki-Starida and Mari 2004: 288-289.
[642] Markoulaki, Christodoulakos et al. 2004: 363.

had a detrimental and long-term effect on the economic vitality of the site'.[643] With the entire Cretan economy based upon the maritime trade, any sort of disturbances upon both the agricultural production and the shipping facilities (harbours, docks, storages, workshops) would have been catastrophic.[644] Perhaps, the overall decline in locally produced vessels (including amphorae) could be explained via this phenomenon. The massive alterations on the landscape of western Crete and the size of destruction that Cretan coasts faced (Fig. 1.3),[645] must have had a massive impact upon the harbours and the shipping industry of the island. As a result, the new conditions must have dramatically changed, for a considerable period at least, the economic potential of the Cretan ports, sinking the exchange economy of the island to much lower levels compared to those of Imperial times. These are some conclusions drawn from the analysis of the imported pottery.

Conclusions

The previous ceramic analysis indicates that Crete was not actively involved in the trading networks attested along the Aegean or eastern Mediterranean during the Hellenistic period. All this changed during the imperial period when the island adopted a more commercial character by participating in a great range of economic connections. Large quantities of imports from all over the eastern Mediterranean are attested among the pottery assemblages from Crete. For the first time, strong connections were introduced with regions from the western Mediterranean, especially Italy. This can be observed not only via the large quantities of imports that arrived on the island from the regions of Italy but also through the huge numbers of Cretan amphorae discovered in Rome and generally all over the western provinces.[646] By the end of the 3rd c. AD to early 4th c. AD, with the formation of the tetrarchy introduced by Diocletian, the foundation of Constantinople, and of course the 365 AD earthquake, Crete lost most of its western contacts, and trading power. The new era introduced trading patterns, mainly from North Africa, the eastern Mediterranean, and on a smaller scale with the Adriatic. These changes in the commercial character of Crete were highly connected with the political changes (and instabilities) that affected the Mediterranean world at that time. Rome's rise and gradual fall in the Aegean and eastern

[643] Gallimore 2016: 305.
[644] This could also explain the absence of amphora workshop by the coasts. See footnote 630.
[645] See Chapter 1 'Sea Level Changes'.
[646] See Chapter 6.4, 'Large-Scale Interactions'.

Mediterranean changed the island's economic fate in different situations. Crete's location in the heart of maritime networks was such that it continually adapted to new economic circumstances as they unfolded. From a state of alienation during the Hellenistic period to an unlimited source of connections towards the West in the Imperial period and a 'stepping stone' between the East and North Africa during the Late Roman period. Overall, from the 1st c. BC to the 7th c. AD, the island's economy kept developing and adapting to the new trading patterns. Cretan markets changed their focus from Italy and the west towards the East and again towards North Africa, Constantinople, and the Black Sea. In Chapter 6, the evidence presented above, combined with evidence derived from historical sources, is used to reconstruct the potential sailing routes that existed in the three periods discussed.[647]

[647] See Chapter 6.3, 'Trading and Sailing Network Analysis'.

Chapter 4: A Multiscalar View of Cretan Harbours

In this chapter, the discussion focuses on the harbours and coastal sites of Imperial Crete, aiming to present their role, function, and importance first on a regional scale and then in the broader and more complex Imperial world. Specifically, we will investigate how the coastal communities of Crete managed to endure and develop following a series of changes within Cretan societies, as well as explore the new source of opportunities and needs that emerged from the new Roman era. Indeed, the annexation of Crete in 67 BC had such a tremendous impact on local society that it changed people's everyday life, releasing the island's potential, which had previously been diminished by internal warfare, land ownership patterns, and hostile coasts.[648] New economic opportunities arose thanks to the expansion and integration into wider Roman trade networks. At the same time, foreign populations, including traders, arrived in Crete.[649] The new Roman age brought a plethora of opportunities to the island. Standing upon the great sea routes of grain travelling from east to west, the flourishing of local production, especially in wine, immediately became a point of commerce and exchange. The tens of amphora workshops attested by the coasts and the large-scale evidence of Cretan amphorae exported all over the Empire indicate prosperous coastal economic activities in combination with associated agriculture in the hinterland.[650]

Ports and harbours were used as gateways for the hinterland (especially in the case of a self-sufficient island like Crete). They also existed to accommodate passing vessels, as well as for religious or other purposes. For Crete, one should also keep in mind the mountainous landscape of the island and the fact that inland transportation could have been challenging, making harbours essential. Usually, the Romans decided to invest in or retain a harbour that was already in use and in very few circumstances, introduced a new site. For example, the Romans re-established most Hellenistic coastal sites, and in some of them, like Chersonesos and Hierapytna, they seem to have undertaken a great deal of investment. Of course, the island's size and nature are such that some coastal places were probably unaffected by the presence of Rome and their harbours did not develop to any great extent. Another

[648] See Chapter 2.
[649] Baldwin Bowsky 1999.
[650] Marangou 1999: 274.

interesting aspect of Cretan coastal sites and the island's maritime archaeology is that several Minoan sites were re-established after more than a thousand years of abandonment. This constitutes a clear indication of the enduring importance of good harbours and the island's diachronic connection to the sea.

4.1 Harbours in a Multiscalar Network

During the 1st and 2nd c. AD, communication and maritime networks expanded throughout the Mediterranean. The sea had its unique role in the new Roman era, acting as the medium of all 'human intercourse'[651] by transforming everyday interactions and leading to a more connected world. Cicero described the picture 'We have for some time seen that immense sea… possessed from the ocean to the very extremity of Pontus, like one vast harbour in a safe and defensible state'.[652] Harbours and ports were the new 'hotspots' around the Mediterranean, and they had a major role in day-to-day transactions, as they were the key nodes of interaction creating a whole system of links between each other.[653] The 'connectivity of microregions' introduced by Horden and Purcell regarding the ancient Mediterranean and the interpretation of harbours as operating at scales from 'small clusters to something approaching the entire Mediterranean' constitutes a useful theoretical model in this endeavour.[654] In turn, these small clusters formed microregions that were nothing more than collections of harbours and ports, artificial or natural ones, that, in one way or another, managed to successfully interface with and support the constantly developing networks around the Mediterranean. These harbours were of different scales as befitted their positions within these networks and the wealth and significance that this generated.

In this chapter, I present an archaeological approach for interpreting a multiscalar view of Cretan harbour sites by examining the breadth of their facilities, infrastructure, and economic activities, as well as their topography and maritime character. This kind of research model has not previously been applied to the study of Cretan harbours and it is entirely based upon the author's personal fieldwork and interaction with the Cretan landscape. It enables a new analytical interpretation of harbours, constituting a new

[651] Horden and Purcell 2000: 133.
[652] Cic., *Cael*., 12.31.
[653] Horden and Purcell 2000; Keay and Boetto 2010; Arnaud 2011; Wilson, Schörle et al. 2012; Leidwanger 2020.
[654] Horden and Purcell 2000: 123.

contribution to Cretan archaeology. This framework sets the stage for case studies analysing port development, and generally the role and connection of Crete with the rest of the Imperial world. The concept of a multiscalar view of harbours refers to a diversity of coastal sites, from large, urban commercial sites with sizable harbour infrastructure down to the coves and beaches that offered humble anchorages, sometimes with no natural or artificial shelter. Their diversity reflects the varied economic interests and maritime relationships formed between the harbours and the different local communities they served.[655] Furthermore, such an interpretation leads to a better understanding of their hinterlands and any interactions with the coasts and maritime networks, for which such harbours served as gateways.

Port Hierarchy and *Emporia*

Before moving on with the analysis of the proposed model, it is important to set the basis for the theoretical framework that will follow, by presenting and explaining some basic terms. Along the Mediterranean, port hierarchies were formed,[656] in which an individual port's role was determined by its commercial traffic.[657] Within these, a pattern of trade between secondary ports and primary ports must have existed,[658] that was mainly determined by their participation in provincial (large shipments) or local trade (development of small business).[659] The expansion of direct trade had a tremendous impact on this development. Only after the formation of the empire did direct trade expand all over the basin, with the newly formed international networks conquering the seas. These direct voyages changed local and provincial economies by allowing specific harbours to greatly develop and become *emporia* (or entrepôts). A substantial amount of maritime trade during the Imperial period was then conducted through emporium-based networks.[660] Principal harbours across the Imperial world constituted the new emporia or entrepôts. Overall, emporia[661] resulted from direct voyages with single cargoes between primary ports and

[655] Leidwanger 2020: 181.
[656] Nieto and Pomey 1997.
[657] Schörle 2011: 93.
[658] Nieto 1997: 154-58.
[659] Schörle 2011: 94,103.
[660] Arnaud 2005; 2007: 321-336; Wilson 2009; Boetto 2012.
[661] The term emporia, originates from the Greek work 'ἔμπορος' (ἐν πόρῳ, ὁ ἐν πορεία), which translated as the one who travels the sea.

commercial centres with major port facilities,[662] where goods were brought in for import and export, storage, collection, and re-distribution. From these 'network hubs'[663] goods continued along shorter, more localised routes between smaller secondary ports. [664] Based on the previous, a port hierarchy seems to exist along the coastline of Crete, with smaller ones connected to bigger ones via ships and boats. Of course, not all coastal sites would have functioned as large commercial ports, this is the nature of a multiscalar network. This chapter examines Roman harbours in Crete at an aggregate level to identify significant trends based on their scales of harbour infrastructure and the economies they served.

Hinterland and Transport Infrastructure

Communication with the hinterland constitutes a vital element in a multiscalar analysis, with harbours functioning as gateways to the hinterland. A well-connected harbour could have rapidly developed into 'a major hub within that network'.[665] Specifically, onshore mobility and transport infrastructure greatly affected port economies.[666] A developed port was always connected via a system of roads (sometimes even through a river system) to the hinterland, via which imported products were redistributed to the surrounding regions and communities. In a way, harbours and anchorages were used as 'windows into the everyday workings of maritime networks onshore'.[667] Furthermore, 'the importance of a road project in the Mediterranean landscape is the effect it achieves through proclaiming and encouraging interaction between microregions'.[668] As a result, harbours attached to such interaction and communication routes were included in networks between the outer world and the hinterland and other surrounding harbours.[669] Below, the relationship between the hinterland and the coasts is discussed, based upon the limited available data, aiming to show the potential that such a future study would have offered to Cretan archaeology.

[662] Wilson, Schörle et al. 2012.
[663] Arnaud 2005.
[664] Greene 2018: 135. According to Greene '*in such a model, the ship might have loaded Aegean amphorae and Attic finewares somewhere in southern Italy before heading to Massalia'*.
[665] Horden and Purcell 2000: 129.
[666] Leidwanger 2020: 181.
[667] Ibid.: 155.
[668] Horden and Purcell 2000: 129.
[669] Tartaron 2018: 212.

4.2 Multiscalar Harbours in Crete: a model

A model for understanding the multiscalar harbour networks of Crete is presented below. It results from the author's three years of fieldwork and experience of the coastal landscape across Crete, as well as the immediate engagement with the harbours and their hinterland environment. This was coupled with an extensive literature search, including historical and epigraphic sources.[670] Further evidence was derived from analysing a large database of imported pottery (see Chapter 3) from specific case study sites to identify the newly introduced trading patterns and define the new commercial nodes on the shores of Crete.[671] Overall, the interpretation of a site's location, the environs of its installations, its shape, the connection to the island's interior and harbours via transportation infrastructure analysis, the pottery finds, and of course, the previous bibliographical analysis resulted in the classification of individual sites into the categories presented in the model.

The approach proposed here is the result of personal observation and thought. It has been specifically created for this thesis to analyse the maritime cultural landscape of Crete. Before analysing each scale, it is essential to mention that despite the general theory of multiscalar harbours, no 'one size fits all' model can be applied everywhere in the Roman world. Harbour networks are a response to and a reflection of local needs, with every harbour discussed being different. Furthermore, the points of contact constantly changed during antiquity,[672] while 'the highly complicated and always changing interaction of human productive opportunities' should also be considered.[673] Overall, this allowed the author to create a multiscalar harbour network for Crete, which is likely to be different from other harbour networks around the Roman world. For the needs of this study, coastal sites around Crete have been divided and analysed at different scales to project the diverse idiosyncrasies of the Cretan coasts. Three scales of harbours, attested in Crete, are presented and analysed, forming the basis of a multiscalar harbour analysis (Fig. 4.1).

[670] See Chapter 2.
[671] See Chapter 3.
[672] Horden and Purcell 2000: 172.
[673] Ibid.: 124.

1. Harbour Cities: Harbours cities constitute the 1st scale of this harbour model. These were mainly historically important sites with advanced harbour infrastructure involved in high commercial traffic. Their economic dynamism allowed urban infrastructure development by turning them into cultural and administrative centres with large populations and strong Roman influence. Numerous economic activities occurred in these harbours, affecting the surrounding areas and local communities. Furthermore, transportation infrastructure is present between the hinterland and other centres. The imported pottery assemblages found in their layers constitute strong evidence for their participation in widespread maritime economic networks.

2. Dependent Harbours: Dependent harbours constitutes the 2nd scale on this harbour model. These sites were mainly under the influence and control of the administrative centres of Crete, which were mainly located in the island's interior. They were used opportunistically and usually as markets. Specifically, the markets of large inland centres were connected to several dependent harbours via road systems that allowed the safe movement of people and commodities, sometimes between different regions. Overall, the pottery assemblages attested in the archaeological record of the large centres (e.g., Gortyn, Knossos) reached their destination via this scale of harbour.

2.1 Cretan Islets: These small Islets located around Crete constituted a subdivision of the 2nd scale on this harbour analysis. They usually depended on Cretan harbour cities or inland centres concerning economy and administration. Overall, some of them had great economic potential, either as shelters for the passing by ships or as commercial markets. Furthermore, other economic activities could have occurred along their shores, including fishing, murex processing, and trading local products. Cretan islets have a dual character in the proposed multiscalar model, as dependent harbours or anchorages, even as transhipment points.

3. Transhipment Harbours: Transhipment harbours constituted the 3rd scale of this analysis. These harbours were introduced in Crete for the first time during the Imperial period. They were safe (usually natural) anchorages operating as revictualling stops, ready to accommodate and supply passing ships. Their economy was mainly dependent upon these types of interactions, while in a few cases, they could also have produced and exported local

commodities. Overall, they were small, self-sufficient communities with little harbour and urban infrastructure.

4. Religious Coastal Centres: This is the 4th and final scale included in this harbour analysis. These coastal sanctuaries operated as independent communities and healing centres or as vital units of a harbour city.[674] At the same time, according to the archaeological record, they must also have been in contact with other religious sites across the Aegean (and eastern Mediterranean), forming religious small-world networks.[675] These sanctuaries were approachable via the sea (harbour infrastructure) and were all related to inland transport infrastructure. A large part of their economic activities were associated with the temples' facilities and their sub-role as transhipment points or dependent harbours.

Each scale mentioned above is discussed in detail below, aiming to provide insights into the role and function of the harbours attested along Crete. The analysis should be read in conjunction to the 'catalogue of sites' included at the end of this thesis. The number of each case study included in the 'Catalogue of Sites' is in bold and in brackets. For example, the harbour of Chersonesos constitutes the first entry on the catalogue and is identified as (**1**) on the text. Kissamos is the second case study in the catalogue, so it is presented as (**2**). Hierapytna is third (**3**), and the catalogue goes on. It includes data from the case studies mentioned in this chapter.

Harbour Cities

Three sites within the case studies can be classified as harbour cities: Chersonesos (**1**), Kissamos (**2**), and Hierapytna (**3**).[676] They were chosen based on their size, harbour infrastructure, facilities, and economic and cultural potential.[677] They were also selected based on the high degree of Roman influence in architecture, engineering, and urban planning, as all of them constitute examples of a 'typical' Roman city. The street grid for all

[674] The example of the Asklepios temple in Lissos.
[675] See Chapter 6.4, 'Large-Scale Interactions',
[676] The harbour of Kydonia (modern Chania) have been deliberately left out of this category. Unfortunately, the gap in the archaeological record considering the site does not allow me to analyse it further for the purposes of this model. Information about the site can be found in the catalogue (**4**). Among other buildings of the period, the most impressing one is the aqueduct built by Hadrian (Spanake 1968: 235). The ancient harbour must stand where the Venetians build their port (Sanders 1982: 170). Pseudo-Skylax describes Kydonia harbour as Limen Kleistos, a closed harbour (*Periplous* 47)
[677] Details about each site discussed is included in the Catalogue of Sites.

three sites is divided via the decumanus and cardo maximus (Fig. 4.2), as revealed by archaeological research. Furthermore, Chersonesos and Hierapytna were rebuilt in a Roman style architecturally, while in the case of Kissamos, the new city was an entirely Roman foundation. The developments of these sites were related to their economic dynamism and the wealth that they generated from maritime trade, wealth that was then spent on public buildings and other amenities. All three harbour cities minted their own coins.[678] Furthermore, according to Tabula Peutingeriana,[679] the harbour cities were connected by different road systems that eventually linked to the rest of the island (Fig. 4. 3). They were also depicted as the three biggest centres in Crete and were the main connectivity nodes along the Cretan Road network. The map referred to them as *Cortina*, *Cisamos*, *and Hiera* (Hierapytna).[680] Further evidence regarding road systems in Crete revealed from archaeological finds scattered around the island. One of them is a milestone, found in Faneromeni, presented by Chaniotis, indicating the existence of a road network connecting the harbour of Matalon to Gortyn, the island's capital.[681] Such a find constitutes a very important element in understanding Imperial Crete's spatial administration and inland connectivity.

In matters of harbour infrastructure, all three had large-scale marine installations that were built following the Roman annexation of the island. Chersonesos constitutes the epitome of Roman harbour engineering in Crete with its large concrete-made moles (A, B, C) and piers making it the most advanced harbour on the island (Fig. 4.4). Simultaneously, the existence of theatres (Fig. 4.5), bathhouses (Fig. 4.6), agora, aqueduct (Fig. 4.7), and, of course, art (mosaic, statues) indicate a Roman-influenced site with a potentially large population. At the same time, the presence of mosaics (Fig. 4.8), especially those by the side of the harbour, supports the hypothesis that Chersonesos, besides being an important commercial centre, was also a seaside resort and a well-being centre for a wealthy class of citizens.[682] The various rescue excavations have brought to light a large theatre, while the remains of a

[678] Chersonesos see (Svorōnos 1890: 48), Kissamos see (Svoronos, 1890: 55), for Hierapytna (Svoronos, 1890: 321).
[679] Tabula Peutingeriana is the most representative piece of cartography of the Roman era, dated in 4th c. A.C. (335-66). For more details see Pazarli, Livieratos et al. 2007.
[680] Pazarli, Livieratos et al. 2007: 252.
[681] Chaniotis 2013: 62.
[682] Papadaki and Galanaki 2012: 269.

massive aqueduct from the Pediada towards the city constitutes further evidence for the city's prosperity.[683]

An interesting aspect of the port of Chersonesos is that the concrete moles were constructed during the Augustan period (Figs. 4.9-4.12). [684] In 36 BC, land worth 1,200,000 HR[685] around Knossos was granted to the colony of Capua by Augustus.[686] As a result, a trading pattern must have been introduced between Crete and the city of Capua in Italy, which is located close to the Campi Flergei, a source of pumiceous volcanic ash.[687] The archaeological record confirms the commercial connection between the two places via the large number of Cretan amphorae discovered throughout Campania.[688] Furthermore, the famous wine from Lyttos,[689] exported via Chersonesos, found its way to Italy probably via this trading route. Somehow along this connection, pozzolana ash was transported to the island, perhaps as a form of saleable ballast, and an opportunistic cargo (return cargoes), for the ships returning to the island.

In the west of the island, the new city of Kissamos was furnished with several new buildings and public facilities that made urban Roman life viable (Fig. 4.13). The remains of major constructions are scattered all over the city, including baths, roads, a theatre, several mosaics,[690] and villas.[691] The huge Mavros Molos (Fig. 4.14), the largest known breakwater surviving in Crete,[692] provides significant evidence for the size and ongoing activities in the western part of Crete allowing me to propose a reconstruction of the ancient harbour and coastline (Fig. 4. 15). Moreover, evidence of the water supply system of the city has also been discovered: wells were located in the houses and yards, with a few small

[683] See the Catalogue of Sites (1).
[684] Maybe the port in Chersonesos was constructed as part of Augustus '*master plan to renew and expand the maritime infrastructure of the Roman Empire*' (Brandon, Hohlfelder et al. 2014: 92).
[685] Vell. Pat. 2.81.1. '*Lands in Crete were given in return for these* (of the Campanian lands that were offered to the Veterans), *which yielded a richer revenue of a million two hundred thousand sesterces, and an aqueduct was promised which is today a remarkable agency of health as well as an ornament to the landscape*'.
[686] Dio Cass. 49.14.5.
[687] Gianfrotta 2011: 190-92.
[688] Ibid.
[689] Empereur, Markoulaki et al. 1989; Marangou-Lerat 1995; Marangou 1999; Chaniotis 2008; Hadjisavvas and Chaniotis 2012.
[690] See the Catalogue of Sites (2).
[691] See the Catalogue of Sites (2).
[692] According to Arthur de Grauwn, this '*is possibly the only large rubble mound breakwater that is above the sea today as it was uplifted around 3 meters during the 365 AD earthquake and therefore protected from further wave attack' (De Graauw 2016).*

tanks/reservoirs found on the premises of public and private bathhouses.[693] Stadiasmus informs us that Kissamos also provided its inhabitants with aqueduct water from its own source,[694] which was likely to have been somewhere close to the hill of Kali Vrisi. Moreover, typical Roman baths have been identified around the city (Fig. 4. 16), similar to those found elsewhere on the island and more generally in the Roman world.[695] What is special about Kissamos is how it managed to overthrow its metropolis, the city-state of Polyrrhenia, and become an independent port city. For example, there is a 3rd c. AD inscription referring to the Βουλή (parliament) of Kissamos, providing further evidence of the city's independence from its metropolis.[696]

While modern urbanisation has altered its ancient landscape, at Hierapytna (Figs. 4.17-4.17a), sufficient evidence survives for understanding the size of the potential harbour and even attempting a reconstruction of it. For example, in the 19th century, before major urban changes in the city, Captain Spratt noted that the western mole of the 2nd harbour 'was built very solidly, although of stones and mortar, or rather pozzolana',[697] a technique similar to that used for the construction of the harbour at Chersonesos. Furthermore, based on previous accounts, plans, maps, and narratives, the ancient polis must have had two theatres (a small and big one), an amphitheatre, a bath complex, roads,[698] and the large harbour was divided into three different parts (Fig. 4.18, 4.19). For the theatre's construction, the *opus caementicium* technique was applied using a solid mortar and small limestones (Fig. 4.20).[699]

Additional archaeological evidence provides hypotheses considering the economic activities that these harbour cities were engaged in. Chersonesos must have been an important commercial centre for the surrounding area and the harbour from which the Lyttian wine was exported. An amphora workshop was previously identified close to the harbour,[700]

[693]Markoulaki, Christodoulakos et al. 2004: 364; Angelakis, Christodoulakos et al. 2021: 17-18.
[694] *Stadiasmus* 338. A Turkish drinking fountain still stands close to the church of Ayios Spiridon. According to Spanakis water supplied to the town was also run via the ancient aqueduct from the stream of Chimarros (Spanakis 1982b: 209).
[695] Pateraki 2020: 778.
[696] *I. Cret. II. VIII*. 101 no.11. See also Markoulaki, Christodoulakos et al. 2004: 357.
[697] Spratt 1865, Vol. II: 263.
[698] Baldwin Bowsky and Niniou-Kindeli 2006.
[699] Sofianou 2020: 588.
[700] Marangou 1999.

bottling the goods arriving from the hinterland (Fig. 4.21). Apart from the exportation of wine, a great range of other economic transactions must have taken place close to the port during the Roman period.[701] A series of fish tanks, for example, is attested on the east side of Kastri hill, suggesting their commercial exploitation.[702] In the case of Hierapytna, there has been little archaeological work in the immediate hinterland of the city. Still, the nearby Gournia survey in the county of Lasithi provides evidence of the exports from the region. Six sites have produced evidence of trapeta and olive mills of sizes suggesting production at a scale above local consumption,[703] indicating that Hierapytna was an olive oil export centre. At Kissamos, at the site of Pyrgos, a large pottery workshop was excavated.[704] Ship's ballast piles were visible to the northwest, indicating a coastal workshop (Fig. 4.22).[705] Overall, the site must have been about an acre in area and was mainly active from the 1st c. to the 3rd c. AD when it turned into a metallurgy workshop. The surrounding hills must have been wooded enough to support the operation of the kilns, while water supplies perhaps came from the south of the town where the Kria Vrisi aqueduct might have been located.[706] Coastal pottery workshops were crucial elements of Imperial Crete's overall economy as they mainly produced the Cretan amphora that was exported all over the Empire.[707]

An important aspect of these sites was their location. Kissamos stands in the middle of two large peninsulas, which protect the bay and harbour while providing the city with a clear open view of any potential maritime threat. In the case of Chersonesos harbour, there were concrete-made additions to the natural anchorage that existed at the south of Kastri hill, creating a very-well protected harbour from all sides, an actual 'Limen Kleistos' (Fig. 4.23). Hierapytna is located at the mouth of a prosperous valley, allowing the city to exploit a great source of agricultural production and be in the 'pole position' for welcoming eastern trade networks towards the west. The geographical location of all three sites is unique, allowing them to expand and develop via their natural resources and the trading routes that were booming during the first centuries of the first millennium AD. Overall, harbour cities were better connected to the maritime economy and had a greater variety/quantity of imported

[701] Litinas 1999: 349-351; 2008; Gallimore 2014: 203-209.
[702] Personal observations. See also Leatham and Hood 1959: 270-73.
[703] Gallimore 2011: 152.
[704] Paterakis 2004: 375.
[705] Ibid.: 375.
[706] Ibid.: 375.
[707] Marangou 1999.

material culture than the other types of ports discussed below. These harbour cities were the primary sites in the port hierarchy since they were involved in high levels of commercial traffic; as a result, it is not a coincidence that the largest and most varied imported assemblages have been identified in their archaeological layers providing scholarship with considerable data pertaining to the trading networks that developed in Crete during Hellenistic and Imperial times. The quantities of pottery imports, in combination with the advanced harbour and urban infrastructure, allowed me to interpret the harbour cities as the undisputed commercial hubs of Imperial Crete. Their role in the large-scale maritime networks of the Imperial world is discussed in Chapter 6.

Dependent harbours and Administrative Centres

The great development of harbour cities along the coasts characterises the first two centuries AD in Crete. Simultaneously, inland centres retained their political power and importance for the island during Imperial times. Consequently, large population centres like Knossos, Gortyn, Lyttos, and Eleutherna adapted to the new circumstances. Knossos turned into a Roman colony under the influence of Capua, Gortyn was appointed the province's new capital, and Lyttos adopted high political status with the existence of a bouleuterion among the various new construction works.[708] At the same time, Eleutherna smoothly moved into the new era. These sites must have hosted a large percentage of Crete's overall population, while most of the imported goods were probably transported to their markets. These sites were consequently associated with several harbours and were probably in direct control of some. One should imagine traders moving their products directly to the island's interior after unloading the cargo on the coast. Following the arrival of a cargo ship at a harbour, a logistics chain was applied until the goods arrived at local markets. Historical sources and archaeology can provide potential matches between inland centres and their operating harbours. At the same time, topographic data and especially the identification of road networks can shed further light on such an endeavour. The importance of this type of harbour lies in the fact that they could have served different inland centres, while a large inland city would have absorbed supplies from various dependent harbours.

[708] Rethemniotakis 1984.

Gortyn, the capital of the newly established province and administrative centre of the whole island, must have used several harbours along the coast of south-central Crete to cover its import needs and the surplus of its products for export. As the heart of the hinterland, the capital must have been connected to harbours from Messara Bay, down the Lithino cape coast and towards the east, covering the whole modern county of Phaistos. Among the dependent sites were probably the harbours of Matalon (**5**), Lasaia (**6**),[709] and Lebena (**16**), the coastal religious centre devoted to Asklepios, which Strabo referred to as a trading centre.[710] As Harrison wrote, Gortyn's 'control of west-bound trade from the east must have depended on close contacts with more opportunely located coastal centres with city-status'.[711] According to Strabo, Matalon (Fig. 4.24), was one of the main ports of Gortyn.[712] Several warehouses were identified in the southern part of the bay (Fig. 4.25), while a large rock-cut slipway was also surveyed (Fig. 4.26).[713] Furthermore, the rock-cut tombs on the north side of the bay constitute a strong indication of a significant population in the area (Fig. 4.27). Also, the fish tanks located on the southwest point of the bay provide further evidence of other coastal economic activities (Fig. 4.28).[714] Previously, Sanders noted that Matalon was too small to serve the capital's needs and suggested Messara Bay as a potential harbour due to its long sandy beach.[715] Vessels of different sizes would have been able to draft beach, while the shallow waters would also have allowed the transportation of the products via hands or small boats. On the other hand, Messara Bay is unprotected and would have allowed beaching and mooring only in calm, windless weather.

Other sites should also be investigated as potential harbours of Gortyn. Further south, several safe anchorages were provided by the offshore islands of Megalonisi, Mikronisi and Traphos along the coastline from Cape Lithino towards the east. Furthermore, the high and steep cliff running towards the coasts provided further protection from the north winds

[709] And Kaloi Limenes.
[710] Strabo 10.4.11.
[711] Harrison 1988: 145; Haggis 1996a: 204.
[712] Strabo 10.4.11.
[713] Blackman 1973; Blackman, Rankov et al. 2013: 239.
[714] Except for the slipway at the southern part of the bay and the curved stair leading towards the sea, a small number of storages can also be seen. Moreover, on the north part of the bay tens of caves used as tombs still stand. According to Sotirakis the remains of a probably colonnaded jetty located in the middle of the bay (1991: 81), while Hooker and Faure reported the walls of a partly buried by the sand construction, as well as great quantities of sherds of jars, about 7m. under the water in the middle of the bay (Hooker and Faure 1974: 44).
[715] Sanders 1982: 23.

(coming down from Ida), rendering the whole area an ideal shelter.[716] The harbours of Lasaia[717] and Lebena, as well as the well-known anchorage of Kaloi Limenes, mentioned by Paul the Apostle,[718] were also among the harbours serving Gortyn. According to the Tabula Peutingeriana, two independent roads connecting Gortyn with Lebena and Lasaia existed (see Fig. 4.2). This map constitutes further evidence for the transportation infrastructure that existed along the southern part of Crete and the importance of these two harbours for the island's capital.[719] The map does not refer to Matalon at all. Specifically, based on the Tabula, the distance proposed between Lebena and Gortyn was 18 km, similar to the 20 km along the modern road.[720]

Based on the archaeological evidence scattered around the site and underwater, Lasaia was a coastal town. Epigraphic evidence suggests that it was the harbour of Gortyn by the late 2nd c. BC.[721] Furthermore, its harbour infrastructure is unique. Two breakwaters have been identified by the Traphos islet (Fig. 4.29).[722] The Roman one stands between the island and the bay, is one of the best installations found on the island, creating protection from either the western or the eastern winds (Figs. 4.30-4.31). Simultaneously, a series of walls, identified as belonging to storage buildings (Figs. 4.32-4.33),[723] along the bay, constituted clear indications of Lasaia's trading role as both a transhipment point and a dependent harbour to Gortyn. Moreover, the harbour's economy must also have been related to the stone quarries and deposits of copper and other minerals in the neighbouring area of Chrisostomos.[724] This site was both a dependent harbour and a coastal quarry harbour, adding a multifunctional element to the overall model. In a close distant from the Lasaia, a

[716] On Bintliff's estimations, the Ayiofarango Valley could have provided shelter to up to 140 people, calculations that were made on the basis of the farmsteads and threshing floors examined (Bintliff 1977: 24).
[717] Epigraphic evidence suggests that Lasaia was a harbour of Gortyn during the late 2nd c. BC (Chaniotis 2000).
[718] Spratt (1865, Vol.II: 2) described Kaloi Limenes as an anchorage open to the east and southeast and safe only in summer. Paul the Apostle noted *'we moved along the coast with difficulty and came to a place called Fair Havens, near the town of Lasaia'* (*Acts of the Apostles*, 27.8).
[719] Pazarli, Livieratos et al. 2007: 254. Further evidence regarding road systems in Crete revealed from a small number of milestones discovered in different parts of the island. For a discussion upon the milestones see footnotes 680, 850, and 851.
[720] Ibid.: 252.
[721] Chaniotis 2000: 60.
[722] The submerged breakwater standing on the NW part of the island, is 142 m long, 77 m wide and 7.50 m high, composed of boulders up to 2 m in diameter (Mourtzas and Kolaiti 2021: 16). The second breakwater, the not-fully submerged one, standing between the island and the bay is 96 m long and up to 11 m wide, composed of boulders up to 2.50 m in diameter. (Mourtzas and Kolaiti 2021: 16).
[723] Blackman and Branigan 1975; Blackman and Branigan 1977.
[724] Mourtzas and Kolaiti 2021: 15.

large building was identified, including a dedication to Asklepios.[725] Furthermore, some roof tiles inscribed with the name Asklepios were also found 3km from Lasaia, supporting the previous hypothesis.[726] Regarding the harbour of Lebena and its sanctuary, they are discussed in the 'Coastal Sanctuaries' section later in this chapter.

More coastal sites were used as epineion from bigger inland centres. On the west side of the island, the neighbouring sites of Syia (**7**), Lissos, and Palaiochora formed their own network. According to Stephanos of Byzantium,[727] ancient Suia was the epineion of Elyros, which stood several kilometres inland. According to the *Stadiasmus Maris Magni*,[728] Syia (Sougia) had a wide and well-protected harbour. This site is divided into two parts by the Kamarianos river (Fig. 4.34). All the archaeological evidence is in the eastern part of the site, dating exclusively to the Roman and early Byzantine times, with fortification walls, public buildings, thermae, and the remains of an aqueduct to bring water from Elyros (Figs. 4.35-4.38).[729] From the western part of the plain, Spratt described wall remains and supposed harbour installations still visible at the surface,[730] however, according to Werner et al. this is not possible since 'from a geoarchaeological point of view, the hypothesis that Sougia's ancient harbour existed in the western part of the plain was falsified due to the absence of corresponding microfauna'.[731] Markoulaki notes that Syia (Sougia) owed much of its prosperity to the exportation of local timber during the Imperial times.[732] This is important as it also suggests that dependent harbours also had an economy of their own rather than being completely reliant upon servicing the needs of an inland community. To the west of Syia (Sougia) is Paleochora, believed to be the ancient Kalamyde and home to the Kantatos harbour, an ancient polis located several miles inland.[733] Despite Pashley's description, there are no visible archaeological remains in Paleochora except for ceramic evidence and the remnants of a possible fort used to defend Kantanos.[734] Many other harbours along the shores of Crete appear to have been dependent on larger cities. For example, Hierapytna

[725] *I. Cret. I. XV. 3.* See also Blackman and Branigan 1977: 56; Chaniotis 2000: 55; Sporn 2002.
[726] Vallianou 1992: 549.
[727] Steph. Byz. s590.8.
[728] *Stadiasmus* 331, 332.
[729] For an overall overview of ancient Syia see Pashley 1837; Markoulaki 1982; Werner, Baika et al. 2018: 71, and for the aqueduct see Christodoulakos and Markoulaki 2006; Angelakis, Christodoulakos et al. 2021: 10.
[730] Spratt 1865, Vol.II: 242.
[731] Werner, Baika et al. 2018: 87.
[732] Markoulaki 1982: 81.
[733] Pashley 1837.
[734] Werner et al. 2017: 72.

controlled smaller harbours like Stalis, Leuke, and Ampelos.[735] Similarly, Knossos controlled Heraklion and Dia, while the new colony had economic interests in Chersonesos. Chersonesos likely had ongoing interaction with Lyttos,[736] while Lato and Lappa were in close contact with Olous and Georgioupoli.[737]

To conclude, the well-excavated big inland centres of Crete controlled coastal areas. As a result, they constituted ideal case studies for the interpretation and analysis of the external maritime networks entirely via the study of imported pottery. Similar to the sites of Chersonesos, Kissamos, and Hierapytna, the large centres of Knossos, Gortyn, and Eleutherna, received large amounts of imports. The pottery analysis from those sites (the large cities), in combination with the different geographical areas they were controlling, allows a solid examination of the trading networks. Such an interpretation constituted a vital part of this thesis, and it is discussed in greater detail in chapter 6. Finally, as already mentioned, the importance of roads was crucial for preserving connectivity between the administrative centres and their dependent harbours. In addition, Cretan islets should be included in our consideration, as they were probably also under the influence of the large centres of Crete.

Cretan Islets

Tens of sites have been identified along the Cretan coasts, while many more are attested on the small islets surrounding Crete. From Minoan times to today, some of the satellite islets of Crete have been constantly used either for habitation, commercial activities, pastoralism, or just as safe anchorages from vessels against strong winds. In Imperial times, the islets of Dia (**8**), Leuke (**9**), and Kaudos (**10**) had a dynamic role in the maritime cultural landscape of Crete, by forming independent microregions, used as shelters and anchorages by other Cretan communities, or used as transhipment points by the passing by vessels. Archaeological evidence has revealed the potential of these sites, and both terrestrial and underwater research provide a great source of evidence that brings to light vital aspects of

[735] Haggis 1996a: 206.
[736] Strabo 10.4.14.
[737] Lato - Olous: Chaniotis 1996b: 358, no. 61. See Chapter 6, Fig. 6.22.

everyday life around Crete. Each islet had its unique character and role in Cretan maritime life, but they must have actively participated in the port hierarchy connecting nodes between local and international networks. In particular, the islets of Dia, Leuke and Kaudos were closely connected to the centres of Knossos, Hierapytna, and Gortyn.

Dia was an obligatory stop for ships sailing to Crete; the passing by vessels had to stop there, when the weather conditions prevented them from approaching the harbour of Herakleion. It was a place of transshipment trade;[738] thus it should not be compared, nor confused with the populated islands of Leuke and Kaudos, mainly because of the absence of settlements, facilities, and of local population, elements indicating a different identity for Dia. The islet has been described as the safest and most regularly used anchorage around Crete (Fig. 4.39). It has four well-protected gulfs on its southern side, sheltering vessels from the north Aegean winds.[739] In particular, the gulf of Ayios Georgios constitutes an intertemporal safe anchorage,[740] and has been characterised as the 'busiest' on the islet, as well as the 'entrance' to Dia (Fig. 4.40).[741] Before visiting the site, my team attempted to survey an already-known shipwreck at the western edges of the island with no success due to the strong north winds that made our expedition dangerous. Our next stop was Ayios Georgios, where we experienced the exact opposite conditions and safely anchored the boat at the jetty in the west, allowing us to conduct an underwater survey to relocate the large waterfront described by Charalambos Kritzas. Hundreds of sherds of pottery lying on the seabed of Dia, including intact amphorae from various periods and regions (Fig. 4.41), most of them dating to the 2nd c. AD.[742] The waterfront was located in the west part of Ayios Georgios (Figs. 4.42, 4.43), which provided extra safety and formed a harbour in the northwest of the gulf. Part of the construction is a wide-open space previously identified as a potential slipway (Fig. 4.44).[743] Overall, no important remains from the Imperial period have been identified on the island (there is evidence from the Minoan periods), except at

[738] Despite its obvious role as a transhipment harbour, Dia was added to the sub-scale 'Cretan islets' due to its nature. It should not be confused to the other two islets discussed. At the same time, its presence here indicates the dual character of some of the case studies analysed.
[739] Horden and Pursell note that Dia, despite its insignificance in productivity, had the best four harbours on the island (Horden and Purcell 2000: 393). Simultaneously, the advantages of Dia's harbours might also explain the locations of both Knossos and later Candia, exactly opposite the islet (Rackham and Moody 1996: 200).
[740] Kopaka 2012.
[741] Ibid.: 450.
[742] Personal observations.
[743] Kritzas 1988a: 9.

the western head of the Ayios Georgios gulf, where the industrial zone of Dia must have existed. Here, a plethora of Roman sherds can be seen, as well as the remains of a kiln.[744] This indicates two things: firstly, that Dia was exclusively used by commercial vessels serving the surrounding areas of Heraklion and Knossos, and secondly that Dia might have turned into a large trading market where commercial ships (local and foreign) had direct transactions with each other. This would mean that as well as being a safe anchorage, Dia also turned into a commercial transit centre, with goods loading and unloading safely. The discovery of a large Roman vessel carrying Rhodian amphorae in this area provides further evidence for the 'International' transhipment role of Dia in the north Cretan Sea.[745]

Opposite the southeast coast of Crete, the large sandy beaches of Leuke welcomed passing ships and traders (Fig. 4.45). Leuke's reputation goes back to Hellenistic times, with the sites of Itanos and Hierapytna finding themselves in a dispute about the control of the islet.[746] Considering Leuke was mainly inhabited on the northwest side, one can assume that the arriving vessels moored in this area or the surrounding small gulfs, draft beaching by the coast or transferring commodities via lighters. No visible remains of marine installation can be seen today. Among the most impressive discoveries on the island were the ancient theatre, the bathhouse, and a vast water system connecting half the island (Fig. 4.46).[747] The existence of both the bathhouse and the aqueduct indicates that Leuke formerly had a water source (Figs. 4.47-4.48). At the same time, the theatre provides further information about cultural activities on the island and perhaps a significant population. (Fig. 4.49).[748] Simultaneously, the location of the islet at the southeast point of Crete, its potentially safe anchorage, and of course, the large-scale public constructions (e.g., aqueduct, bathhouse) indicate a site that was probably used as a shelter and a commercial centre.

Regarding the evidence from the bathhouse, it becomes obvious that the north coastline of Leuke has been altered (Figs. 4.50-4.51). The remains of the bathhouse are hanging above

[744] Kopaka 2012: 449.
[745] The shipwreck is discussed in detail in Chapter 5.
[746] See the famous Magnesia-mediated conflict between Hierapytna and Itanos over Kouphonisi and Stalis (Bosanquet 1940: 735; Spyridakis 1970: 56-59; Bennet 1990: 201; Chaniotis 1996b: 33, No. 57; Haggis 1996: 206).
[747] Leonard 1972; Papadakis 1983.
[748] The temple was probably located in the southern part of the island, at a hill of approximately 60m from sea level (Papadakis 1983: 64). On the western end of the island, another unidentified building was discovered, c. 2.15 x 4.05 m.(Leonard 1972: 362).

the shoreline, with some concrete-made parts lying under the sea (Fig. 4.52, 4.53). This is a clear result of erosion and evidence of the geological changes that have affected the island. A geophysical survey in Leuke is needed to understand and be able to reconstruct the maritime cultural landscape of the island and to produce a clear plan of the ancient town. Furthermore, the sea level has altered, like in most parts of Crete.[749] Similarly, strong evidence of erosion can be seen on the tiny islet of Marmaro standing opposite the north shore of Leuke, at a distance less than 120 m. Here Leonard saw building remains and wrote, 'to the north of the theatre, a few hundred meters offshore, is a small islet at the eastern end of which are a series of miscellaneous walls from which it was impossible to reconstruct any plan.'[750] He hypothesised that Marmaro was once part of Leuke, which was cut out from the rest of the island due to a significant geological event (e.g. an earthquake), similar to the one that cut off Mochlos (Fig. 4.54).[751] Furthermore, stone blocks and columns were seen lying underwater at a depth of 2.5 m, over 50 m between the tiny islet Marmara and the shores of Leuke.[752] Papadakis mentioned that the islet was probably connected with the coast in antiquity and that the remains of the blocks and columns are where the ancient harbour might have stood.[753]

An anchorage could have existed in this part of the island, close to the centre of the Roman community, ready to serve incoming ships and provide safety from the north winds (Meltemi). Following my recent visit to the site, I conducted both an inland and underwater survey aiming to locate evidence from the ancient harbour. Specifically, at the top of Marmaro, I identified the walls described by Leonard (Fig. 4.55) and evidence of a black-and-white mosaic. The mosaic evidence and the robust walls at the edge of the islet, combined with the discovery of a freshwater source running close to the ruins, made me consider the existence of a coastal temple similar to those attested along the coasts of Crete. Further research and excavation will shed further light upon the usage of this building, while a geophysical survey is more than essential. Meanwhile, the scattered walls of Marmaro, in combination with the underwater evidence, as well as the significant erosion that affects the

[749] Pirazzoli 1988; Mourtzas and Marinos 1994; Price, Higham et al. 2002; Mourtzas 2012a.
[750] Leonard 1972: 362.
[751] Ibid.: 355.
[752] According to Leonard *'at least five columns and one column base were noted in the water which separates the two islands'* (1972: 362).
[753] Papadakis 1983: 64.

island, allowed me to produce a reconstruction drawing of Leuke's potential ancient harbour (Fig. 4.56). Furthermore, a potential second anchorage might have existed on the island's western side. According to the local fishermen who brought me to the islet, its protective coves and small caves provide a safe shelter for small boats even today. Specifically, small caves existed along the west part of the island, which continued in use by sailors and fishermen into the 20th century.[754] Finally, the murex industry seems to have been the most significant commercial activity on the islet,[755] with the entire northwest tip of Leuke being covered by hundreds of thousands of shells (Fig. 4.57). The exploitation of murex must have been a very profitable activity for the islet's inhabitants, turning Leuke into a pole of attraction for other commercial activities.

A further maritime investigation needs to be done in Kaudos, the biggest among the surrounding islets of Crete, to reveal its character during Imperial times (Fig. 4.58). According to the epigraphical record, Kaudos was under the custody of Gortyn at least during the Hellenistic period, while the islet retained its own laws.[756] According to a treaty between Gortyn and Kaudos,[757] the latter provided a tithe of all goods that were available on the islet's shores as a dedication to the Apollon Pythios in Gortyn. The island was used for pastoralism and fishing activities, while several oil presses (Fig. 4.59), and open-air, rock-cut winemaking installations have been identified all over the island provided further information about the agricultural activities and production (Fig. 4.60).[758] Furthermore, the recent discovery of an aqueduct should start a new conversation about the actual potential of the islet and its role in Cretan maritime life during Imperial times (Fig. 4.61).[759] Could Kaudos be similar to Leuke in matters of commercial importance? More focused research on the island's coasts will shed further light on such a question. So far, the only known maritime evidence is a sunken pier identified by the modern harbour of Karave (Fig. 4.62) The pottery discovered around the construction is dated to the 1st c. BC – 1st c. AD and

[754] Captain Spratt who visited the island during the 19th century, described how he saw the cisterns, the aqueduct, and the base of the giant statue. At the same time, he also mentioned the existence of a natural anchorage; specifically, he wrote, '*between the two islets lying off the point of the town there is a small natural harbour for coasting craft* (Spratt 1865, Vol.II: 243).
[755] Papadakis 1983: 61.
[756] *I. Cret*. IV. 184. See also Davaras 1963: 141-152.
[757] Chaniotis 1996b: no. 69 A 18-19 415.
[758] Tegou 2018: 23-24.
[759] Angelakis, Christodoulakos et al. 2021: 1069.

mainly consisted of wine amphorae from Kos and Rhodes.[760] The discovery of a Roman shipwreck carrying amphorae just outside Gavdopoula constitutes further evidence for the maritime character of Kaudos.[761]

Overall, Cretan islets had a multitasking role in the MCL of Crete. Apart from providing safe anchorages they were also actively involved in Imperial trade due to their location and the exploitation of their local products (e.g., olive oil, wine, and murex dye) provided them with additional profit. Another important role they had, was serving the transhipment trade, with Dia having a crucial role in the north Cretan sea transactions. Furthermore, in several cases, small harbour islets could provide seafarers with other advantages. Specifically, dealing with commodities outside an administrative harbour also had a great economic advantage. A ship located at an official Roman port usually had to pay some fees for using the facilities, as well as import and export taxes. These were the 'elimenion' and the 'tele emporika'[762] and were probably in use in the commercial harbours of Crete since taxation was one of the most serious obligations of the provinces towards Rome. By trading on an islet outside an official harbour, ships could perhaps avoid paying the above taxes. According to Arnaud 'it has been noted that islands have been excluded from the list of the stationes where goods to be imported or exported had to be declared, and the taxes paid'. More about harbour taxation is included in the final part of this chapter, and chapter 6. Furthermore, as well as being used for commercial or sheltering purposes, it has recently been suggested that the islets surrounding Crete could have operated as quarantine stops for the sailing boats to avoid spreading diseases and illnesses by the crews to the visiting harbours and the local communities.[763] Of course, the term quarantine is not used unintentionally, as it means isolation for 40 days, as the crew members used to do before arriving in Venice during the 14th century AD.[764]

[760] Ibid.: 26.
[761] See Chapter 5. Unfortunately, no further evidence is included in the Ephorate's report.
[762] Arnaud 2011: 66-67. Elimenion was the basic tax that every ship had to pay in order to use the port's facilities, and generally the other services provided, while the tele emporika had to do with the *eisagoge and exagoge* accomplished by a vessel, which means the imports and exports.
[763] Theodoulou, T., Personal Communication, September 25, 2022.
[764] Conti 2008: 458.

Harbours as Transhipment Points

What is important about this scale of harbour sites in Crete is that they developed for the first time during Imperial times. Coastal sites like Phoinix (**11**) and Tarrha (**12**) in Sphakia, or Tholos (**13**) in Mirabello Bay are included in this scale of harbours. Their exact role cannot yet be safely determined, but the archaeological record indicates that they were far less economically developed than the harbours attached to the large *emporia*. Nevertheless, their participation in imperial networks cannot be denied, and these transhipment harbours of Crete operated as connectivity nodes and shelters for open water vessels sailing along Crete. No harbour infrastructure has been identified, while the few surviving remains from the Roman period indicate small populations.

The southern coast of Chania, specifically the county of Sphakia, constitutes a good example for the interpretation of this scale of harbours (Fig. 4.63). No harbour facilities have been attested in Sphakia, while no significant agricultural production seems to have existed during the Imperial times. A good anchorage, however, was essential for the development of Phoinix, Tarrha, and Poikilasos, which would have had a good reputation among ancient sailors as refuelling stops and wintering destinations. The 'Phoinikous limen', as referred to by Ptolemy,[765] and its two natural anchorages formed at the west and east side of the bay (Fig. 4.64), probably constituted the most famous harbour in south Chania, with Paul the Apostle confirming the quality of the harbour as an excellent destination for wintering.[766] In addition, the high concentration of remains and pottery sherds dating mainly to the Roman and Byzantine periods constitutes strong evidence for commercial development along the southwest coasts of Crete during that period (Figs. 4.65-4.66). Regarding Sphakia, out of the 655 pottery sherds collected during the Sphakia survey, 536 dates to the Roman period.[767] Simultaneously, the range of non-Cretan pottery in Sphakia,[768] strengthened the argument that transhipment harbours on the Cretan coasts were '*linked to the broader Mediterranean economy*' during Imperial times.[769] Specifically, Cretan vessels constituted less than 5% of the overall pottery identified in Phoinix, again a clear indication of the site's transhipment

[765] Ptol., *Geog*. 3.15.3.
[766] Paul, *Acts of the Apostles*, *27–8*.
[767] Francis 2017: 513.
[768] Ibid.: 514
[769] Nixon, Moody et al. 1989: 209.

character. Previously, the hostile environment of Crete, with the tens of disputes between the Cretan Poleis and the flourishing of piracy along these shores, would have prevented commercial ships from searching for shelter along the coasts of the island. The Christian basilicas scattered around Sphakia suggest that the city retained its prosperity until the late Roman times.[770]

Similarly, the nearby site of Tarrha was heavily dependent upon the sea since no cultivated land must have been available for any inland transportation infrastructure.[771] Following the excavation during the late 1950s, structural remains were identified to the east of the river (Fig. 4.67), including a wall (Fig. 4.68) and quantities of potsherds.[772] Furthermore, Buondelmonti noted the ruins of a temple, a cistern, and other buildings. According to Weinberg, on the west of the river, one could see the remains of a classical temple and ancient tombs.[773] The city was noted in ancient times chiefly for its oracle of Apollo Tarrhaios.[774] No harbour facilities were identified. According to Weinberg, Tarrha 'could receive ships during good weather, and the town had the advantage of a permanent water supply. Despite the risky landing facilities (which may have been better in ancient times), Tarrha must have been a regular stopping-place on the route from Alexandria to the west'.[775] By the coast at the east of the river, the Sphakia team noted a Roman sea wall.[776]

On the other side of the island, on the north coast of the gulf of Mirabello, several coastal sites appeared during the Imperial period. The Mirabello gulf, the biggest in Crete, constituted another zone of transhipment points along the Cretan coast. Here the intermediate valley between Mirabello Bay (north) and Hierapytna (south) constituted the shortest distance between the north and south coast on the island, with less than 15 km between them, allowing easy intercommunication. By the end of the 2nd c. BC, the surrounding area of Kavousi and Tholos Bay was probably influenced by Hierapytna.[777] What is impressive about the Mirabello coastline is that it had been largely abandoned since the Minoan period and was re-established only after the Roman occupation and the 1st c. AD.

[770] Francis 2017: 7.
[771] Sotirakis 1991: 96.
[772] Weinberg 1960: 90.
[773] Ibid.: 91.
[774] Ibid.: 91.
[775] Ibid.: 91.
[776] Nixon, Moody et al. 1990: 218; Perlman 2004: 1188.
[777] Papadakis 1986: 15; Bennet 1990: 200-202; Baldwin Bowsky 1994: 6; Chaniotis 1995: 74-75.

Probably the most well-protected anchorage, and an excellent example of a transhipment harbour in the area, was Tholos (Fig. 4.69). The site was inhabited in the Minoan period[778] and following the site's abandonment, Tholos is re-inhabited in the 1st c. BC.[779] Among other remains (Fig. 4.70), the most impressive is a large warehouse located close to the shore (Figs. 4.71, 4.71a). This large building constitutes good evidence of economic activities on the coast, possibly indicating Tholos' role in sheltering and victualling ships on longer-distance routes. More remains dating to Imperial times are scattered along the bay, with a 100 m long group of contiguous structures located east of the warehouse,[780] with the remains of a Roman spring house seen next to a freshwater source.[781] Whether this specific role was the case for Tholos is difficult to be sure of; nevertheless, the evidence from the site certainly matches the profile of transhipment harbours. The absence of domestic architecture and agricultural installations (oil or wine presses and equipment), combined with the large storage facility and the numerous amphora fragments attested at the site, indicates a storage role for Tholos. According to Haggis, the Tholos 'warehouse' is a granary and the associated port functioned as one important transhipment point along the 'corn route' between Alexandria and Rome'.[782] Furthermore, the drone survey I conducted at the harbour allowed me to investigate the site in detail while simultaneously allowing me to observe the surrounding area more holistically (Fig. 4.72). The location of the harbour, exactly opposite the islet of Pseira (**14**), creates a dual anchorage that could have been used according to the weather or season (Figs. 4.73). Pseira was inhabited since the Bronze Age,[783] as can be seen by the wall remains on the islet (Fig. 4.74), as well as from the large assemblages of Minoan pottery lying underwater (Fig. 4.75-4.76); it too was used as an anchorage during the Imperial times.[784] Seager presented the remains upon the islet as 'a Roman military camp, probably a beacon station'.[785] A concrete-made installation was discovered by Leatham and Hood underwater,[786] however, during our survey at the site (with EUA) in 2020, the installation was identified as a natural reef (Fig. 4.77).

[778] Haggis 1996a: 187.
[779] Ibid.: 190.
[780] Ibid.: 191.
[781] Evidence of a Roman springhouse: fresh water can be seen by that construction. The warehouse has a north-south orientation and measures ca. 55.70 m (north-south) and 9.60m (east-west).
[782] Haggis 1996a : 184. Regarding the grain trade see Chapter 6.4, 'Large Scale Interactions'.
[783] Betancourt and Davaras 1988; Simpson, Betancourt et al. 2005.
[784] Leatham and Hood 1958-59: 277-278.
[785] Seager 1910: 6-7.
[786] Leatham and Hood 1958-59: 277-78.

Overall, the transhipment harbours had a secondary role in the maritime networks of Crete since their natural location and resources did not allow them to grow to an Imperial level. Nevertheless, their importance is that they supported the MCL via their services, which in several cases (e.g., shelter due to weather, supplies, and more) could have been crucial for a ship's journey. Moreover, a few Cretan capes were well-known among ancient sailors as navigational references since the time of Ptolemy, indicating that the island operated as a stepping point between the eastern and the western Mediterranean. These were the capes of Krios, Kadistos, Kimaros, Samonion, and Kyklos.[787] Overall, the transhipment harbours of Crete and the island's potential shelters and capes are crucial to identifying Crete's maritime character and role in the Imperial world, especially regarding the identification of sailing routes. More details about the potential sailing and trading routes surrounding Crete are presented in detail in chapter 6 of this thesis.

Coastal Religious Centres

The final scale of harbours included in this model discusses the potential of the coastal sanctuaries attested along the shores of Crete. In the case studies discussed, a shrine 'shaped' the surrounding landscape regarding infrastructure by also affected every other social or economic activity. The coastal religious centres chosen for this interpretation are the sanctuaries of Asklepios at the harbours of Lissos[788] (**15**) and Lebena (**16**) and the temple of Diktynna at Rhodopou (**17**). Their distinction does not simply lie in their monumental architecture, as temple remains attested in the harbour cities mentioned previously (as well as in other places along the island), but in the fact that the local community's prosperity was connected to the sanctuary and its functions. In addition, several facilities have been built around these temples, such as guesthouses, baths, and healing amenities. The sanctuaries' location was not arbitrarily selected but formed a safe anchorage supplied by a freshwater spring. Moreover, another aspect that deserves significant attention is that the temples stood near natural inlets, in the presence of high ground sheltering the site behind them (see Lissos and Lebena). That indicates natural coastal accessibility and positioning along

[787] See Chapter 6.3, 'Trading and Sailing Network Analysis'.

[788] The polis of Lissos have been deliberately left out of the 'Harbour Cities' section discussed in the begin of this chapter. Unfortunately, the gap in the archaeological record considering the site does not allow me to analyse it further for the purposes of this section. On the other hand, the available data regarding the temple of Asklepios are such, that allow me to discuss Lissos as a coastal religious centre.

protected slopes that undoubtedly suggests a favoured relationship with the sea and potential exploitation of its advantages.[789]

During my fieldwork, I visited all three sites by following a hard inland path or by using a boat.[790] Several other sanctuaries and temples existed along Crete, both in the island's interior and coasts (Fig. 4.78), but the three chosen sites constituted unique case studies that could harmoniously fit into the multi-scalar model. This part of the discussion aims to present some common patterns between the previously mentioned sites and tries to interpret their actual political and economic role in the MCL of Crete. In a 2009 paper, Chaniotis discussed the potential of sanctuaries from Classical and Hellenistic Crete through the concept of extra-urban sanctuaries. This type of religious centre retained a more multifaceted character than just their theocratic identity, by reflecting 'complex hierarchical structures, relations of dependence, tensions and conflicts on a politically divided island'.[791] Perhaps, the most important aspect of these sanctuaries was their exploitation 'by the communities which administered them in their effort to demonstrate territorial claims'.[792] In several cases their sacred lands turned into a matter of dispute between opposed poleis,[793] while in other cases, they were used as meeting points between political powers,[794] or even as areas for the dedication of asylias.[795] Moreover, dependent areas used to express their loyalty to the dominant poleis via dedications to their sanctuaries, such as the tithe offered by the islet of Kaudos to the sanctuary of Apollo Pythios at Gortyn.[796]

According to the archaeological record, the three coastal sanctuaries discussed faced enormous urban and economic development during Imperial times, particularly during the 2nd c. AD. The transformation of these sanctuaries must have had a strong political influence, usually highly connected with the ambitions and status of the elites involved in their funding. At the same time, they must have enjoyed a form of Asylia since the Hellenistic

[789] Bultrighini 1993: 117.
[790] Lebena (Lentas) is easily accessible via a modern road, due to the site's touristic development.
[791] Chaniotis 2009: 60.
[792] Ibid.: 61.
[793] The Sanctuary of Zeus Diktaios at Palaikastro, and the conflict between Itanos and Hierapynta, had a political aspect, since the control of the temple indicated the control of the surrounding area for which the two poleis came into a dispute in the first place.
[794] See Chapter 2.2, '*Kretan Koinon*', regarding the role of Lissos in the Koinon of Oreioi. See also, Chaniotis 2015: 377-379.
[795] See the case of Lebena below, regarding the asylia decree between Phaistos and Tenos.
[796] Chaniotis 1996b: 407 (No.69, A 18-19); 2009: 60.

period. As shown in Chapter 2, the Cretan poleis were obliged by the Cretan law to respect the sacred lands of the religious sites.[797] A sanctuary could have significantly impacted polis boundaries and territory during the Hellenistic period. Furthermore, no protective walls have been identified in any of the premises of the three discussed sites (Lissos, Lebena, Diktynna),[798] pieces of evidence that indicate their sacred character at a time of endemic warfare. Such a discussion is further supported by the fact that no destruction layers indicating human involvement have been identified during excavations, whereas natural disasters, e.g., earthquakes, affected all three.

Consequently, the new circumstances of being part of the Roman Empire allowed them to expand their role in surrounding regions by turning these small religious sites into nodes of commercial importance, able to form their own economic maps along the island. At the same time, literary and archaeological evidence indicating their religious importance seem to have gone beyond the borders of Crete by creating international networks with other religious centres across the Mediterranean. Below, the sanctuaries of Lissos, Lebena, and Diktynna are discussed to provide further answers regarding this less obvious but equally important element of the Cretan MCL.

The temple of Asklepios at Lissos

As already mentioned in the introduction of this scale harbour, the main difference of Lissos compared to the other two coastal sanctuaries (Lebena and Diktynna), is that Lissos most probably was an independent polis that retained its status during the Imperial times. The existence of a marine installation (see below), in combination with other public constructions, such as the small theatre, and the great number of Imperial epigraphic sources found by the side of the temple,[799] indicating an actual polis. More specifically, a decree dating to the 1st c. AD (concerning additions to the celebration of the Imperial cult of Tiberius) was found in the Asklepieion, with the names of three *kosmoi* inscribed at the end of it.[800] Except for the reference to the *kosmoi*, the decree indicating the participation of Lissos in the Kretan Koinon, which constitutes further evidence for the city's independence,

[797] Rigsby 1996: 360.
[798] Coutsinas 2013: 174 (Carte 13).
[799] Baldwin-Bowsky 2021.
[800] Baldwin Bowsky 2021: 26-27; Karambinis 2022: 235.

as such a decree would have been allocated only between settlements with the status of polis. Furthermore, according to Tabula Peutingeriana, there was a road that connected the polis of Lissos with the harbour city of Kissamos (see Fig. 4.3).[801] Unfortunately, the small number of archaeological data emerging from the rest of the site (due to the lack of previous archaeological expeditions) forces me to allocate it to this scale of harbours, and not to the first scale of harbours 'Harbour Cities' discussed at the beginning of this chapter. As result, the following analysis focuses on the impact that the sanctuary had on the rest of the site.

The cult of Asklepios existed in Lissos during the Hellenistic period, but the polis' main deity was Diktynna.[802] The site was also the meeting point of Koinon tōn Oreiōn.[803] Following the Roman occupation, Lissos and the whole county of Selino (including Tarrha and Elyros) seem to change. This is also when Asklepios becomes the primary divinity in the polis. The archaeological evidence from Lissos indicates a dynamic coastal site where a great variety of activities must have taken place (Fig. 4.79). Despite its apparent archaeological potential, Lissos remains an understudied site, with no intensive archaeological expeditions, except those on the temple of Asklepios. Unsurprisingly, during the Imperial period, the temple was the heart of the sanctuary (Fig. 4.80), surrounded by several other auxiliary rooms (Fig. 4.81). Except for the religious-related buildings, the remains of other constructions are visible today, including a theatre (Fig. 4.82),[804] a bathhouse, the 'hostel for Pilgrims',[805] several tombs (Fig. 4.83), and many more scattered ruins and walls from the Roman era, which remain unidentified.[806] Usually, close to the temples of Asklepios, water fountains associated with the temple existed that would have also provided water to the rest of the community.[807] Platon distinguished an installation in 1957, probably connected to the sanctuary's spring. Excavations in the following years uncovered a system for channelling

[801] Pazarli, Livieratos et al. 2007: 254.
[802] The cult of Diktynna in Lissos during the Hellenistic period is not only attested epigraphically (*I.Cret. II. XVII. 1*), but also via coins (Perlman 2004: 1174-1175).The sanctuary has not been found yet.
[803] Chaniotis 2015: 377-379.
[804] Sanders 1982: 171–72.
[805] Shaw, Shaw et al. 2000: Tbl. 8.13.
[806] Overall, the temple belongs to the pattern of small temples around Crete as well as the one of Asklepios. At least 60 statues were recovered from the temple during Platon's excavation (Kanelopoulos 2020: 761). According to Kanelopoulos, the temple's architecture is unique, and nothing similar is attested in Greece (Kanelopoulos 2020: 759-761).
[807] The temple's water supposed to be healing, while even today people from Souyia go to Lissos for water.

water from the spring to the sanctuary's spring under the floor. Specifically, beside the podium that supported the cult statue, a tank with a drainage pipe was found.[808]

Harbour infrastructure must have been essential for the proper functioning of a sanctuary like the one in Lissos (and generally for the needs of the polis), especially for patients arriving at the site for the sanctuary's healing amenities. A large waterfront has been attested some tens of meters from the modern coastline, providing vital information about both the harbour and its function, as well as evidence concerning sea level change in the area (Fig. 4.84, see also Fig. 1.3).[809] Regarding the daily transactions at Lissos, one could assume that the site would have made great use of its harbour, with vessels probably loading and unloading on a daily basis. Unfortunately, no evidence (epigraphic, historical, or archaeological) indicates the site's economic character regarding agricultural production, pasture, ceramics, slave ownership, or other services. Further research could provide fascinating insights into how the sanctuary functioned and impacted the surrounding area.[810] The large size of Lissos, in comparison with the surrounding sites, indicates remarkable development along the coast of Selino, suggesting that local networks with the surrounding regions must have existed. Lissos must have been in immediate connection with Syia (Sougia) and perhaps smaller harbours along the southwest coast. Additionally, passing ships must have stopped at the sanctuary's harbour. As a result, another essential source of supplies and donations arrived at Lissos' harbour through providing shelter to these boats, which would have been another profitable business. The temples of Asklepios at Lissos and Lebena operated as healing centres,[811] with patients remaining at the sanctuaries for several days or weeks.

Regarding the statues found in the temple's interior, most of them were probably produced in Kissamos, while similar statues have been identified in Gortyn.[812] According to Machaira, the types of statues attested in the temple indicate a close connection between the Asklepieion and other sanctuaries across the Mediterranean, including Pergamos, Kos,

[808] Platon 1957; 1958; 1959; Platon and Davaras 1960.
[809] Lissos waterfront is 107m. long. Another wall (90m. in length) runs vertically towards the beach (Sotirakis 1991: 93). Overall, the whole area has been uplifted for at least 5 m (see Chapter 1.1, 'Sea Level Changes').
[810] The whole county of Selino, including the site of Elyros, remains heavily understudied.
[811] Melfi 2006: 442; Liritzis, Bousoulegka et al. 2017: 130; Kanelopoulos 2020.
[812] Machaira 2011: 439.

Kalymnos, Rhodes, Athens, and Epidauros.[813] At the same time, a dedication by Agathemeros of Kos provides evidence of contacts with the temple of Asklepios at Kos.[814] Specifically, the text is of great interest because it enlightens us on the recurring relationships between the Asklepieia in different parts of the eastern Mediterranean.[815] Could these potential connections constitute evidence for the existence of religious maritime networks in the Imperial world?[816] To conclude, the epigraphic record from Lissos provides further insights into a different aspect of life in the sanctuary and the polis of Lissos.[817]

The temple of Asklepios at Lebena

Geographically, the sanctuary is located close to Gortyn (less than 15 km) and is accessible via a gorge in the mountains.[818] The polis itself must have constituted a vital harbour for Gortyn,[819] since the port and settlement at Matalon do not appear to have been used before the 3rd c. B.C, with Lebena being the only safe harbour in Messara and the southcentral coast.[820] By the end of the 3rd c. BC, the sanctuary appears to be under the jurisdiction of the kosmoi of Gortyn, while religious officials of Gortynian origin must have administered it.[821] Further evidence regarding this relationship emerges from the discovery of an asylia decree between Phaistos and Tenos found in Lebena' premises in Miamu.[822] Phaistos was in a close relationship with Gortyn, probably under the same alliance, evidence that indicates the role of Lebena as an extra-urban sanctuary where decrees like the one above were held. No walls are attested around the city.[823] (Fig. 4.85-4.86).

The Asklepieion at Lebena must have turned into the main religious centre of the area earlier than one might think. Specifically, during the early 1st c. BC, and even before the island's annexation in 67 BC, several cult sites around Messara were in decline, including the

[813] Ibid.: 440.
[814] Platon 1958: 338; 1959: 377. SEG 45-1316.
[815] Bultrighini 1993: 107.
[816] Religious maritime networks are further discussed in Chapters 6 and 7.
[817] See Baldwin-Bowsky 2021 for a detailed analysis of the epigraphic record of Lissos.
[818] Spratt 1865, Vol. II : 349.
[819] Steph. Byz. B167.4.
[820] Melfi 2007: 116.
[821] Ibid.: 115-116.
[822] Rigsby 1996: 157-158.
[823] Spratt 1865, Vol. I: 350; Coutsinas 2013: 174 (Carte 13).

cult sites of Lasaia and Ayia Triada.[824] Something similar happened around Knossos, with most cult activities concentrated around the sanctuary of Demeter. Clearly the centralisation of power and religion was a phenomenon that had started before the arrival of the Romans. These changes might be connected to the overall political instability around the region that had to do with pre-hostilities with the Romans. In contrast, religious life in Lebena was active, at least since the Augustan period. Having overcome the 1st c. BC crisis involving the shrines of the smaller centres, the Asklepieion revived with the introduction of the new province, this time entirely focused on religion and cult, still under the control of Gortyn.[825]

The sanctuary peaked during the Imperial period shaping the surrounding area, while the temple and activities must have reached an international level of fame. Based on an inscription,[826] Lebena was entirely reconstructed during the first quarter of the 2nd c. AD during the reign of Trajan. In the second half of the 2nd c. AD (late Antonine period) the sanctuary and the surrounding region flourished. Both Lebena and Gortyn experienced significant development during that time, as seen by the monumental constructions in the urban landscapes of both sites. Regarding the sanctuary, the presence of water channels and the discovery of an inscription that refers to a 'miraculous healing' from water in one of the associated buildings indicates further evidence for the temple's functions and healing purposes.[827] Melfi notes that it might have been used as an accommodation facility for healing practices, such as sea bathing and *thalassotherapy*.[828] Considering the rest of the urban infrastructure, except for the temple itself and the assistant rooms (Figs. 4.87-88), a Nymphaeum (Fig. 4. 89), as well as an aqueduct, have been identified (Fig. 4. 90). By the coast, some large concrete-made structures exist that could have operated as marine facilities (Figs. 4.91-92).

Such growth was probably the result of a careful form of relations between the local elite and the Imperial policy and household. The sanctuary attracted the attention of Italian

[824] Melfi 2007: 139.
[825] Ibid.: 139.
[826] See Melfi and Camia 2004: 295-302.
[827] Following Italian excavations on the site, two water springs were discovered (upon which two fountains were build), that must have provided the ancient temple with water (Melfi 2007: 149).
[828] Melfi 2006: 442. See also: I. *Cret*. I. XVII. 20, as a reference to the use of seawater in healing practices, and Detorakis 1995.

merchants, similar to other sites on the island[829] and as a result came to the attention of higher officials from Rome.[830] The sanctuary was rebuilt between AD 160 and 180, thanks to the funds provided by a prominent Gortynian named Titus Flavius Xenion, who was the dedicator of the statue of Asklepios.[831] It is not a coincidence that the archaeological remains seen at the site today, dating to the Antonine period, as the investment into sanctuaries, particularly to Asklepios, was a standard policy for the Antonine's, since the time of Hadrian.[832] The restoration of the sanctuary of Lebena, besides being linked to the cultural trends of the time, may have been part of the more general monumental programme aimed at giving a new face to the capital of Crete. As Melfi noted, the developments in the region were 'worthy of a provincial capital and its main extra-urban sanctuary'. In fact, the workers who restored the sanctuary can be traced back to Gortyn and to the construction of the Praetorium.[833] The types of imported marble found in both sites seem the same. Similarly, at the Asklepios of Lissos, several statues discovered there seem to have been constructed in Gortyn.[834] As a result, one can see that another pattern between the Asklepios sanctuaries and the provincial capital seems to occur.

During the same period, Lebena receives international recognition, with the first surviving references to the temple dating around the end of the 2nd c. AD.[835] Specifically, Philostratus (through Apollonius) compares its importance to that of the sanctuary at Pergamon. Moreover, he discusses the connection of the Asklepios temple with the Libyans, '*who cross the sea to visit it*', while also demonstrating the pan-Cretan importance of the shrine, noting that all the Cretans flocked to the temple, similarly to the way that the whole Asia flocks to the one in Pergamon.[836] Moreover, the presence of Apollonius and the description of the site as a pilgrimage centres indicates that the place of worship must 'have been known to the neo-sophistic cultural circles and frequented by the same kind of intellectuals who gathered in the Asklepieion in Pergamon'.[837] On the other hand, Pausanias chose to discuss

[829] See Chapter 6.4, 'Large-Scale Interactions'.
[830] Melfi 2007: 151.
[831] *LGPN* 1, 342. See also Strataridaki 2014: Xenion (460).
[832] Melfi 2010: 338. For further discussion regarding the connection of Asklepios with privileged classes, the 'paideia', and generally the cultural education of the time see Melfi 2007: 142-143.
[833] Melfi 2007: 144.
[834] Machaira 2011: 439.
[835] Melfi 2007: 152.
[836] Philostr., *V A* 4.34.
[837] Melfi 2007: 144.

the temple at Lebena along the most famous Asklepieia, while he also mentioned that its construction originated from the one at Cyrene.[838] According to an inscription in stoa N,[839] the temple's origins could also be related to a Theon from Lebena who first imported the cult from Epidauros to Crete after visiting the Asklepieion in Peloponnese.

Overall, in the second half of the 2nd century AD, Lebena, similar to Gortyn and the rest of the Cretan poleis and harbours, appears to be fully integrated into the cultural and political features of the Imperial world. It is not a coincidence though, that the sanctuary adopts a supra-regional character through the worship of Asklepios, by attracting the attention of the high classes connected to the Imperial circles of interest.[840] From a local perspective, the site must have retained its role as Gortyn's harbour while constituting the only maritime religious centre with easy access from the hinterland, which resulted in its harbour being used for purposes other than supplying the temple and its pilgrims.[841] This indicates a clear second phase for the site showing that the multiscalar model proposed here has a dynamic component that, by the nature of sites, can change according to the circumstances. More research needs to be done in the area regarding the maritime character of the sanctuary.

The temple of Diktynna at Rhodopou

The well-referenced temple of Diktynna at the north tip of the Rhodopou peninsula, located literally at the edge of a cliff, was dedicated to the Cretan Goddess of Dikty (Fig. 4.93). A treaty between Phalasarna and Polyrrhenia was found in the temple, which dates to the early 3rd c. BC, indicating the importance of the sanctuary for NW Crete during the Hellenistic period.[842] According to Strabo,[843] after the Roman conquest of the island, the sanctuary was in between the hands of Polyrrhenia and Kydonia, while during the reign of Hadrian, the temple faced its most significant development, perhaps as the sanctuary of the Koinon ton Kreton. The sanctuary must have had a pan-Cretan status but did not comprise a vital part of an independent polis like the two previously discussed sanctuaries, although it would still have formed a wealthy community. The temple is not well preserved, with only a

[838] Paus. 2.26.9.
[839] *I.Cret. I, xvii, 7, 8, 10;* Chaniotis 1988b: T11; Kritzas 1993: 287; Sporn 2002: 190-192.
[840] Melfi 2007: 147.
[841] According to Strabo (10.4.11) Matalon was one of the main ports of Gortyn. For the province, Crete/Cyrenaica see (Strabo 17.3.25; Dio Cass. 53.12).
[842] Chaniotis 1996b: 179 (No.1); Sporn 2002: 278.
[843] Strabo 10.4.13.

few facilities visible today (Figs. 4.94-4.95). The sanctuary peaked during the Hadrianic period when additional buildings were erected along the bay. A series of cisterns (Fig. 4.96) and the 'guest houses' (Fig. 4.97) are the only constructions remaining visible at the site. An aqueduct must have existed in the region, providing the sanctuary with fresh water. No harbour infrastructure is visible along the Bay of Menies. Previous geological events have altered the landscape to such an extent that a geophysical study of the area is necessary. The second time I visited the site was via the sea. Arriving at the peninsula's tip with a boat was a unique experience. In antiquity, the temple must have been visible from far away and a point of reference for the passing by ships, perhaps operating as a lighthouse too (Fig. 4.98).

According to the epigraphic record from Crete, the temple of Diktynna must have experienced significant development during the Imperial period. Among the known evidence is a small number of milestones, indicating the existence of a road network connecting the temple of Diktynna with the rest of the island, including the capital Gortyn.[844] This indicates the pan-Cretan influence of the sanctuary, its economic prosperity, and perhaps a connection with imperial elites that controlled Gortyn. According to Strabo, the sanctuary must have been under the influence of Polyrrhenia during the 1st c. BC.[845]

Further evidence regarding the economic development the sanctuary faced during the 1st and 2nd c. AD derives from an inscription found on the site. This is a fascinating source of evidence indicating the sanctuary's autonomy and economic activities. Except for the various donations and offerings to the temple, according to an inscription dating to 6 BC, Diktynna was involved in a series of other economic activities that provided its treasury with additional income, including hiring out slaves and craftsmen, mainly to Italian and Roman citizens that were commercially active in Crete, pastures, and animals. The temple was also involved in the trade of wool, cheese, wine, as well as ceramics.[846] Consequently, these activities provided the sanctuary with significant revenues. Furthermore, according to Philostratus, when Apollonius of Tyana visited Diktynna in the mid-first century AD, he came

[844] Tzifopoulos 2004; Chaniotis 2013: 60-61; Sporn 2013: 2099. See also the discussion upon the milestones in footnotes 680, 850-851.
[845] Strabo 10.4.13. The site was probably established around the 7th c. BC, while Herodotus refers to the erection of the temple in Diktynna by the Samians around 520 BC (Hdt. 3.59).
[846] *I. Cret.* II. XI, see also Sanders 1982: 39; Tzifopoulos 2004: 100-101.

across a wealthy sanctuary whose shrine was protected by dogs and guardians.[847] This wealth, combined with the sanctuary's location far away from the administrative poleis, must have provided Diktynna with political autonomy. Furthermore, Yannis Tzifopoulos presented two milestones, one found in Rhodopou and the other in Viran Episkopi, dated around AD 129-132,[848] indicating the existence of a road network connecting Diktynna with other parts of the island, as well as road networks that were exclusively funded by the sanctuary itself.[849] The funding of extensive road works around Crete by the Diktynnaion, which connected the rest of the island with the sanctuary, indicates the mutual service of interests of both the Emperors involved and the sanctuary itself.[850] According to Chaniotis, 'Hadrian supported the construction of roads on a large scale, ensuring that the necessary funds were provided by the sanctuary of Diktynna, which was not only Crete's wealthiest sanctuary but possibly also the 'federal' sanctuary of the Koinon ton Kreton'.[851] Diktynna was a supra-local sanctuary,[852] which served its policies and was under no other authority alone but in the service of the Koinon ton Kreton. Trajan and Hadrian's construction works were of military and commercial importance and the road networks funded by Diktynna were part of a similar policy.[853] The new prostyle temple erected on the site during the reign of Hadrian,[854] in combination with the discovery of its portrait,[855] perhaps indicates the presence of the emperor at the site.[856] It is also possible that this imperial visit could also relate to the reconstruction of the Asklepios temple in Lebena around the same time.

Discussion

The coastal centres discussed above were exclusively involved in religious activities, and one can assume that their inhabitants were also involved in services and transactions influenced by the cult. Among the services provided was accommodating visitors, providing them with food and other goods. At the same time, one could assume that the inhabitants (and the pilgrims) were also probably involved in the commercial exploitation of the sanctuary via

[847] Philostr., V A 8.30.
[848] Rhodopou: *I.Cret*. II. XI. 6, Viran Episkopi: SEG XXIII 581. See Tzifopoulos 2004;
[849] Sporn 2013: 2099.
[850] Tzifopoulos 2004: 101.
[851] Chaniotis 2013: 65.
[852] Ibid.: 62.
[853] Tzifopoulos 2004: 102-103.
[854] Sporn 2002: 277-280; 2013.
[855] Bechert 2011.
[856] Chaniotis 2013: 61.

trading in religious souvenirs and other items connected to the temple, perhaps in the form of a market. Moreover, one should assume that the coastal sanctuaries might have been used as winter destinations for passing ships, like the transhipment harbours described above. Maritime networks were essential for the smooth operation and survival of a coastal religious centre such as those in Crete. What is generally notable about this scale of harbour is that they were connected in regional and local networks around the island. They retain their everyday contacts, but simultaneously, the sea was an unlimited source of opportunities for their prosperity. In any case, their presence and reputation as religious, cultural, and commercial nodes supported the overall development of the MCL, mainly via their interconnection with other religious centres across the eastern Mediterranean via small-world networks.[857] Specifically, according to the previous paragraphs, close relationships and networks must have existed between Lebena and Libya (Cyrene) both in matters of religious identity but also of shared administration between Gortyn and Cyrene. Furthermore, similarities in the monumental topography between the sanctuaries of Asklepios at Lissos and Kos indicate close connections and perhaps a much more complicated network system that needs further analysis. Besides, the effect and affiliation with mainland Greece and the sanctuaries of Epidauros and Athens are also crucial.[858]

The coastal sanctuaries discussed formed their economic maps along the island, while according to the archaeological record, they constituted flourishing nodes of connectivity along Crete, with all three minting coins.[859] Their dual character as religious and commercial centres enabled them to become wealthy. Lissos and Lebena were probably dependent upon other cities during the Hellenistic and late Hellenistic periods, but during the Imperial period it would appear that they adopted a more individual role. Especially Lissos must have been an independent city. Similarly, during the Hellenistic period the sanctuary at Diktynna must have been under the influence of Polyrrhenia, a relationship that perhaps continued during the Imperial period, before turning into the sanctuary of the Koinon ton Kreton. The significant levels of prosperity that this sanctuary reached, as far one can tell from the different economic activities it was involved in (including the funding of public works), provided the temple with a wider status in the Imperial world. Overall, the coastal

[857] See Chapter 6.4, 'Small worlds Networks'.
[858] Bultrighini 1993: 116; Machaira 2011: 449.
[859] Chersonesos see (Svorōnos 1890: 48), Kissamos see (Svoronos, 1890: 55), for Hierapytna (Svoronos, 1890: 321).

sanctuaries constituted important parts of Crete's Imperial Maritime Cultural Landscape, while the new era set the basis for their actual transformation. Undoubtedly, the 2nd c. AD was their peak, mirroring the island's overall development. In Chapter 6, religious maritime networks of Crete are briefly discussed.[860]

4.3 Discussion

Multiscalar Networking

The analysis of each scale of harbour aimed to present the different economic and social aspects that developed across the island and how each added a unique element to the reconstruction of MCL. At the same time, it showed how every harbour has its distinctive role in the overall prosperity and maintenance of connectivity in Imperial Crete, and in a way that a chain of coastal interactions sustained the harbour networks. The harbour hierarchy is essential in such an analysis, with the harbour cities controlling the large trading and maritime networks reaching Crete. Similarly, the large interior centres had their dependent harbours for keeping up with the developments of the gradually expanded and connected Roman world. Specific counties and regions of Crete were more prosperous during the Imperial period, mainly via the exploitation of their products and the international networks they were connected to. The overall prosperity and development of the rest of the case study harbours can be seen mainly via the significant architectural changes and the large quantities of imported pottery attested (chapter 3). Archaeology is the leading indicator for classifying these harbours, and in the case of Crete, the results are precise. The large public building projects attested in specific harbours, including theatres, bathhouses, and roads, indicate that significant capital was divided amongst these sites since they controlled local agricultural production and were the first hubs that would take advantage of the international networks. Simultaneously, not all harbours were similarly thriving in the new trading patterns that advanced throughout the Empire and across the Cretan harbours. Three categories resulted in the analysis of port hierarchy along the Cretan coasts. Harbour cities gain a primary spot in the multiscalar network by turning into the

[860] Further work upon the role of the coastal sanctuaries of Crete and their connections with other coastal religious sites could shed light upon different aspects of the local economy and networking in the eastern Mediterranean. Further studies regarding coastal religious sites have been conducted by Malkin 2011; Kowalzig 2018.

commercial centres of Crete.[861] Similarly, the large administration centres found in the island's interior, Knossos and Gortyn, with their dependent ports managed to keep up with the new developments, while the transhipment harbours in areas like Sphakia and Mirabello adopted a secondary role. Finally, the religious coastal sites formed their own networks, always in conjunction with their surrounding areas in a local tier of connectivity or through contacts with other sanctuaries across the sea.[862]

The existence of large harbour cities with advanced harbour infrastructure, were the hearts of Imperial Crete's economic and social character. These *entrepôts* redistributed commodities as imports or exports to other networks either in Crete or outside. The networks formed between the harbour cities, the smaller harbours and the hinterland (including the large interior centres), created new regional and local networks that probably sustained daily interrelationships (see chapter 6 for a detail analysis of the maritime networks attested in Imperial Crete). In the west, Kissamos and Kydonia formed their spheres of interaction. On the east side of Crete, Hierapytna and Chersonesos developed different trading patterns forming their hierarchies and small worlds. Simultaneously, the islets surrounding Crete must have actively participated in the primary port hierarchy as the first connecting nodes between the regional and international networks. Especially the islets of Dia, Leuke and Kaudos would probably have been in close contact with Knossos, Hierapytna, and Gortyn. They must have had a dynamic role in the maritime cultural landscape of Crete, forming either independent microregions or being used as shelters and anchorages. Furthermore, these islets were used as 'satellite emporia' (especially Leuke) of the large administrative centres which did not have immediate access to the sea, sometimes providing the chance for tax-free trading to the ships reaching the central north and southeast coast of Crete from all over the Mediterranean.

Transhipment harbours did not manage to reach similar levels of prosperity as the rest of the primary coastal sites (harbour cities, dependent anchorages, and Cretan islets), as it can be seen by both the lower levels of urban infrastructure and the small pottery assemblages attested on their archaeological record. The role and function of these transhipment harbours is, however, not quite clear. The available archaeological evidence does not allow

[861] The term emporio is examined in detail in the section '4.1 Port Hierarchy and Emporia' (p.113-114).
[862] The role of sanctuaries in the maritime networks of Imperial Crete is further discussed in Chapter 6.

the suggestion of large-scale economic development or trade and so the activities taking place in this type of harbour must have been on a local small scale. They were probably restricted by the nature of the harbour and the local community. This is visible in the small amount of local pottery indicating low agricultural production and, as a result, a small population. Simultaneously, the absence of imported pottery in their hinterland (it is mainly visible at the coasts, e.g., Phoinix) further supported this interpretation. In addition, the absence of transport infrastructure and the fact that these harbours were far away from any flourishing centre indicates that their relationship to the sea was entirely based upon opportunistic trade and for providing services to passing vessels. A simple comparison between the transhipment harbours (Sphakia, Viannos, Mirabello) and the flourishing harbour cities in the southeast and northwest parts of Crete indicate the large economic differences in both trading commodities and the fruits of their economic development in terms of buildings. It is not a coincidence that no harbour infrastructure has been identified along the coasts of Sphakia county, nor has any public urban infrastructure. The only structure from the Imperial period is the remains of a wall, probably a bath at Phoinix.[863] Similarly, the absence of Latin inscriptions indicates the retaining of the Greek population, suggesting that the county experienced a smooth transition from the Hellenistic to the Imperial period. The Romans were probably not interested in this part of the island, mainly due to the mountainous environment that made transportation and communication hard and its agricultural production low.

The Importance of the Multiscalal Harbour Analysis

The previous analysis sets the basis for the more significant interpretation of the large 'international' networks reaching the island and its harbours and how they were further redistributed into small words. Finally, its importance lies in the fact that it presents a much clearer picture of the whole island in Imperial times, as well as of the smaller economies in the area. This will allow me to discuss the concept of 'economic maps'[864] and provide insights into local economies, via the division of Crete into high and low dynamic areas, to the extent that has not been done before.[865] Consequently, in addition to networks, we can identify micro-economies through the analysis of local networks. Of course, ports are the

[863] Francis 2017: 10, 29.
[864] See Chapter 6.4, 'Small Scale Interactions: Regional Networks', and Fig. 6.16.
[865] See Chapter 6.5, 'Discussion'.

primary tools in this research and represent a unique opportunity for a deeper understanding of the Roman era and the transition from Hellenistic times, but not the only ones. As has already been mentioned, the pottery analysis included in Chapter 3 constitutes a primary tool in this endeavour and a key element in identifying maritime networks presented in Chapter 6. Overall, the methodological approach used in the multiscalar harbour analysis can also be used for different case studies around the Mediterranean. The importance of the model is based on the fact that it was at a lower provincial scale and encompassed smaller harbours, not simply concentrating on the monumental ones found in the large-scale emporia around the Empire. Furthermore, such an analysis could be specifically helpful for the regions of the so-called Hellenistic East since their character and cultural landscape have common grounds with Crete and can therefore be used together to interpret the transition to the Imperial world.

Conclusion

In this chapter, a multiscalar view of harbour sites that can be attested along the Cretan shores during the Imperial times was presented, with a range of them categorised in according to scales mainly based on the characteristics of their harbour and transport infrastructure, trade and economic potential, and of course their enmeshment within local or external networks. The interpretation of ships and boats is crucial in such a discussion because they constituted the actual interaction tools responsible for creating and maintaining such a world. To use Leidwanger's words 'situating ports alongside shipwrecks in a common framework allows us not only to capitalise on fundamentally different forms of material evidence but also to explore the network structure and dynamics in the lives of those back onshore'.[866] In the next chapter, the type of trade and how it was distributed along the Cretan coasts is analysed, setting the scene for the final discussion and reconstruction of the maritime networks that developed around Crete.[867] In the final discussion of this thesis, the different tiers of connectivity that affected the island during the Imperial period are discussed, aiming to provide a solid image of the different maritime

[866] Leidwanger 2020: 196.
[867] Chapter 5 'Shipwrecks Analysis'.

networks in which the island was involved.[868] This will bring the thesis a step further to its conclusion.

[868] Four harbour cities (Kissamos, Kydonia, Chersonesos, Hierapytna) and three of the most important inland sites (Gortyn, Knossos, Eleutherna), all in control of dependent harbours, have been chosen for such an interpretation, mainly because of their size and potential and secondly because they constituted the most well-excavated sites on the island.

Chapter 5: Shipwreck Analysis

The previous chapter proposed a port hierarchy model, setting out a multiscalar view of the Cretan harbours. This local harbour analysis constituted the first step for a more comprehensive examination of the Imperial networks (chapter 6) attached to Crete while also setting the basis for interpreting Crete's MCL and overall economic prosperity. In this chapter, I present a shipwreck analysis model based upon the evidence derived from the archaeological record of Crete using case studies dating to Imperial times. The following paragraphs aim to provide the missing part considering the mediums of mobility linking together the connectivity nodes (harbours) previously discussed. This model will shed light on the different types of trade and voyaging in which the case studies were involved. In addition, the shipwrecks are used as further evidence for investigating the different scales of commercial exchange that existed along the Cretan coasts.

In modern maritime scholarship, two primary models have been proposed for maritime trade and exchange. These are trading via tramping (or cabotage)[869] and direct trade through *emporia*.[870] Tramping defines the small-scale redistribution of commodities, usually along a coastal region or between regions. Tramping aimed at local markets and was part of a regular, usually organised, trade system. It has been characterised as the primary mechanism of maritime shipping before the 'age of steam',[871] or as 'Brownian motion' cabotage. [872] Before the establishment of the Roman Empire and the introduction of massive maritime networks via open sea journeys, trading via tramping and 'periodic rural markets'[873] were the most common ways of interaction in the Mediterranean, and probably exceeded that of the 'great commercial ventures'.[874] Only after the formation of the empire did direct trade expand all over the basin, with the newly formed international networks conquering the seas. These direct voyages change local and provincial economies by allowing specific harbours to develop significantly and form the so-called emporia (or

[869] Nieto and Pomey 1997; Horden and Purcell 2000.
[870] Wilson, Schörle et al. 2012; Rice 2016.
[871] Horden and Purcell 2000: 365.
[872] Ibid.: 142. Brownian motion, also called Brownian movement, any of various physical phenomena in which some quantity is constantly undergoing small, random fluctuations.
[873] Morley 2007: 571-572.
[874] Horden and Purcell 2000: 150.

entrepôt).[875] Similarly, the port hierarchy presented in the previous chapter via the multiscalar view of Cretan harbours allowed me to interpret the harbour cities as the main commercial hubs that existed along Crete.

The expansion and development of direct trade and the formation of emporia created a more complicated system of maritime transactions and, as a result, a more complex sequence of voyaging and transportation. In the case of Crete, the harbour cities discussed in the previous chapter were fit into this model by becoming nodes of connectivity with the outer world (direct trade) and, at the same time, redistributors of the small worlds that they were leading via local scale connections and tramping, or to those that they were participating in via broader scale connections and direct trade. The evidence deriving from the analysis of shipwrecks can shed light on the different types of trade attested in Cretan harbours and the types of voyaging they were undertaking. Furthermore, potential hypotheses considering the origins of vessels and the ports of call where they took on cargo are also proposed. This chapter constitutes additional evidence to the whole discussion that is concluded in chapter 6.

5.1 Shipwrecks as Maritime Trade indicators

Several studies have previously examined the role of shipwrecks in the analysis of the Roman economy, networking, trade, and the distribution of products. Hundreds of shipwrecks date to the Imperial times, with the 1st c. BC and the 1st c. AD the two busiest centuries in seafaring and trading in antiquity (Fig. 5.1).[876] Shipwrecks have repeatedly been described as 'time-capsules',[877] a term that has caused much debate in maritime archaeology.[878] For this study, the term is appropriate since specific shipwreck case studies will be used as maritime trade indicators by questioning the origins of their cargoes, the type of trade they were involved in, and their potential mission.

From the study and analysis of a shipwreck's cargo, crucial information can be derived. If the cargo constitutes a single commodity (e.g., stone) or containers of similar type (e.g., Rhodian amphora, including its variants), it is characterised as homogeneous. In contrast, if

[875] See Chapter 4.1 'Port Hierarchy and Emporia'
[876] Parker 1992: Fig. 3; Wilson 2011: Fig. 2.1, 33.
[877] Adams 2001: 269.
[878] Adams 2001; Leidwanger 2017.

the cargo is comprised of different varieties of products (e.g., stone, metal objects) or containers of various origins and types (e.g., amphorae from Rhodes, Crete, Kos), it will be characterised as heterogeneous (multiple commodities cargoes). The latter have been mainly connected with tramping, at least when considering the pre-Roman eras. Recent studies considering the shipwrecks from the Imperial period suggest that homogenous cargoes were loaded at emporia, [879] which conveyed most traded commodities. This type of exchange can be seen in the vast quantities of ceramics that moved around the Mediterranean during the Imperial period,[880] evidence indicating a well-organised trading system with secure commercial relationships between the production, distribution, and consumption centres. Of course, trade via tramping retained its role moving heterogeneous cargoes, but on a smaller, local scale. Overall, large heterogenous cargoes resulted from the redistribution of loads at the emporia or 'ports principaux',[881] rather than tramping.[882] This could relate to the microregions and small worlds theory presented in the previous chapter, with harbours connected using ships across smaller-scale trade networks.

Studying the cargo of a shipwreck can provide further information for the potential origin or even the type of product distribution. In a world crowded with emporia, the starting point of a vessel constitutes a challenging, unsafe hypothesis since the original production site of a commodity might not have any geographical relationship with the emporium that redistributed it before being re-loaded for another destination. In addition, the regular reuse of transporting vessels (amphorae) made the analysis even more challenging.[883] On the other hand, it has been suggested 'that the production zone of the majority of the cargo represents the location where the ship was loaded'.[884] On a broader scale, cargoes can then be classified as local, when they likely originate from within a day's journey of the point of export, regional/provincial, or multi-regional. The latter could have contained commodities produced in more than one province, some of which were divided into multiple regions, sometimes in different continents, such as Crete and Cyrenaica. The multi-regional and cross-provincial distribution of products, combined with the various taxation systems

[879] Boetto 2012; Rice 2016.
[880] Rice 2016: 190.
[881] Nieto and Pomey 1997: 154, 157.
[882] Rice 2016: 166.
[883] Boetto 2012.
[884] Rice 2016: 189.

attested in Roman harbours to create a very complex system of trade networks that must have forced professionals (emporoi=traders, naukleroi=boatowners, negotiators) to adopt particular commercial tactics and strategies to survive financially.[885]

Previous models

The shipwreck analysis models presented by Julia Boetto[886] and Candace Rice[887] provide fascinating insights into the types of trade and voyaging attested along the Mediterranean shores during Imperial times. Boetto used five case studies with different characteristics of shipwrecks all around the Mediterranean and proposed five major patterns for trading voyages and commercial exchange.[888] She proposed the existence of direct voyages with homogenous cargoes between major harbours (emporia or entrepôt); voyages with heterogenous cargoes loaded at an emporium and transported to another major harbour; heterogenous cargoes loaded at a principal emporium and then redistributed towards a secondary harbour; homogenous cargoes transported between emporia as the result of a direct order; and finally trading via tramping (cabotage) along a coast going from port to port. The results that emerged from Boetto's model set the basis for a clearer understanding of the potential trading patterns that could have existed in the various harbours of the Roman Empire, as well as the types and ways of voyaging needed to successfully cover the needs of such a vast region as the Mediterranean. Of course, the case studies used were carefully chosen shipwrecks with large amounts of evidence. This model can also be applied to Crete, but only in combination with the results from the maritime networks presented in chapter 6.

Similarly, Rice presented her model by interpreting 16 shipwrecks from the western Mediterranean (Fig. 5.2). Overall, she divided her model into three main categories of voyaging: cargoes consisting of a single commodity from a single region, cargoes with multiple commodities from a single region, and cargoes containing single or multiple commodities from multiple regions.[889] Overall, the different structural features proposed by Rice can set the theoretical basis for analysing Roman maritime trade on an Imperial scale

[885] See Chapter 6.5, 'Discussion', regarding maritime loans and contracts.
[886] Boetto 2012.
[887] Rice 2016.
[888] Boetto 2012: 156.
[889] Rice 2016: 170, 182, 184.

that could also be used for a smaller provincial scale. Moreover, she proposed three scenarios considering the trade between emporia at different export levels: The first scenario presents the distribution of a single commodity from a localised production zone, assembled at a harbour and loaded on a single ship. The second scenario examined a large cargo of local material-supplemented with products (not necessarily local) that were gathered at the emporium. The third and final scenario concerns highly heterogeneous cargoes, primarily made up of commodities being re-exported between emporia showing little or no relationship between the production zone and the export port. Again, this is a useful model, providing convincing ideas regarding the analysis of maritime economies across the Mediterranean. The division of cargoes into single and multiple commodities, combined with the idea of emporia as redistributive centres, could find a safe ground in a case study like Crete, especially if one considers the island's location, as a node of connectivity between the east and central Mediterranean.

5.2. The case of Crete

What differentiates the model proposed in this chapter from those mentioned above is that Crete constitutes a provincial-scale case study rather than an entire Mediterranean-based one. The previous studies proposed models focused on the western (Rice) or entire (Boetto) Mediterranean and not on a specific region or province. Both models were based on well-known case studies from different geographical regions, most already excavated and with extensive cargoes. In the case of Crete, the entire analysis is based on the available information with the few known shipwrecks around the island constituting case studies, allowing me to present a provincial type of model with a great range of commercial ventures based entirely on analysing their cargoes.[890] Of course, one cannot be sure that the shipwrecks scattered around Crete were associated with the island since they could have simply been sailing past when disaster struck. If so, their discovery still constitutes evidence for the island's role in Imperial maritime networks. Through this analysis, questions emerge about the scale of trade, the level of planning and organisation that went into the

[890] The small number of available shipwrecks found around Crete can be explained for two reasons: 1. The generally understudied field of maritime archaeology in Crete, with the local EUA founded just the last decade, and second due to the dynamics that affected the seabed. Specifically, the constant mass movement of sediment must have covered tens of shipwrecks, today lying entirely underneath the sand. This is mainly the result of both northern and southern winds, as well as currents. Also, the tens of rivers flowing towards the sea, had a great impact upon the sediment's movement.

composition of cargoes, the degree of information available concerning the markets themselves and the potential taxation included. Furthermore, a great source of evidence derives from considering the participation of Crete in the wider Imperial trade networks.

Model Analysis

Through the interpretation of shipwreck evidence, this model aims to provide evidence for both the instruments of connectivity and the types of trade and distribution being undertaken. Eleven shipwrecks (Fig. 5.3, Table 5.1), all dating to the Imperial period, have been chosen from the archaeological record of Crete for this model, a number that, at first sight, suggest that their analysis could be a challenging endeavour. Despite the small number, their characteristics are such that they provide information about the miscellaneous maritime character of the island. The evidence presented derives from the author's fieldwork on specific shipwreck sites, including dives and the in-situ study of the evidence, as well as the examination of material in collections from local Ephorates and Museums. Overall, the interpretation of a site's location, its size and shape, the potential connection to the island's harbours, the typology of finds, and the previous bibliographical analysis, resulted in the classification of individual sites into the three categories presented in the model. The approach proposed here is the result of personal observation and thought and has been specifically created for this thesis, aiming to examine this element of Crete's Maritime Cultural Landscape. At this point, it is important to mention that the case studies discussed in this chapter were very carefully chosen by the author. All case studies constituted of a specific volume of evidence indicating an actual shipwreck.[891]

What makes such an interpretation unique is that it will present the movement of products at a provincial scale, with its characteristics and limitations. This reflects the multiscalar view of harbours presented in the previous chapter. During the analysis of the cargoes from the shipwrecks scattered around Crete, seven subdivisions emerged, which were then allocated into three main categories. These three categories are constructed based on the nature of the cargo (homogenous/heterogeneous). Each category is divided into two trade groups, direct trade (local/non-local), and tramping. Moreover, a second sub-division was used in

[891] The author deliberately chose to exclude from this model tens of underwater finds that have been located and catalogued around Crete, evidence which unfortunately could not interpreted for the purposes of this study, and do not comply with actual shipwrecks.

this model considering the ships' actual journeys, divided into three types: Local, Regional, and Multiregional. Overall, this classification aims to provide insights into the nature of trade, the type of journeys and potential scenarios of distribution and loading in which these vessels were involved.

With the term homogenous, I refer to a cargo consisting of a single commodity (e.g., wine) usually carried in similar types of vessels (e.g., Rhodian amphora) from a specific location (e.g., Rhodes). In contrast, with the term heterogenous, I refer to cargo of multiple commodities (e.g., wine, olive oil, grain), usually carried in different types of vessels, from specific or different regions. Furthermore, considering the second subdivision, the terms local, regional, and multiregional refer to the journey types the ship was involved in before sinking. A local journey indicates a small-scale voyage, usually of low risk, between nodes connected via lines of sight, with the ship reaching its destination in a day (e.g., Matalon - Lebena). A regional journey indicates a voyage in the same region (e.g., Matalon-Hierapytna) or between neighbouring regions (e.g., Aegean Islands), usually of medium risk, between familiar nodes, with the ship reaching its destination in a few days. A multiregional journey indicates a large-scale voyage (e.g., Crete – Italian Peninsula), between distant nodes, with the ship reaching its destination only after a considerable amount of time.

Model: The three main categories that emerged from this chapter are shipwrecks consisting of homogeneous cargo from a single region, shipwrecks consisting of heterogeneous cargo from a single region, and shipwrecks consisting of heterogeneous cargo from multiple regions (Table 5.1). Most cases involved direct trade with an homogeneous cargo, typical for open-sea vessels during the Imperial period, while others provided evidence for tramping (cabotage). Furthermore, the cargo analysis reveals evidence for regional (provincial scale) and multiregional (interprovincial scale) trade. Another exciting aspect of this model is the interpretation and incorporation of shipwrecks discovered far away from Crete, but with part of their cargo being Cretan amphorae, which were extensively exported during the Imperial period. In most of the known case studies, Cretan amphorae constituted a supplementary load as part of a heterogenous type of cargo, mainly consisting of multiple commodities from multiple regions. Below, each category is individually analysed, including a detailed description and interpretation of each trade group and case study, aiming to provide the maximum information that can derive from each shipwreck always in

conjunction with the individual nature of their cargoes and, of course, their location either close to commercial maritime routes or important harbours along the Cretan coasts.

Shipwrecks consist of homogeneous cargo from a single region: Five case studies have been included in this category. According to the cargo analysis, all five have a homogeneous cargo originating from a specific region. Each case study provides specific evidence that allows them to be classified into two trade groups, 'direct local trade' and 'direct non-local trade'. The 'direct local trade' group comprised the Rhodopou and Tsoutsouros shipwrecks, subdivided into the 'regional' type of journey. The 'direct non-local trade' group comprised the Dia 1, Matalon, and Palaikastro shipwrecks, subdivided into the 'multiregional' type of journey. Finally, a third trade group, the 'return cargoes', constituted the final addition to this category.[892] Overall, for the case studies discussed in the homogeneous cargo/single region category, port taxes (isagoge/exagoge) had an essential impact on their voyage and trade (local or non-local).

Shipwrecks consist of heterogeneous cargo from a single region: Three case studies have been included in this category. According to the analysis of their cargo, all three constituted heterogeneous cargoes from a specific region. Each case study provides evidence that allows them to be classified into two trade groups, 'direct local trade' and 'tramping/cabotage'. The 'direct non-local trade' group comprised the Dia 2 and Dionisades shipwrecks, classifieds as 'multiregional' type of journey. The 'tramping/cabotage trade' group comprised the Ayia Galini shipwreck, classified into the 'local' type of journey. The Ayia Galini shipwreck could have also been allocated to the single cargo category. The cabotage type of its journey, however, made the case study a better fit for the second category of multiple cargoes/single region.

Shipwrecks consist of heterogeneous cargo from multiple regions: Two case studies have been included in this category of findings. According to the analysis of their cargo, both constituted heterogeneous cargoes from multiple regions. Simultaneously, each case study provides evidence that allows me to classify them into one trade group, 'direct non-local trade'. In this group, the case studies of Cape Sidero and Gavdopoula shipwrecks are included, classified as the 'multiregional' type of journey. Furthermore, for the conclusive

[892] See Chapter 4.2, 'Harbour Cities', regarding the use of Pozzolana ash in the Harbour of Chersonesos. See also Gianfrotta 2011: 190-92.

interpretation of this final category, an assemblage of shipwrecks, partially comprised of Cretan amphorae found in different parts of the Mediterranean, was also analysed for the purposes of proposing the model. This 'direct non-local trade' group constituted seven case studies subdivided into the 'multiregional' type of journey.

Shipwreck	**Cargo Category**	**Cargo Type**	**Size**	**Trade Group**	**Journey Type**	**Date**
Rhodopou	Homogeneous	Stone	Large	Direct local	Regional	1st c. BC
Tsoutsouros	Homogeneous	Stone	Large	Direct local	Regional	?
Hierapytna	Heterogeneous (?)	Art/Statues	?	?	?	1st c. AD
Dia 1	Homogeneous	Amphorae	Large	Direct non-local	Multiregional	1st c. AD
Matala	Homogeneous	Amphorae	Medium	Direct non-local	Regional	1st - 2nd c. AD
Gavdopoula	?	Amphorae	?	?	?	1st c. BC - 1st c. AD
Palaikastro	Homogeneous	Amphorae	Medium	Direct non-local	Multiregional	1st - 2nd c. AD
Dia 2	Heterogeneous	Amphorae	?	Direct non-local	Multiregional	1st – 2nd c. AD
Dionysades	Heterogeneous	Amphorae	Medium	Direct non-local	Multiregional	1st – 2nd c. AD
Ayia Galini	Heterogeneous	Metal/Bronze	Small	Tramping	Local	3rd c. AD
Cape Sidero	Heterogeneous	Amphorae/ Finewares	?	Direct non-local	Multiregional	1st – 2nd c. AD

Table 30: The case studies included in the model analysis.

Shipwrecks consist of homogeneous cargo from a single region.

Direct local Trade

Rhodopou Shipwreck: In the Autumn of 2013, several surveys were conducted by the Ephorate of Underwater Antiquities/Crete (EUA) and the Woods Hole Oceanographic Institution (WHOI) on the west side of Crete.[893] During that time, the *Western Crete Project* investigated more than 25 km of the seafloor.[894] Tens of anchorages and at least eight shipwrecks were discovered, dating to the 1st c. BC, 2nd-4th c. AD, and 5th c. AD respectively. Among the shipwrecks discovered were three sites dating to Imperial times. During the survey, archaeologists observed a group of large, shaped stone blocks close to the Cape Choironisi in the Rhodopou peninsula. The evidence comprises a stone-carrying vessel. The wreck constitutes a significant discovery as few examples of this type of cargo have been seen in the archaeological record, while in Crete, only a sarcophagus had previously been identified (in 1958) off modern Hierapetra.[895] The shipwreck was revisited during the summer of 2021 by the author and archaeologists of Ephorate of Underwater Antiquities/Crete, thanks to the support of the Oxford Centre for Maritime Archaeology (Fig. 5.4).

The survey conducted at the shipwreck's site was challenging one since, during the summer months, the stone blocks were covered by a sea plant that 'camouflaged' the site. Overall, the wreck lies at a depth of 20-25 m., and at least 104 stone blocks of limestone are estimated to lie there. The 'tidy' way the stone blocks were discovered indicates the 'loading arrangement' of the ship and the fact that the vessel sunk vertically. Specifically, 'the middle stones are loaded in piles of at least three strata, while the stones located at both ends are piled in two strata'.[896] The average size of each stone block measures about 1.50x1x0.50 m (Fig. 5.5).[897] Considering the size, number, and density of the stones (limestone: 2540 kg/m), I estimate that the overall weight of the cargo must have been approximately 200 tons. A stone ring was also recovered close to the cargo. The ring must have been part of the ship's equipment, perhaps part of the anchor or simply evidence of a later activity in the area. At

[893] The project explored the peninsulas of Gramvousa and Rhodopou, including the bay of Kissamos.
[894] Theodoulou 2015b: 46.
[895] Raftopoulou 1975; Arata 2005: 166.
[896] Theodoulou, Foley et al. 2018: 305.
[897] Some measure about 1.50x1x0.25m.

least three amphora types were identified around the site, with one (the Lamboglia 2 type) dating to the 1st c. BC.[898] The small number of ceramic artefacts identified around the Rhodopou shipwreck (following two surveys) indicates that the pottery found had onboard use as part of the ship's equipment.[899]

According to Parker's shipwrecks catalogue, only a very small percentage of the known shipwrecks discovered all over the Mediterranean were carrying stones (e.g., plain stones, square blocks, crafted marble in the form of columns, statues, or sarcophagi). Specifically, out of the 1189 shipwrecks (dating from the 2nd c. BC to the 10th c. AD) included in Parker's catalogue (see Fig. 5.1), only 44 sites belonged to the category of the stone-carrying vessel. According to Ben Russell, this constitutes only 3.5% of the total shipwrecks in twelve centuries.[900] This percentage becomes even smaller if one considers the number of shipwrecks from the Imperial period. Arguably, the discovery of wreckage outside the Rhodopou peninsula constitutes a special find not only for Cretan and Greek archaeology but generally for Roman scholarship. In several cases the interpretation of such a shipwreck site could be a challenging endeavour since stone commodities (sometimes even columns) were often used as ballast for the ship. The size, and quality of evidence from the Rhodopou shipwreck indicate cargo, not ballast. [901]

Trade and Type of Journey

Could the stones the Rhodopou shipwreck was carrying be from a local quarry along the island and transported to another around Crete? It is likely, especially considering the various quarries found along the Cretan coasts. According to Russel, a cargo similar to this one would have usually been locally produced and locally distributed. An example is the Carry-le-Rouet shipwreck in France,[902] which carried a cargo of 25 limestone blocks and weighed around 25 tonnes. Usually, these stone loads were used for building.[903] There is also a chance for such a cargo to travel longer distances, for example, towards Rome and its

[898] Theodoulou, Foley et al. 2018: 301.
[899] Russell 2013: 331. At the exact location, this time at a depth of 40 m., another similar amphora and a jag were discovered. According to the 2018 paper, the jag seems to date from the 1st c. BC. The authors assume that the artefacts probably belong to another shipwreck which, based upon the local narrative, lies further in the north, at a depth of 70 m.
[900] Ibid.: 351.
[901] Ibid.: 343.
[902] Russell 2012: 535.
[903] Ibid.: 537. According to scholarship, the cargo was used to construct walls at Marseille.

harbours since a small number of shipwrecks have been identified carrying eastern Mediterranean stone cargoes around the Italian peninsula.[904] For this reason, short and long-distance transportation of stone was strictly a maritime activity, at least during Imperial and late Roman times, as it was far easier to transport heavy loads of stones via the sea rather than inland.[905]

Overall, such cargo would not have been traded via tramping. Ships carrying homogeneous cargoes of that size were part of direct trade. Moreover, such a large cargo as the Rhodopou's would have needed exceptional transportation management for the journey, as well as during the loading and unloading of the vessel. Furthermore, rectangular stones of this size were loaded and transported from their quarries, which were cut straight to the ships, probably using specific equipment, including cranes and other loading techniques.[906] Especially on an island like Crete, with tens of quarries along the coasts,[907] stone cargoes must have been directly loaded into the vessels and travelled to their destination. Overall, the ship found outside the Rhodopou peninsula carried a homogeneous cargo (stone) and must have been involved in direct local trade. As a result, this allows me to suggest that it was a provincial type of journey, potentially moving stones from a Cretan quarry to a harbour city or dependent harbour.

Tsoutsouros Shipwreck: During the 2022 summer fieldwork, I conducted an underwater survey at the coastal area of Tsoutsouros, ancient Inatos. Following the instruction of Nektarios P., a local diver, I surveyed three areas, finding a Byzantine shipwreck (7th-8th c. AD) and a shipwreck site that was first described to me as a submerged tower. During the survey I managed to count tens of stone blocks (at least 80) at a depth of 12m, 250m from the shore at Tsoutsouros. The site has an overall diameter of 92m and is 6m in height (Fig. 5.6). The allocation of stones resembles the loading procedure on a boat. The location, size, and arrangement of the blocks suggest that it was a stone-carrying vessel. The absence of ceramic evidence makes the dating of the site challenging. Further survey needs to be

[904] Russel 2013: 349.
[905] Ibid.: 356.
[906] Wilson 2011: 51.
[907] Tziligkaki 2014; Tziligkaki 2018.

conducted on the site for a holistic interpretation of the findings. Like Rhodopou, Tsoutsouros shipwreck is likely part of the direct-local trade group of ships, following a regional type of journey.

Direct non-local Trade

The following case studies also belong to the 'homogeneous cargo from a single region' category. This time the cargoes of the shipwrecks consist of amphorae and their journey is categorised as 'non-local direct'. That means the analysed cargo is not locally produced, and the case studies were foreign ships using Crete either as a steppingstone, or as their destination. The main difference compared to the stone-carrying vessel is that they provide information considering the potential starting point of their journey.

Dia I Shipwreck*:* This shipwreck was discovered and excavated during Captain Cousteau and the Ministry of Culture and Sciences' mission in Crete in 1976.[908] The site was relocated during a collaboration between the Ephorate of Underwater Antiquities (EUA) and the Woods Hole Oceanographic Institution in 2011 and in 2021 by the author, accompanied by the EUA. The shipwreck is located on the eastern side of the Panayia or Mesaios gulf and is scattered at a depth of 25-33m (Fig. 5.7). According to the information provided by the excavation notebooks, the 1976 operation stopped when the divers reached a stratum of concreted amphorae. That year a total of 357 amphorae were brought to the surface, most of which were Rhodian (Fig. 5.8).[909] Among them were other types of amphorae, not more than ten, including a Palestinian one and a few others from North Africa. These amphorae were not part of the original cargo and were recovered by Cousteau's divers while lifting the Rhodian ones. According to the 2011 survey, this type of Rhodian amphora was used from the 1st c. BC up to the 2nd c. AD.[910] The type occurred all over Aegean, Cyrenaica, Italy, France, Germany and Britain and is considered a container of Rhodian wine.[911] According to Kritzas, the amphorae mainly transported wine, although in a few of them, resins and seeds of apricots and cone pines were discovered.[912] It is not a coincidence that several shipwrecks

[908] *Dia I* Shipwreck (in this thesis), or Shipwreck IV (according to Lazaros Kolonas), the excavator of the Roman shipwreck, or Shipwreck 3 (according to Theodoulou, Foley et al. 2015). The Cretan Amphora shipwreck is Shipwreck 4 (Theodoulou 2015b), Dia II (in this thesis).
[909] Theodoulou, Foley et al. 2015: 618; Theodoulou 2015b: 52.
[910] Ibid.
[911] Panella 1973; Riley 1979; Peacock & Williams 1986; Peacock 1977.
[912] Kritzas 1988b: 11.

from different periods have been discovered around Dia. The islet was probably the greatest anchorage along the north coast of Crete and the main steppingstone between Knossos, Heraklion (later known as Candia) for international trade and, of course, with the Aegean (see previous chapter). Simultaneously, one should keep in mind that southern winds could have also caused troubles to the vessels looking for anchorage around Dia, but on a much smaller scale. The number of shipwrecks scattered around the islet and the large breakwater extending west of Ayios Georgios bay, indicate an important anchorage that was also used for commercial activities.[913]

Matala Shipwreck(s): Crile and Davaras carried out an underwater survey in the areas of Kommos and Matala in 1962.[914] They were looking for Menelaus' ships, which, according to Homer,[915] were wrecked close to the area of modern Matala. However, instead of finding the Mycenean wrecks, they discovered three separate 'heaps' of ballast stones and amphorae at a depth of 8m.[916] According to Crile and Davaras, the Rhodian amphorae belonged either to a large ship or to several smaller ones (Fig. 5.9) dating to the Roman periods.[917] According to ancient sources, Matalon was the main ancient port of Gortyn; as a result, the area has a high potential for discovering commercial shipwrecks. No systematic survey has been conducted in the area since the 1960s.

Palaikastro Shipwreck: The summer of 2021 was an important one for the maritime archaeology of Crete. Two intact ancient shipwrecks were surveyed that have the potential to shed further light upon the maritime and trade networks that connected Crete with the rest of the Mediterranean Sea. The first was through the collaboration of the EUA and Toronto University via The British School at Athens (BSA) during their investigation of the gulf of Palaikastro.[918] Here the cargo of a Roman shipwreck was discovered just outside the gulf of Chiona. Most of the cargo was Spanish amphorae (Fig. 5.10). The recent discovery constitutes one of the few unique examples of intact cargo discovered off Crete. The

[913] The construction measures about 100 x 60 m., found at maximum depth of 20m. At its northern side a channel can be seen, that might have been used as a slipway for hauling ships out of the sea. Most of the pottery attested along the installation dates to middle Byzantine times (Kritzas 1988b).
[914] Crile and Davaras 1963: 48. For the name of this shipwreck will use the term '*Matala* shipwrecks', while previously the ancient harbour was described as 'Matalon'.
[915] Hom., *Od.* 3.290-3.298.
[916] Ibid.: 49.
[917] Ibid.: 49.
[918] https://www.culture.gov.gr/el/Information/SitePages/view.aspx?nID=3946.

shipwreck will be under study in the coming years and could provide substantial evidence about the maritime routes and trade during the Imperial period. The second shipwreck (dating to the Classical period) is the Neapolis one, discussed in the introduction of the thesis.[919]

Trade and Type of Journey

The two shipwrecks, Dia 1 and Matala, found on the north and south coasts, respectively, constitute further evidence of the large-scale trade that expanded around the Mediterranean during the 1st and 2nd c. AD, which included Cretan harbours. It is not a coincidence that both shipwrecks were discovered at a short distance from two of the most important harbours on the island. The Dia shipwreck is located in the western gulf of Dia islet, a very well-protected anchorage but still exposed to the south winds. The second shipwreck was found just outside Matalon, one of the official ports of Gortyn. Is it possible to understand the direction of travel for these two vessels, were they sailing towards Cretan harbours or to the west? They were both involved in non-local direct trade as they only contained Rhodian amphora with no other types found on the sites. The possibility that the ships might have been loaded with re-distributed commodities from one of the Cretan harbours should not be discounted. This is possible for the case of Dia, especially if one considers the many hundreds of amphorae discovered underwater indicating massive, well-distributed export.[920] On the other hand, the single cargo indicates direct trade and not tramping. If one assumes that both ships began their journey from Rhodes and sunk outside Crete, their destination was the west, perhaps even further than Crete or Greece. Moreover, these types of cargo indicate that commercial Roman ships chose to sail along the north and south coasts of Crete, perhaps depending on the weather and, of course, the sailing season. Overall, the two shipwrecks discussed carried a homogeneous cargo (Rhodian amphorae) and were probably involved in direct non-local trade. As a result, their analysis allows their journey to be classified as multiregional, potentially moving amphorae between different regions and provinces.

Similarly, the existence of the Spanish amphorae shipwreck (Palaikastro) along the Cretan seas constituted the first discovery of cargo originating from the western Mediterranean

[919] See Chapter 1.1 'Most Recent Discoveries'.
[920] Personal observations (August 2021).

found around the island. Again, it is essential to mention that such a discovery does not mean that the carrier originated from Spain or that the amphorae contained Spanish commodities. The most likely scenario is that these amphorae were redistributed several times across different harbours and emporia before sinking outside Palaikastro. Furthermore, there was a large-scale export of Spanish wine amphorae during the Imperial period, with finds of them throughout the Mediterranean. Considering Crete, several Spanish amphorae have also been identified in the island's interior in several excavations.[921] Overall, the Palaikastro shipwreck constitutes a good example of how complex maritime trade networks were in the Roman Empire. Perhaps, the vessel carrying the Spanish amphorae was moving towards the east, having previously sailed across the southern coast of Crete. Like the previous two case studies, the Palaikastro shipwreck carried a homogeneous cargo and must have been involved in direct non-local trade. As a result, its analysis allows its journey to be interpreted as multiregional, potentially moving amphorae between different regions and provinces.

Discussion

All five case studies discussed in this part of the chapter provide evidence for the transhipment role of Crete on a broader trading scale, as well as the inter-provincial (multi-regional) character that maritime networks had during the Imperial period. Furthermore, they provide more insights into the structure of the 'provincial scale model' of shipwreck analysis, giving an international sense to the interpretation of the whole thesis. In addition, the different types of cargo and journeys provides a more detailed image of the ongoing transactions across the island and more insights into not just the international trading patterns but also the scale of 'small worlds',[922] with harbour cities and other local ports gaining crucial distributive roles. To conclude, another essential feature of maritime transactions that emerged from the analysis of this category is port taxation. As mentioned in the previous chapter, specific port taxes were applied to a vessel involved in commercial activities in a Roman harbour. A vessel carrying large homogeneous cargoes, like the Dia I, was meant to go into direct trade not just because it would have been more convenient to sell the cargo in a large emporium but because it would have also been very damaging in

[921] See Chapter 3.

[922] The concept of 'small worlds' in matters of connectivity and commodities transportation is discussed further during the analysis of the third category of this model (heterogeneous cargo/multiple regions).

matters of taxation to conduct trade in different harbours.[923] For each port, new taxes would have been applied to the shipment. As a result, trade via tramping was a risk for big vessels and traders, who would prefer to anchor in a large emporium until they sold their load.

Shipwrecks consist of heterogeneous cargo from a single region

The following case studies belong to the 'heterogeneous cargo from a single region' category. This time the cargoes of the shipwrecks mainly consist of Cretan amphorae, and their journey is categorised as multiregional. That means the analysed cargo was diverse but locally produced/collected.

Direct non-local trade

The Dionisades shipwreck*:* On the east side of the island, close to the islets of Dionisades, a shipwreck, probably from the first or second centuries AD, was surveyed by the Ephorate of Underwater Antiquities.[924] The cargo contained two types of amphorae: Cretan amphora AC2 (5.11), comprised the majority of the assemblage, together with a type similar to the Tripolitanian I type from Tripolitania, Libya (5.12). This type of amphora dates to roughly the first and second centuries AD.[925] The cargo was scattered in a radius of 200 metres. A likely hypothesis is that the vessel crashed into a reef, which smashed the vessel's hull; thus, the cargo flowed into the sea moments before the ship sank.[926] Part of the cargo probably remains buried in the seabed.[927] The presence of Cretan and African amphorae provides very specific information. The most likely scenario is that the vessel was loaded with cargo at one of the big harbours on the north coast of Crete. With most of the cargo being Cretan amphorae, one could assume that the vessel was exporting commodities from the island. At the same time, its location (Dionisades) indicates a possible direction towards the east. The African amphorae might have been previously unloaded in one of the Cretan harbours before ending up in this vessel's cargo.

[923] Port taxation is discussed in detail in Chapter 6.5, 'Discussion'.
[924] Preka-Alexandri, Theodoulou et al. 2012: 104.
[925] Ibid.: 104.
[926] Ibid.: 103.
[927] Ibid.: 104.

Dia II Shipwreck: The second wreck was discovered in the Gulf of Heraklion in 2011. The site was located through research in the region by the EUA and the Woods Hole Oceanographic Institution. The wreckage was discovered close to the western cape of Agios-Georgios Bay. The fragments recovered from the seabed are like the Cretan AC4 amphora (Fig. 5.13). Furthermore, some of the intact amphora bodies, which remain on the seabed, resemble Cretan ones with a form indicating that they might have been produced in amphora workshops from Heraklion.[928] The ship appears to have sunk while trying to moor in the bay, probably after a crash into the cape.[929] Part of the cargo likely remains buried in the seabed. The site dates probably to the 1st and 2nd c. AD. The classification of the cargo and the location of its workshops in the north of Crete constitutes extraordinary evidence, making the Dia II shipwreck an undisputed case study for analysing the island's maritime character. It is the only shipwreck whose cargo could be identified with a local workshop, providing evidence for the safe reconstruction of a chain of logistics taking place between the different levels of production, distribution, and, finally, transportation. Furthermore, it once again shows the undisputed role of Dia as an anchorage and perhaps a commercial centre, indeed, the vessel might have also loaded the cargo from Dia during transactions along Ayios Georgios bay.

Trade and Type of Journey:

In the cargoes of all three shipwrecks, Cretan amphorae were identified. The three shipwrecks, perhaps carrying both local amphorae for export but also redistributed other cargoes that might have reached the island via international emporia or transhipment harbours. Their destination could have been the island (e.g., other Cretan harbours), but they most probably were for export beyond Crete. At least, that is what the hundreds of Cretan amphorae indicate all over the Empire. Also, the fact that the amphorae are Cretan indicates how important the production of export vessels was for daily life on the island, as can also be seen by the numbers of amphora workshops on its coasts.

Trade via Tramping/Cabotage

[928] Marangou 1999: 272.
[929] Theodoulou, Foley et al. 2015: 619.

Ayia Galini Shipwreck: The wreck of Ayia-Galini, the most well-known among the Roman shipwrecks of Crete, was discovered in 1937 by two fishermen 2km east of the modern village of Ayia-Galini (Fig.5.14). The site is located 200m offshore, at a depth of just 5m, in a radius of 50-60 metres. Around 90 bronze artefacts comprising mainly of scrap metal were recovered by the local Ephorate, among them a dozen statuettes (Fig. 5.15), with no evidence of amphorae. Between 1955 and 1960, two surveys were carried out in the area, with no hull remains recovered. The shipwreck of Ayia Galini constitutes unique evidence, not only for the needs of this thesis since it comprises a significant element in the proposed model in matters of the different types of trade that existed on the island, but for Cretan archaeology in general since it can be used as important evidence for the interpretation of the socio-economic and political circumstances that affected the Roman Empire during the 'crisis' of the 3rd c. AD.

Considering the finds themselves, based on the hoard of 259 coins discovered in 1960, the shipwreck dated to the end of the 3rd century AD, with a coin of Probus (276-282) constituting the *terminus post quem* for the site.[930] Similarly, the earliest coin dates to the times of Augustus. Considering the rest of the bronze artefacts found on the site, it is difficult to distinguish if they belong to the vessel and its crew or were part of the cargo.[931] The use of bronze was quite common along the Roman ships, as seen by the archaeological record. Except for the technological parts of a ship (from the sails to the anchor and parts of the rudder), lead and bronze could be found in different forms on a vessel (Fig. 5.16). Indeed, Roman vessels have been characterised as 'a mobile source of lead pollution contaminating people and the marine environment'.[932]

An exciting element considering the Ayia Galini shipwreck's cargo is that there is a dating gap of up to two centuries among the recovered artefacts. Except for the coin hoard, some objects date to the 1st c. AD. Although the most numerous category of find, the metal objects are in poor condition, while their function is challenging to determine. Specifically, among the artefacts are a bridle, a phalera, a bit, a decorative part of a wagon, a part of an axle, and a suspension strap holder.[933] Considering the strap holder, Brokalakis notes the

[930] Platon and Davaras 1960: 508.
[931] Brokalakis 2016: 127.
[932] Rosen and Galili 2007: 300.
[933] Brokalakis 2016: 130.

possibility of it being a mooring bollard belonging to the boat's equipment.[934] Furthermore, the existence of copper ingots pose a further question of the purposes of the vessel. Overall, the chronology of the artefacts discovered at Ayia Galini extends from the Early Imperial period until the 3rd century AD. The absence of pottery or parts of the hull suggested to Platon that the artefacts might have been thrown into the sea rather than belonging to the cargo of an actual shipwreck.[935] The discovery of a flanged ring from the bilge pump, however, strengthens the hypothesis that the Ayia Galini cargo was an actual shipwreck (Fig. 5.17).[936] As well as the coin hoard and the statuettes, the rest of the recovered artefacts comprised of two bases with feet in the form of dolphins, with similar examples found in Pompeii, Italy, and Banasa, Morocco, with the three of them dating back to 1st and 2nd c. AD. Furthermore, rectangular bases with lion paws were also retrieved from the seabed of Ayia Galini, with similar kinds of objects being found at Ostia and Malaga (Cero de Los Castillones).[937] Brokalakis also identified three potential parts of a wagon, an element from the end of the wheel axle with a similar kind of part found in Vobulis, Morocco, a suspension strap support with similar objects is known from Aquinqum, Hungary, and Villa Arellano, in northern Spain.[938] Moreover, three structural/decorative elements of wagons were included among the various artefacts, with similar objects from Poljanec, Croatia, and Sorrento, Italy.[939] Finally, a fascinating object recovered from the wreck was a phalera (Fig. 5.18), a bronze sculpted disk worn on the breastplate during parades by Roman soldiers who had been awarded it as a kind of medal. A similar object is known from London and Chateau-Thierry (France).

Trade Type of Journey

The shipwreck not only constitutes a time capsule of the onboard situation and moment of its sinking, providing us with the type of trade and journey of the vessel. It also gives valuable information about political history, notably the crisis of the 3rd c. AD. It is the only known shipwreck from the 3rd c. AD in Crete, a period where trade and sea transactions gradually diminished due to the crisis that the Empire faced, which is clearly visible on

[934] Ibid.: 131.
[935] Platon and Davaras 1960
[936] Brokalakis 2016.: 132. For examples of pumps see Wilson 2011: 43-44.
[937] Brokalakis 2016: 129.
[938] Ibid.: 131.
[939] Ibid.: 131.

Parker's shipwreck chart.[940] It is not a coincidence that some of the artefacts recovered from Ayia Galini (e.g., the Phalara) appear to have Gothic origins, which can be connected with the Gothic presence and raids in Aegean and Cretan waters in 269 AD.[941]

Industries, including metal processing, were affected during this time. In need of new sources and weapons, material recycling was more than necessary. Even currency was affected during the mid-3rd c. AD, with changes in coin minting. For example, a typical 'silver' coin consisted of copper covered in silver.[942] The presence of a group of unrelated items, mainly in poor condition, including two copper ingots and fragments of bronze sheets, indicate a vessel tramping along the Cretan coast gathering scrap metal for recycling. Furthermore, the bronze statuettes recovered from the seabed constituted rare archaeological finds mainly because they were melted down and recycled during antiquity. It is not a coincidence that most of the known metal statues surviving dating today were discovered in shipwrecks or generally on the seabed.[943]

Overall, the evidence indicates a recycling boat that was probably making its way along the southern Cretan coasts collecting old, broken, and metal objects that were otherwise in poor condition. In contrast to the stone-carrying vessel discovered in Rhodopou that was making local but direct trade, the Ayia Galini wreck did tramping. Both vessels supported local needs, but their voyages differed. The Ayia Galini was on an opportunistic voyage, whereas the Rhodopou constituted expensive direct trade, perhaps on a bigger and more technologically advanced vessel, it was a journey with great logistic groundwork. Apart from the coin hoard, the rest of the artefacts provide different information about the role and journey of the vessel. Artefacts from different areas across the Roman Empire were found in the wreck, showing not just the trade and connections but also the commercial '*unity*' of the Empire. The ship contained artefacts similar to those found in areas like Morocco, Italy and even Britain. Based on the cargo size, the Ayia Galini shipwreck must have been a small vessel carrying a single commodity from a single region. The objects might originate from several regions across the Empire, but they were most certainly collected around Crete. As a

[940] Parker 1992; Wilson 2011.
[941] Wolfram 1990: 53; Karampas 2020: 115.
[942] Rees 2013: 40.
[943] A bronze cuirassed torso (Koutsouflakis and Simosi 2015); Youth of Antikythera (Fraser 1928); A bearded youth (Owen 1970); Statue of Agon (Fuchs 1963) and many more.

result, it was allocated to the tramping trade category in the analysis and was following a local type of journey (daily).

Discussion

All three groups of shipwrecks discussed in this section provide evidence for the economic potential of Crete via the export of the island's own products and with commodities redistributed on both a broader and a local trading scale, as well as the inter-Provincial (multi-regional) character that maritime networks had during the Imperial times. Furthermore, they provide more insights into the structure of the 'provincial scale model' of shipwreck analysis attempted in this chapter, as well as providing an international sense to the interpretation of the whole thesis. In addition, the different types of cargo and journeys provide a more detailed image of the ongoing transactions across the island and more insights considering not just the international trading patterns but also the scale of small worlds, with harbour cities and other local harbours gaining crucial distributive roles. Furthermore, it consists of solid evidence of the impact that Cretan exports had on the island's overall economy, entirely based upon the large-scale exports of commodities in Cretan amphorae.

Shipwrecks consist of heterogeneous cargo from multiple regions

Direct non-local Trade

The Cape Sidero Shipwreck: In 1976, a Roman cargo of mainly Cretan amphorae was discovered off Cape Sidero. The amphorae date to around the 1st and 2nd c. AD (Fig. 5.21).[944] The wreck was discovered by Jacques Cousteau during his research on the island. Of course, the area of Cape Sidero was very important for ancient sailors since it offered the first anchorage in northeast Crete. Merchant ships from the east, following the southern imperial route, or ships travelling from the south–west Aegean, reached the cape, before deciding to sail towards the north or south coast. According to *Stadiasmus Maris Magni*,[945]

[944] Theodoulou 2015b: 35.
[945] *Stadiasmus* 318-319.

the distance between Salmonium and Kasos, a small island in the south-east Aegean, is around 300 stadia.

Gavdopoula: Opposite the island of Gavdos stands the tiny islet of Gavdopoula. In 1997 a Roman shipwreck dated to the 1st c. AD, carrying wine and olive oil amphorae, was discovered outside of Gavdopoula by the EUA.[946] Unfortunately, no other information is available about the wreck.

The 'Cretan Shipwrecks' group: Several shipwrecks partially comprised of Cretan amphorae found in different parts of the Mediterranean were grouped and included in this part of the analysis (Fig. 5.22, Table 5.2). In most of the shipwrecks studied, Cretan amphorae constituted a supplementary load as part of a heterogenous type of cargo, mainly consisting of multiple commodities from multiple regions. There are two, however, Saint Gervais A and Pyrgi, whose cargoes were entirely constituted of Cretan amphorae. Overall, this group of shipwrecks provided specific information about the types of cargo that were moving beyond the island via Cretan amphorae. The locations of the shipwrecks constitute crucial evidence in identifying specific trade routes. At the same time, they give additional information about the dynamics of local amphorae exports. Crete's commercial trade was focused on the west, as evidenced by the discovery of 6 shipwrecks carrying Cretan amphorae in this region of the Mediterranean. This constitutes a strong indication of the direction and extent of Crete's trade activities. In the table below, seven shipwrecks are presented, providing information about their cargo, location, and potential date. The table below, presents some basic information about this groups of wrecks.

Shipwreck	**Date**	**Location**	**Cargo**	**Source**

[946] Kopaka 1998: 970.

Torre Chianca	Mid-3rd c. AD	Porto Caesareo	Cretan Amphorae, AC4 type	Parker 1992
Saint Gervais A	Mid-2nd c. AD	Possae Marianae	Cretan Amphorae	Parker 1992
Alberti	1st c. AD	Le Formiche di Panarea	Rhodian and Cretan Amphorae	Cavalier and Livadie 1985
Saint Raphael		South France	Rhodian, Punic, and Cretan Amphorae	Santamaria 1982
Skerki Bank B	Mid-1st c. AD	Skerki Bank	Cretan, Campanian, and Egyptian amphorae	Maccann, Oleson et al. 2004
Pyrgi		Northeast of Corsica	Cretan Amphorae	Gianfrotta 1981
Qaitbay 1	Mid-1st c. AD	West of Alexandria	Cretan and Rhodian Amphorae	Boichot 2018

Table 31: Shipwrecks carrying Cretan amphorae found outside the island.

Discussion

In the previous chapter, for the purposes of a multiscalar view of harbour analysis, the concept of a port hierarchy was applied to Crete and its harbours. In this chapter, the analysis of the evidence from shipwrecks was used to identify commercial activities between the island and its surrounding regions. The analysis of the case studies of the heterogeneous trade/multiregional category provides a great range of evidence considering the presence of ships carrying various commodities between different harbours and regions and one case of tramping with the Ayia Galini shipwreck. Specifically, the new era allowed the sailing of large homogeneous cargoes between harbours and emporia, sometimes

across long distances, but simultaneously they also allowed ships with heterogeneous cargoes to serve sub-networks between regions or 'small worlds', for example, around the Aegean, or between Crete and the Peloponnese, or either between Asia Minor or the southeast Aegean.[947] Specifically, 'small worlds' are microregional interactions between neighbouring coastal sites and harbours based on shared origin, cultural traditions, language, economic ties, social networks, mutual protection arrangements, and so forth'.[948] They introduce trading patterns between geographically familiar regions, usually linked by lines of sight, that were connected to broader spheres of interactions around the Mediterranean.[949] As a result, Crete might have participated in 'small worlds' trade between specific regions while simultaneously, the island also formed its own regional and local networks to serve local needs. The newly formed networks are discussed in detail in the next chapter.

5.3 Discussion

In this chapter all the available shipwrecks known from the archaeological record of Crete were used, allowing me to present a provincial type of model with a great range of commercial ventures based entirely on analysing their cargoes. From this examination, specific questions emerge about the scale of trade, the level of planning and organisation that went into the cargo's composition and loading, the degree of information available concerning market and the potential taxation included. Furthermore, from the survey, interpretation, and finally classification of the shipwrecks into the three proposed trade categories, a series of essential outcomes and information resulted about the nature of trading activities along the shores of Crete, the level of interaction and participation of the island in Imperial trade, as well as evidence for identifying geographically and chronologically the main trade hotspots that developed. According to the evidence presented above, the following forms of interactions arose: direct voyages with homogenous cargoes between principal harbours (Dia I, Matala, Palaikastro shipwrecks); heterogenous cargoes loaded at an emporium and transported to another major harbour (shipwrecks including Cretan amphorae); homogenous cargoes transported between

[947] See Chapter 3 regarding the pottery evidence and Chapter 6 regarding the maritime networks.
[948] Tartaron 2018: 73.
[949] Tartaron 2014: 212.

harbours as the result of a direct order (Rhodian amphorae and Rhodopou shipwrecks); and finally trading via tramping (cabotage) along a coast, from port to port (the Ayia Galini shipwreck). These are the apparent conclusions emerging from the above analysis. These provide a clear image of ongoing transactions and seafaring between the various harbours and commercial centres.

Shipwrecks as maritime trade indicators

A series of more complicated conclusions also emerge from this interpretation. First, due to the island's unique location, Cretan harbours had the chance to get involved in a plethora of trading and maritime networks that co-existed along the Mediterranean. Located in the heart of the Mediterranean, Crete engaged with extensive trading routes, for example, between Rome and Alexandria.[950] As a result, imported products from all over the basin arrived at harbours on the shores of Crete as can be seen in the shipwrecks carrying foreign cargoes (e.g., Rhodian and Spanish amphorae). As indicated in the study of ceramic imports (Chapter 2), big ports like Chersonesos, and Hierapytna, as well as the cities of Gortyn and Knossos, received a great deal of imports. Through this analysis, more insights into the trading patterns introduced along different parts of Crete were presented and connections with several regions, such as Rhodes, Spain, and North Africa, were also attested. The evidence that occurred from the shipwreck analysis will also be examined in the maritime networks chapter below together with those from both the pottery and harbour chapters. Via such an interpretation, it is possible to identify stable connections that have been retained in time or altered through history.

The participation of Crete in interprovincial scale trade allowed the island to take advantage of the potential of local agriculture and boost its economy via exports. Cretan products (wine, olive oil, purple dye, perhaps fish and more) were exported from the local harbours, mainly through the Cretan amphorae. Via these exports, Cretan centres managed to participate in a provincial-scale trade that reached every corner of the Mediterranean, enabling great economic development in the harbours. The significant evidence from the local and foreign shipwrecks analysed above, combined with the comparative studies by

[950] Weinberg 1960: 91; Haggis 1996a: 184.

Marangou[951] and Gallimore,[952] indicate a massive 'flow' of Cretan commodities all over the Empire, especially towards the West (see chapter 6 for a detailed description of the new trading patterns and sailing routes introduced during Imperial times). The analysis constitutes evidence for a robust and competitive economy, with the Cretan harbours redistributing cargoes daily to external and local networks.

Beyond the large emporia and the direct trade conducted along the harbours, tramping had its role by forming steady trading relationships between smaller harbours by providing redistribution of local and imported commodities in small-scale trade. The harbour cities imported and exported cargoes, but at the same time, they also distributed commodities around the island. Smaller vessels must have served this trade group by moving products from port to port. The island's colossal size and anomalous interior made inland transportation and connection impossible in several cases, so transportation via the sea was a safer and quicker option. The Ayia Galini shipwreck constitutes a characteristic case of tramping, while its cargo does not consist of everyday commodities, the purpose of the vessel's journey is undeniable. In the harbour chapter, it was proposed that several coastal sites were in constant contact with each other, forming a local network via tramping (e.g., Lissos and Sougia). The small distance between the various harbours allowed quick and safe transport between each other, perhaps with small vessels carrying insubstantial cargoes. The chance of successfully reaching their destination would have been much higher than open water voyaging since harbours were linked by lines of sight, making their trip much more manageable and predictable. Tens of underwater findings scattered all over Crete have been previously identified, mainly by local divers, containing small quantities of pottery, sometimes up to 2-3 amphoras. This evidence should not be considered as shipwrecks but more likely jettison, but they are evident indications of maritime activities.[953]

In addition, connectivity via the concept of the 'small worlds' gained support via evidence from this shipwreck analysis. Specifically, the imported cargoes attested in several areas around the island provided a first insight into the networks that imperial Crete was involved in. Local-scale trade between the harbour cities and the dependent harbours constituted the first evidence for the existence of 'small worlds' upon the island. Furthermore, the

[951] Marangou-Lerat 1995; Marangou 1999.
[952] Gallimore 2016.
[953] Karampas and Theodoulou 2023.

participation of the Cretan harbours in the extensive maritime networks connecting with the east and west Mediterranean allowed me to think of the existence of trading patterns introduced between specific regions and harbours of Crete by forming new 'small worlds'.[954] Some might have been newly introduced trading patterns, while others might have been traditional contacts retained from the Hellenistic period. In any case, the shipwreck model provides further evidence for identifying these interactions, which are discussed in detail in the next chapter, aiming to provide for the first time a maritime network analysis considering Crete.

Shipwreck Hotspots

More insights occur from the distinction of cargoes in the principles of the proposed model. Specifically, via the previous classification, four significant shipwreck hotspots dating to the Imperial period were noted at the east and west entrances of the island, as well as on the north and south coasts. These four hotspots are aligned in the cardinal points of Crete, indicating peripheral contacts and potential transactions with trade routes all over the eastern Mediterranean. The location of the two main hotspots were in Dia islet and Matalon (Fig. 5.23). The first constituted a key transhipment harbour for the passing by vessels arriving to the north coasts of Crete located exactly opposite Knossos, and the second one (Matalon) constituted depended harbour to Gortyn, perhaps the capital's main harbour. The multifunctional character of the two sites made them ideal destinations for both local and foreign ships. Most of the shipwrecks discussed above (85%) date to the 1st and 2nd c. AD indicating that the first two centuries of the 1st millennium were the busiest for Crete in matters of commercial seafaring (Table 5.1). During this time, Crete was involved in interprovincial and transhipment trade, as can see by the Cretan amphorae cargoes found in shipwrecks all along the Mediterranean. Cretan amphora has been discovered in a small number of heterogeneous shipwrecks, while there is also evidence for carriers with a homogeneous cargo of Cretan amphorae. Another insight from the analysis of the so-called 'Cretan Shipwrecks', those found outside the island, carrying Cretan amphorae, is the fact that they also date to the 1st and 2nd c. AD. The evidence unambiguously indicates the economic autonomy of the island and its ability to export large quantities of products by exploiting the newly established trade networks that allowed the island to commune with

[954] The term is discussed in chapter 6.4 'Large Scale Interactions'.

the Empire's emporia. Similarly, as mentioned above, most of the shipwrecks carrying Cretan amphorae were discovered in the western Mediterranean. Finally, from the case studies, the Rhodopou, Ayia Galini, and Dia II shipwrecks constituted good examples for pan-Mediterranean trade. Their cargoes provide a tremendous amount of information which can be used for the interpretation of more than networks analysis and wider social, economic, technological, and even political interpretations of the period. Further study of their cargoes, as well as a survey and perhaps an excavation, could bring to light more evidence about their voyages.

Conclusion

The unique archaeological evidence found in Crete offered me the chance to engage with different materials, and the same time applied very specific maritime methodologies. The model presented here for the analysis of shipwrecks, can be used for comparative case studies around the Mediterranean, including islands (e.g., Cyprus, Sardinia, Sicily) and small provinces in general. Overall, Crete was a province whose economy was largely based upon trade and seaborne connections and an island located in the heart of maritime networks. The multiplicity of cargo types and their division into the three categories that consist of homogeneous from a single region, heterogeneous from a single region, and heterogeneous from multiple regions imply a complex network of distribution routes. In the next chapter, a combination of evidence deriving from the results of the multiscalar view of Cretan harbours, as well as evidence that occurred considering the newly introduced trading patterns via imported pottery, and the types of trade and voyaging that arise through the interpretation of shipwrecks will be discussed. The combined evidence offers an in-depth reconstruction of the maritime networks that existed in Crete and more generally in this part of the Imperial world. Completing the maritime networks chapter will lead the thesis to the final discussion, the reconstruction of Crete's MCL.

Chapter 6: Maritime Networks

6.1 Defining Maritime Networks

Shipwrecks, harbours, and pottery constitute the most visible archaeological features for interpreting economic networks through a maritime perspective by marking different scales and intersections within Mediterranean connectivity. In the previous chapters, these three types of evidence deriving from the archaeological record of Crete were analysed, categorised, and modelled. In this chapter, I present a multi-tier network analysis reconstructing the different scales of interactions between the island, its surrounding maritime worlds, and its interior. The overall aim of the chapter is to present the significant changes that occurred in the economy and society of Crete during the Imperial times. Except for the large Imperial networks that the island was involved in, this analysis also focuses on the internal patterns of mobility that might have occurred in a less administratively important region such as Crete, as well as its intersections at a 'small worlds' scale with the surrounding seas and regions. To this analysis of maritime connectivity, the chapter adds another missing piece to the puzzle, the Maritime Cultural Landscape. This adds a combination of geographic and historical features for the settlements on the coast and allows an in-depth analysis of the trajectories of maritime activity in Crete.

How though should one define the term 'network'? According to the Cambridge Dictionary, a network is 'a large system consisting of many similar parts that are connected together to allow movement or communication between or along the parts, or between the parts and a control centre'. How can such a definition find a place in a chapter like this? Several studies have previously attempted to present network analysis models of the ancient Mediterranean with interesting results.[955] Nevertheless, there are still obstacles to the application of network theory in antiquity.[956] Mainly, this has to do with the fact that the actual sea and trade routes were constantly changing and because seafaring and sailing was a cognitive skill that sailors mastered via years of experience and tradition. Considering this matter, ancient mariners were operating between the 'hodological perception of space and

[955] Broodbank 2013; Knappett 2013; Tartaron 2013; Leidwanger and Knappett 2018; Leidwanger 2020.
[956] Tartaron 2018: 62.

common-sense geography',[957] by having a solid perception of the seas and areas on which they were sailing, but certainly not of the whole Mediterranean. This cognitive knowledge of sea and space naturally changed with time, even if it was still bounded by the environmental rules of the winds, currents, and seasons or due to political aspects like war, treaties, or new commercial centres.[958] From the interpretation of the available archaeological evidence, this chapter aims to detect the 'broken links of ruined networks',[959] and reconstruct the 'cognitive apparatuses' that allowed ancient seafarers to move safely around the Mediterranean.

In the period discussed, a whole system of ideas, knowledge, and skills was needed to navigate the seas successfully. From Homeric times, a good helmsman was the repository of knowledge on winds, currents, and significant landmarks, while his death could signal the ship's doom.[960] Furthermore, the sea's unpredictability is another essential element in the debate considering network analysis's success. Tartaron perceptively notes that 'the sea is typically represented as a flat, untextured plain that takes no account of winds, currents, hazards, or stochastic events such as the rapid-onset storms characteristic of the Aegean Sea'.[961] As a result, the time and distance needed to cover during a journey from point A to point B and from point B to point A depend on the conditions that a ship would approach, making every journey unique. In the following paragraphs, I will attempt to set the foundations for my network analysis and at the same time, also provide a new definition for maritime networks based on the methodology being applied.

6.2 Interactions, Trade, and Mobility

The analysis of maritime networks constituted a complicated synthesis of data and evidence deriving from different sources. A cursory look at the databases from different archaeological projects around the Mediterranean or visiting a museum exhibition along its coasts, demonstrates that there was a considerable movement of goods on the sea, especially during the Imperial period. The archaeological evidence for this includes the interpretation of harbour sites, shipwrecks, and pottery assemblages. Simultaneously, written sources provide undisputed evidence for the existence of organised sailing routes.

[957] Arnaud 2014: 66.
[958] Ibid. Sailors are still operating in the same maritime conditions that favoured certain routes/times of sailing.
[959] Sindbæk 2013.
[960] Mark 2005: 148. Hom., *Il*. 23.316-17; *Od*. 3.276-300.
[961] Tartaron 2018: 62.

These are references from ancient authors and geographical 'encyclopaedias', mainly considering distances, safe harbours, and giving sailing tips. The combination of the two data sources provide a great range of hypotheses considering the maritime networks attested along the Cretan coasts and can set the basis for the analysis of other network hubs attested in the east and central Mediterranean. Following an in-depth examination of the results from previous chapters, as well as the evidence occurring from the current analysis, maritime networks are defined as links of interactions between nodes of connectivity, following a logistic chain of procedures supported via waterborne mediums of mobility, always in conjunction with geospatial references and the unpredictability of the sea. To scrutinise the above definition, each of the pieces of evidence adds its own element to the final discussion, with harbours (nodes of connectivity), commodities/pottery (links of interactions), and shipwrecks (mediums of mobility), constituting the main gear in this endeavour.

Archaeology

Imported Pottery: The significant quantities of imported pottery found all over the Mediterranean constitute undeniable evidence of multiregional maritime networks across the Empire. The significant quantity of imported pottery in Crete presented in Chapter 3 allowed me to present a range of data from three periods (Hellenistic, Imperial, and Late Roman) and identify the different trading patterns introduced on the island during the transition from one period to the other. This source of evidence will mainly be used to examine the large-scale connectivity in Crete and beyond. Furthermore, a closer look into Crete's regionalism and daily economic routines emerges by studying and analysing ceramics outside the big centres.[962]

Harbours: As connectivity nodes, harbours constituted natural maritime network hubs. They represent the starting and final point for the transhipment of goods and comprise vital evidence for examining and reconstructing connectivity. Harbours have a founding role in the physical and social space of the ancient Mediterranean. Either in the form of emporia, dependent ports, or just transhipment points, they constituted the backbone of networking and the administrative centres of a logistic chain. The port hierarchy concept presented in

[962] See the harbour of Phoinix, Chapter 4.2, 'Transhipment Harbours'.

the ‘harbours’ chapter (4) forms a series of different connections/interactions that allows a more straightforward allocation of networks in the concept of large and small-scale interactions. Furthermore, harbour analysis allowed me to explore the island in different ‘economic maps’ by identifying local and international connectivity. Harbours, as a source of evidence, will be used to examine both large and small-scale connectivity in Crete within its interior and the surrounding region.

Shipwrecks: Ships and their crews constituted the exclusive mediums of mobility, with shipwrecks providing direct evidence of networking, maritime exchange, and interaction. At the same time, interpretation of their cargo can provide researchers with a great source of evidence (especially with cargos of amphora that provide evidence of the origins of products) but with specific methodological difficulties, mainly considering the destination and purposes of the vessel. The evidence from Crete provided me with data considering the type of trade and journeys attested along the island, indicating mercantile activities around and outside Crete, with local destinations or further away. At the same time, the chronological evidence constitutes a vital tool for identifying the frequency and duration of specific maritime networks. It demonstrated that the seas were busy during the 1st and 2nd c. AD, while the absence of shipwreck evidence from the 3rd c. AD reveals a lower amount of trading activity that is also visible in the analysis of pottery. Additionally, this source of evidence will be used to examine both large and small-scale connectivity in Crete within its interior and surrounding regions. Simultaneously, the existence of shipwrecks carrying Cretan amphorae outside Crete provides the opportunity to discuss maritime networks from the perspective of the island’s exports and, as a result, discuss another aspect of the Cretan economy and mobility through the concept of large-scale connectivity.

Literary Sources

Texts: The different trading patterns, as well as the trading routes introduced between Crete and other regions around the Mediterranean, can also be identified through the study of ancient navigation, using the notes about distances, time, speed, and weather provided by the ancient authors through the *Peliplous*, *Kykloi*, and *Stadiasmus*. From the description of Strabo of the journey from Libya to the south coast of Crete to that of Paul the Apostle

travelling from Jerusalem to Rome on a ship carrying grain,[963] one can have an idea of how complicated and widespread travel in the Mediterranean was. Of course, Crete's unique location with its famous capes and harbours[964] was always a point of reference for ancient mariners and their ships, crossing the sea to either transfer products to the island or, even more commonly, to use it as a steppingstone or a point of connection between the central and east Mediterranean. Especially during the Imperial period, Crete must have served many trading and naval interactions. It is not a coincidence that at least 5 to 6 Cretan harbours/capes were well-known among the ancient authors since the time of Ptolemy (Fig. 6.1).[965] Hitherto no comprehensive study has been conducted considering Crete's maritime trade routes during Hellenistic and Roman times.

Geography

Another helpful element for the current analysis is the effect that the island's geographical location and geological character had on the formation of the networks that Crete was involved in. Specifically, the location of the island in the heart of the Mediterranean, the spatial organisation of its harbours and administrative centres, its overall size, and of course, its anomalous geomorphology with the sharp coasts and mountainous interior makes the island a unique land of resources and opportunities, and simultaneously a surface filled with different cultural landscapes. In Imperial times, archaeological and historical evidence indicates that this unique identity retains its role in people's lives by creating network associations between different island regions. It has also been proposed that the size and character of the island made Crete function effectively as a miniature continent.[966] Simultaneously, its location was such that one could say that Crete was surrounded by 'multiple different human seas',[967] an exciting theory that is useful for examining the different scales of interaction in matters of multiregional networks. The various economic geographies coalesced during the Roman period, forming close relationships between the island's cardinal points and the surrounding regions, creating different economic maps and solid seaborne connections.

[963] Strabo 10.4.5; Paul the Apostle, *Acts of the Apostles*, 27–8.
[964] Rougé 1966: 43.
[965] Arnaud 2014: 61.
[966] Rackham and Moody 1996.
[967] Rougé 1966: 43; Leidwanger 2020: 203.

Before analysing the proposed maritime networks model, it would have been beneficial to present the potential sailing routes that connected Crete with the rest of the Mediterranean during the periods discussed. By combining the results from the pottery analysis and ancient literature, I reconstructed the potential sailing routes towards Crete. Following that, the challenging part of this endeavour, and the goal of this chapter, will be the development of the different sailing routes into maritime networks. Of course, identifying the networks and their mechanisms in conjunction with the journeys constituted a much more complex analysis based on human and natural factors. The combination of archaeological and literal evidence sets the basis for the gradual interpretation of maritime networks and connectivity in Antiquity. At the same time, as mentioned in the definition of maritime networks, the unpredictability of the sea, the weather conditions/sailing periods, and of course, the 'common sense geography'[968] are all essential matters that one should consider during such an endeavour. In the case of Crete, all the above, plus the island's geological character, are elements that should be considered for the final analysis of this province's maritime networks. Consequently, examining the networks after the routes explores this complexity more rationally and comprehensively.

6.3 Trading and Sailing network analysis

Using the results from the pottery analysis (Chapter 3), a correlation can be found between the imports arriving in different parts of Crete across the three different historical periods considered in this thesis. Combined with the evidence from ancient sources, these data can be used to reconstruct the sailing patterns involving Crete. The ancient texts, including the Periploi and Kykloi, are essential in such an endeavour since they provide information about ancient seafaring (Fig. 6.2). Most importantly, they offer insight into people's attitudes towards open sea journeys, knowledge of geography, and a sense of their confidence. Of course, Crete's location allowed ancient mariners and their ships to move commodities in any cardinal direction. At the same time, the island was used as a steppingstone for connections between the eastern and central Mediterranean.

[968] Arnaud 2014: 65-66.

Hellenistic Period

Considering the introverted society of Crete during the Hellenistic periods and their notoriety as pirates and mercenaries,[969] in combination with the constant endemic warfare taking place on the island, the trading patterns were quite limited.[970] The archaeological record verified these limited connections, with most of the imported finewares attested in Crete mainly arriving from its surrounding areas, like the Aegean Sea and the region of Attica in the north and western Asia Minor on the east while at the same time, small numbers of imports from Cyrenaica were also discovered (Fig. 6.3). Using these data in combination with ancient literature is productive.

Considering the Aegean, Pliny describes the journey from Crete to Astypalaia, indicating 1000 stadia as the distance between the two islands.[971] Such a connection could have been made between Crete and the rest of the Aegean islands, especially the Cyclades. Considering Attica, the capes of Tenaro and Malea in south Peloponnese could have been served as convenient stops before the open sea journey to Kimaros and Kadistos capes, respectively.[972] Regarding the connection between the south Peloponnese and Crete, we learn from Philostratus that Apollonius took one of the several ships waiting to sail from Malea to Crete, in order to reach Kydonia.[973] In addition, finewares produced in western Asia Minor could have arrived in the eastern part of the island through the chain of the islands of Kos, Rhodes, and Kasos, a sea route which Strabo described and which is also mentioned in the Stadiasmus Maris Magni.[974]

[969] See Chapter 2.2, 'Hellenistic Period'.
[970] Chaniotis 2008: 90.
[971] Kadistos (or Zephyrion, Crete) – Astypalaia: Pliny counts 1000 stadia, between Cape Cadistos of Crete and the island of Astypalaia (*HN* 4.71).
[972] Cimarus (or Korykos, Crete) – Cape Taenarum: According to Strabo Cape Cimarus, in the northwest corner of Crete, is 700 stadia away from Cape Taenarum (10.4.5). Furthermore, according to pseudo-Skylax (*Periplous* 47), Cimarus (or Lacedemon) is only a one-day trip. Kadistos – Cape Malea: Based on Pliny's description, the distance between the two capes is 650 stadia (*HN* 4.60).
[973] Philostr., V A 4.34.
[974] Kasos – Cape Samonium (Crete): In *Stadiasmus* (318), in the section about Crete, it is mentioned that the overall distance between the island of Kasos and cape Samonium is 300 stadia. The islands Kasos and Karpathos were also the main steps of connection between Crete and Asia Minor. Rhodes – Cape Samonion: According to Strabo (2.4.3), the trip from Rhodes to Cape Samonion is 1000 stadia and last 1 day and 1 night. Strabo confirms the overall distance in other passage of him (11.4.3) and adds that Carpathos is 250 stadia from Samonium (10.5.18), while Pliny mentions that the island of Carpathos stands between the two islands, in a distance of 500 stadia from each one of them (*HN* 4.60).

The connection between Crete and Cyrenaica was more challenging than with the Aegean. If we believe Strabo, however, a ship could have reached the North African coasts from Criu Metopon, Crete in two days and two nights, while the journey from the islet of Gavdos (or Kyklos) to Cape Chersonesos was estimated to 1500 stadia.[975] The two regions could have also been connected via a periplous around the eastern Mediterranean (Egypt, Syria-Palestine, Cyprus, Rhodes), which is similar to the journey Paul the Apostle describes in his Acts.[976] Paul's journey could also be used for the interpretation of the sea routes that were followed for the transportation of Italian amphorae to Crete, as well as the description of Eratosthenes and Metrodorus, who are referring to the connection between Cape Passero (Pachyne) and Sicilian Peloris with Criu Metopon (Cape Crios).[977] The last three descriptions refer to open sea sailing, while a safer trip might have been via the Ionian Sea and the Adriatic coasts, which of course, added several more days of the journey.

Imperial Period

Crete's economic and social identity changed rapidly during the Roman period. Economically, the island adopted a more active role in the Empire and functioned as a steppingstone between the central and eastern Mediterranean. The ceramic assemblages from Imperial Crete are richer in imports than those from the Hellenistic period, while an apparent increase of western imports is attested in the assemblages, with some of the ceramics even arriving from southern Iberia (Fig. 6.4).[978] Regarding eastern imports, the journey of Paul the Apostle[979] could once again provide some basic information about potential shipments such

[975] Appolonia – Criu Metopon (Crete): Based upon the references from Eratosthenes, Strabo mentions that "*from Cyrene to Kriou Metopon (Crete) is 2000 stadia with Leukonotos*" (17.3.21) while in another passage he calculates the whole trip lasts 2 days and 2 nights (10.4.5). Cape Chersonesos (Ras-et-Tyn) – Kyklos (Gavdos Islet, Crete): This promontory (Cape Chersonesus) lies opposite Cyclus in Crete; and the distance across is one thousand five hundred stadia if one has a south-west wind' (Strabo 17.3.22). See also (Arnaud 2005: 187).

[976] Alexandria – Rome (via Crete): Paul's voyage in the *Acts of the Apostles* 27–8, the merchant ship Paul the Apostle was aboard travelled east from Alexandria, winding along the coast of Syria-Palestine and the southern coast of Asia Minor, before reaching Crete via the islands of the south-east Aegean. The opposite direction from Rome to Alexandria was different since it was easier for them to ship further south to North Africa following the western winds.

[977] Cape Pachynus (Passero)- Criu Metopon: Eratosthenes estimated it at 4500 stadia, or 5 days and 4 nights (Strabo 2.4.3; 2.5.20). He added 1000 stadia, or 1 day and 1 night, from Cape Passero to the Straits of Messina (Strabo 2.4.3). Sicilian Peloris – Criu Metopon: In the Metrodorus' epigram in the *Greek Anthology* (14.129), a passage mentions "*Sailor, between the Ram's Head (*Criu Metopon*) of Crete and Sicilian Peloris are six thousand stades, and twice two-fifths of the distance remains [to be traversed] till the Sicilian channel'.S*ee also Casson 1995: 277-278; Davis 2009: 62-63.

[978] See Chapter 3.2.

[979] Paul, *Acts of the Apostles*, 27.8.

as Eastern Sigillata A or B, which travelling from the regions of Syria-Palestine, Cyprus, Cilicia (and generally southern Asia minor) towards the west. Following the steppingstone islands of Rhodes and Kasos, in a nychthemeron the ship could have arrived at Cape Samonium.[980] From there, it could have sailed towards either to the north or south coast of Crete. This island chain must have also been followed by the ships carrying the famous Çandarli ware and Pergamene Sigillata on their way to the south from western Asia Minor. Similarly, amphorae from Egypt could have travelled to Crete and the Aegean using the periplous of the eastern Mediterranean, while the opposite journey, from Samonium to Egypt, required at least four days and three nights.[981] Italian finewares, such as Italian Sigillata, which dominated Cretan markets during the 1st c. BC and the 1st c. AD, was transported to Crete and the Aegean via the Adriatic and Ionian seas. Alternatively, one could have sailed through the open sea via the Sicilian channel and the Straits of Messina.[982] As well as the journey of Paul the Apostle, there is also compelling evidence for the ancient sea routes in papyrus P.Mich. inv. 5760a, which describes a journey from Rome to Alexandria with stops in the Aegean, Crete, and Asia Minor.[983]

Most of the imported amphorae attested in Crete were mainly from locations in the Aegean Sea, while a few were been produced in Cyrenaica, the Black Sea, and as far west as the Algarve coast of southern Portugal. Considering the Aegean and the Black Sea, a ship could 'hop' from coast to coast and from island to island, either via the Aegean or by travelling south along the coasts of Asia Minor and mainland Greece. Finally, a few amphorae from Carthage have also been discovered in some of the Roman assemblages mentioned previously. The shipments must have first reached Sicily and moved into the Eastern Mediterranean and Crete from that point on. The small number of North African imports increased dramatically in the following centuries, with the African Red slip wares conquering the Late Roman markets of Crete.

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[980] *Stadiasmus* 318.

[981] Cape Samonion – Egypt**:** 'The voyage from Samonium to Egypt requires four days and nights, though some say three" (Strabo 10.4.5).

[982] Strabo 2.4.3; 2.5.20; Metrodorus, *Greek Anthology*, 14.129.

[983] Rome – Alexandria (Via Crete): (P.Mich. inv. 5760a): Its importance for this dissertation is based on the fact that it provides specific information about the commercial activity along the north coast of Crete and, more specifically, of an area called Attalion. This is the same port that appears under the name Astali in the Stadiasmus maris Magni. This is the second stop that the vessel made during its journey from Rome to Alexandria. See Heilporn 2000: 346.

Late Roman Period

The crises that the Empire had to face at the end of the 3rd c. AD led to a series of political events, including the formation of Tetrarchy, the move of political power to Byzantium, that naturally affected trade. The Late Roman period introduced a series of new trading patterns for Crete and most other regions in the Mediterranean. According to the archaeological record, the large-scale ceramic production on the North African coasts, in Tunisia and the African province, flooded the markets in Crete and elsewhere in the eastern Mediterranean.[984] The majority of imports between the 3rd and 4th c. AD attested in Cretan ceramic assemblages were produced in Tunisia, while by the 5th c., however, Late Roman C ware from Phocea became the main rival of African imports (Fig. 6.5).

The significant number of African Red Slip wares attested in Crete were probably transported via Italy into the Adriatic and into the southern Peloponnese, and then the Aegean. This was initially the same route as that ships used who were aiming to reach Byzantium. On their way to Crete, ships also probably followed the same sea routes introduced during the previous Roman periods. For example, the PRC/LRC ware (the most popular import on the island) must have followed the successful trading routes of its predecessors (see Çandarli ware and Pergamene Sigillata) via the Aegean Islands, western Asia Minor, and finally through the island-chain of Kos, Rhodes, and Casos. Another noticeable difference in the trading patterns of Late Roman Crete is that most of the imported amphorae reaching the island were produced in the eastern Mediterranean and Syria-Palestine. The Late Roman amphorae from Tunisia constituted the second largest quantity of amphora imported into Crete during the Late Roman period. They were probably arriving on the island the same way that the Red Slip finewares did. Finally, imported Aegean amphorae were also attested among the ceramic assemblages from Crete, again most likely following one of the maritime routes introduced in the previous centuries.

Overall, the data resulting by the available studies on the ceramic assemblages from Crete introduce a variety of trading patterns in the three periods discussed, which seem to verify and connect with the sailing directions and information deriving from the ancient literature.

[984] '*Late Roman fine wares were cheaper to produce than the sigillatas and designed for mass shipment; factors that must be taken into account when comparing their incidence with wares of the preceding period*'. (Raab 2001: 328).

Considering the trading networks revealed from the interpretation of both the imported finewares (Fig. 6.6) and amphorae (fig. 6.7) from all three periods, it becomes clear that further studies on the maritime networks of the Hellenistic and Imperial world need to be done for a more in-depth understanding of ancient Mediterranean's trading networks. The island of Crete constitutes an excellent case study for such an endeavour, with the current results promising great potential not only for the archaeology of Crete but for the rest of the Mediterranean (Fig. 6.8). In the following paragraphs, a model is presented considering the different scales of interactions and the type of networks that exist around Crete. The model aims to highlight the actual entrepreneurs that gradually led to the transformation of Crete's economy and how the different tiers of connectivity formed a scheme of interactions that gradually transformed its Maritime Cultural Landscape.

6.4 Model Analysis

Overall, the pottery analysis provided insights about the distribution of products and connectivity between the various Cretan harbours and other regions around the Mediterranean. A fascinating aspect of the above investigation is that sailing routes described by ancient authors match the results of this pottery study. But, as mentioned in the previous chapters (see Chapter 5, shipwrecks), the commercial mechanisms considering a commodity's distribution and destination were more complex than one might think. During such a discussion as the one presented in Chapter 3 and with the identification of sailing routes via literary sources, it is easy and tempting to draw a direct line between two places, especially when looking at ports and goods. This, however, gives the false impression that commodities were travelling on these routes directly. While the goods reached their destination (although, in the case of shipwrecks they did not), and the ancient authors provided rational estimations of time and distance for maritime journeys, there are more factors that one should consider that make the maritime journey and trade a more complicated procedure.

For the in-depth analysis of the mechanisms and procedures that led to the introduction of new trading patterns in Imperial Crete, and perhaps in the rest of Eastern Mediterranean, a model regarding the different scales of connectivity that existed along the coasts and interior

of the island is presented.[985] A great mixture of exchange mechanisms reveals itself from large-scale routes and networks to smaller seaborne activities at a regional or local level. In such a well-connected world as the Roman Mediterranean Sea, a great range of networks are expected to have existed but for the purposes of this model, two main categories of connectivity are proposed: **1.** the large-scale (maritime) interactions, subdivided into two tiers of connectivity, the Multiregional networks and 'small worlds' networks, and **2.** small-scale (maritime) interaction, subdivided into two network tiers of connectivity, the Regional Networks, and the Local Networks. The different scales of interaction presented below will be used to provide the bigger economic image of Crete and its role as a new market within the dense network of Roman emporia, to its regional network, and finally the interpretation of the different seascapes and their interactions.

Large-Scale Maritime Interactions

Multiregional Networks: This tier of connectivity comprises interprovincial networks around the Empire, connecting the large emporia and coastal cities of the Mediterranean with each other and with Rome. This tier included all the extensive trade and sea routes that connected one side of the Empire to the other. Specifically, the connectivity between Alexandria and Rome via the grain trade route (Annona) or private traders created a large-scale network between the east and central Mediterranean with goods potentially passing through many harbour sites. Crete must have been affected by this commerce. The great range of archaeological evidence, in this case, surpasses even the accounts contained in literary sources, indicating the island's involvement in a series of networks scattered in a mix of emporia and harbours from the Palestine coast and Alexandria, all the way to the west and the southern coasts of the Iberian Peninsula. All the evidence mentioned above from the previous section of this chapter leads to a multiregional interpretation of this tier of networks by adding Crete into the sphere of 'global' trade.

'**Small worlds' networks:** Smaller in matters of volume and commercial importance, this tier of connectivity comprises 'small worlds' networks on a provincial scale, connecting the island of Crete with surrounding regions, such as the Aegean and Cyclades, Antikythera strait, and the Peloponnese, and of course the south-east Aegean islands and Asia Minor via

[985] A 'Brownian Motion' perspective should be imagined as 'seizing' the whole basin (Horden and Purcell 2000: 142.

well-known sea routes. This tier of connectivity comprises a smaller scale than the Multiregional Networks mentioned previously but is still considered a Large-Scale Interaction. The connectivity nodes involved in the small world networks are usually characterised by safe, short-distance journeys. Furthermore, some of these networks retained their trading patterns from interactions that span across the generations, for example, traditional routes and commercial relationships that were active before the Imperial period. Cultural traditions, mutual protection arrangements, language (Hellenic world) and economic ties are just some of the elements that might illustrate this tier of maritime networks and its effective connectivity.

Small-Scale Maritime Interaction

Regional Networks: This tier of connectivity resembles the concept of small worlds network analysis, but this time aims to interpret the regional commercial relationships that existed on Crete. Specifically, it targets the analysis of the nature of the interaction between the various nodes of connectivity scattered along the island. The comparative analysis of the nature of interactions between the various harbour cities, the administrative centres, and their dependent ports, including the examination of the new networks created following the island's involvement in large-scale interactions mainly via the re-distribution of imported commodities, will set the basis for regional network analysis. Such an endeavour could shed further light on the identification of logistic evidence, including the main production sites and the significant commercial centres that transformed the Cretan economy. Harbour cities and administrative centres monopolised the Cretan 'small world', but dependent and transhipment harbours have their own role in this scale of interaction. Inland connectivity, via road systems or simply coastal paths, is also crucial in this analysis. Finally, the relationships between these sites and communities may, or may not, be hierarchical as parts of a harbour's sphere of interaction.[986]

Local Networks: This is the final tier of connectivity presented in this network analysis. It aims to present the various local networks that existed along the shores of Crete on an everyday scale. This tier's interpretation occurred via the multiscalar view proposed in the harbour chapter, which allowed me to draw lines of interaction between specific harbours

[986] Tartaron 2018: 73.

and their surrounding landscape. The networks attested in this tier are on a local scale, which means interactions on a daily schedule, usually between neighbouring sites, a distance that a ship could cover in a day. Such an interpretation includes maritime networks and inland connectivity, which is also essential for the analysis. Again, harbour cities had a primary role in the commercial hierarchy. Still, smaller commercial relationships were also formed between smaller harbours, especially between the transhipment sites whose unique source of income was the sea, and of the coastal sanctuaries which, apart from the transhipment trade, also seemed to be related to daily transactions with their neighbours. Below, these different scales of interaction, along with its tiers of connectivity, are analysed separately, aiming to provide insights into the different maritime networks and trading patterns that were introduced along the length and width of the Cretan seas following the transition from the Hellenistic to the Imperial era.

The case of Crete

The redistribution centres connected to large international networks, experience a continuous dynamic circle of interactions by constantly ‘feeding’ and being ‘fed’ by the Imperial trading routes, forming multiregional networks. In their turn, these harbours reach other close-by emporia by forming ‘small worlds’, where they redistribute imported cargo or local commodities. As a result, a new cycle of interaction is born. This is a large-scale interaction in which the island participates. Parts of the goods/links collected by the multiregional and ‘small worlds’ networks provide the harbour cities, and generally their local region, with their own commercial character, creating economic maps and landscapes with their own individual features. These new links/cargoes are scattered across the island via regional networks.

Harbour and administrative hierarchy had a crucial role in this allocation of goods. These networks reach every corner of the island via the sea or a road system. Through this bisection of networks (see Fig. 6.24), the importance of maritime networks becomes apparent. To use the words of Horden and Purcell, ‘distance is, in effect, inverted: places linked by sea are always 'close', while neighbours on land may, in terms of interaction, be quite 'distant’.[987] The Roman Mediterranean was built upon this principle, and Crete was no

[987] Horden and Purcell 2000: 133.

exception. The final part of this tier of interactions are the local networks. These are daily interactions between dependent sites close to each other usually in fixed economic transactions, e.g., Lissos and Souyia mainly in the form of supplier/consumer. In the following paragraphs, I present insights into these different scales of interactions taking place in Crete during Imperial times. Such an interpretation is undertaken mainly via the pottery results, supported by the examination of the potential sailing routes connecting Crete, and will bring this chapter to its final stage, the applied maritime networks.

Large Scale Interactions

Multiregional networks: The large harbours attested along the shores of Crete must have been dealing with significant numbers of imported and exported goods.[988] The advanced harbour infrastructure attested at them, combined with the large number of imported amphorae found on layers all over the island, indicate large-scale commercial activity via and towards the sea, with harbours able to serve the needs of ships arriving from all over the Empire. One of the most remarkable changes in Crete during the transition from Hellenistic to Imperial times was the growth of its economy. In addition, the transformation of the landscape, not only in matters of harbour infrastructure but in terms of architecture and construction works (public buildings, roads and more), constitutes undisputed proof of the development that Crete experienced during the 1st and 2nd c. AD. The sea had a primary role in this change by allowing the island to participate in extensive networks connected to emporia all over the Empire. As a result, several 'international' networks were linked to Crete through imports of foreign cargo or exports of Cretan commodities. At the same time, the island's location was used for transhipment trade and as a convenient steppingstone for vessels travelling along the eastern and central Mediterranean. On the other hand, due to the large quantities of exports and imports, Cretan harbours turned into redistribution centres themselves, where new trading patterns and networks were introduced and expanded around the island. Simultaneously, the existence of a new population in Crete,[989] including professionals in commerce but also civilians (e.g., the colony at Knossos), must have created a demand for imports by turning the island into a centre of consumption as well as one of production.

[988] See Chapter 4, 'Harbour Cities'.
[989] Baldwin Bowsky 1999.

As shown in the pottery chapter of this thesis, large quantities of imported amphorae and fine wares were reaching Crete from all over the Empire, while the shipwreck analysis presented in the previous chapter indicating busy commercial activities with the outer world and the interior of the island. Specifically, during the Imperial period, the island's commercial activity expanded outside the Hellenic world. Crete formed contacts towards the west, with the north and south of Italy, and of course, towards the east, with imports from the Palestine coast.[990] Furthermore, evidence from the Black Sea and North Africa (Egypt, Cyrenaica, Tunisia) are attested all over the island. Simultaneously, the evidence of Spanish amphorae found in the excavated layers of the leading Cretan centres, in combination with the existence of a Spanish amphora cargo outside the western Crete (Palaikastro Shipwreck), constitute further evidence for the participation of Crete in extensive trade routes (rather than only the Grain trade route), while at the same time this evidence testifies to how extended and well connected the Roman world was. In the various excavated layers of Chersonesos, for example, the study of imported pottery indicates connections with Italy, the Aegean, the Black Sea, Spain, Mauritania, Syria, as well as the north African coasts,[991] while the presence of a large amphora workshop by the harbour indicates commercial activities with the outer trading networks (Fig. 6.9).[992] Except for the example of Chersonesos, the analysis of imported pottery showed similar levels of international interactions for the rest of the large harbour cities (Hierapytna, Kydonia) and, of course, the administrative centres of Knossos, and Gortyn.[993] Simultaneously, the locations of the shipwreck 'hotspots' presented in the previous chapter,[994] shows a perfect alliance in matters of location with the concentration of Cretan amphora workshops. This strongly indicates the two central connectivity nodes across the island. As stated, Knossos and Gortyn experienced significant architectural, economic, and social changes during the transition from Hellenistic to Imperial times. Both cities, and their areas of influence, constituted the two fundamental poles of economic development based on their local agricultural production (Mesara and Heraklion valleys) and international connections. Their archaeological record included a clear indication of the commercial importance of both the

[990] See Chapter 3.
[991] See Chapter 3, tables 1 and 2.
[992] Vasilakis 2020.
[993] See Chapter 3: tables 5 and 6 for Knossos, and tables 26 and 27 for Gortyn.
[994] See Chapter 5, Fig. 5.23.

north and south coasts of Crete. Furthermore, the two cities must have created their own regional networks, which are discussed later in this chapter.

Annona and the impact of Cretan wine

This multiregional tier of connectivity between the various provinces of the Empire was greatly supported by the *praefectus annonae*, a state institution in charge of the grain supplies to Rome (and later for the transportation of wine and olive oil). Specifically, it has been estimated that during the 1st and 2nd c. AD, the entire population of Rome was fed from grain imported from overseas, mainly from North Africa and Egypt.[995] About 60,000,000 modii of grain were transported annually to Rome. According to Aurelius Victor,[996] just from Egypt, Rome received 20,000,000 modii (about 135,000 tons) of grain every year.[997] As a result, millions of tons of grain were transported annually between Rome and Alexandria, via the ports of Puteoli, Ostia, and later Portus.[998] Out of the 60,000,000 modii needed annually in Rome, 12,000,000 modii, were provided by the Annona.[999] Similarly, the Annona had to supply the soldiers scattered at the provinces of the empire.[1000] The rest, ca. 38,000,000 modii, was provided by the negotiators or *mercatores frumentarii*, who were private grain dealers, mentioned in several inscriptions.[1001] Specifically, amongst seventy wax tablets found outside Pompeii, six contained information about the grain trade from Egypt. According to the evidence, at least up to AD 40 private dealers were very much involved in the grain trade.[1002]

Regarding the distribution of grain between state and private sphere, Casson noted 'there was no fixed tight regulation, just an informal allocation of access to would-be buyers: first those from Rome, and then those from all the other cities in some sort of order'.[1003] As a

[995] Casson 1980: 21.
[996] Aur. Vic. *Caes*. 1.6.
[997] Casson 1980: 21. Josephus (via Agrippa II), notes that North Africa provides Rome with grain (specifically corn) eight months of the year and Egypt for four (Joseph., *BJ* 2.383-386). The number of grains arriving in Rome on an annual base is calculated to be a total of 60,000,000 modii, about 400,000 tons (Casson 1980: 21).
[998] There is no available evidence considering the date that the Alexandrian Grain fleet started arriving in Portus. Historical papyri from the 2nd and 3rd centuries AD provide evidence regarding the arrival of grain shipments in the ports of Ostia, Portus, and Puteoli (Casson 1995: 297-299; Keay and Boetto 2010: 14).
[999] Casson 1980: 22.
[1000] Leidwanger 2020: 9.
[1001] Casson 1980: 22.
[1002] Ibid.: 26.
[1003] Casson 1980: 24.

result, not all the available grain in Puteoli reached Rome, as quantities were warehoused in the ports for the traders' profits. Similarly, the private ships transporting, and trading grain could have stopped in any flourishing market/emporia on their way to Rome. Furthermore, ships moving towards Egypt to load grain could have carried opportunistic cargoes to sell until they reached their destination.[1004] Consequently, a significant part of the overall grain transactions was primarily operated by private interests, specifically traders and shipowners, who followed similar routes while simultaneously delivering their businesses to the various marketplaces.[1005]

The location of Crete aligned perfectly along the grain trade route. This brings the discussion to the next question. Could the Cretan wine have become such an important commodity that the state itself was taking care of its transportation (via the Annona or the private grain ships)? The answer to this question is most probably yes. Andre Tchernia, in his conclusion about the grain trade, mentions that Cretan wine, as well as olive oil from Baetica,[1006] were the 'side-effects, or by-products, of what was the largest and most enduring civil transport enterprise of the pre-industrial era'.[1007] He also notes that 'those who had easy access to the space available on these ships took advantage of it to trade as an additional activity to their official duties. Under these conditions, the wine of Crete could have reached Italy without being burdened by transport costs which, in the general case, would have prevented its sale at a modest price in the taverns of Rome'.[1008] Further evidence comes to support this argument, including an inscription from the harbour of Phoinix at Sfakia, set up by the helmsman of an Alexandrian ship (IC II.xx.7), Paul's report about grain ships stopping in the various ports of Crete, and more.[1009]

[1004] See Chapter 4.2 (Harbour Cities) and Chapter 5.2 (the case of Crete) for the opportunistic trade of Pozzolana.

[1005] Rickman 1980b; Sirks 1991; Leidwanger 2020: 11.

[1006] On the other side of the Mediterranean, the province of Baetica produced thousands of tons of wine exported towards the east and Rome, while during the 1st and 3rd c. AD, Baetica turned into one of the most prosperous olive-growing centres in the Empire (Fornell 2015: 153). The great quantities of the Dressel 20 all over the Empire, and especially Rome constitute sufficient evidence (Remesal Rodriguez 1998). The annonae was again involved in the transportation of the wine, but similarly to the grain, private traders must have existed. That may be how Spanish wine amphorae and a shipwreck have been identified in the archaeological record of Crete. Large quantities of wine arrived in the massive emporia of Portus, Ostia, or Puteoli, and from there, were redistributed by private traders towards the eastern Mediterranean.

[1007] Tchernia 2008: 63.

[1008] Ibid.: 63.

[1009] See below the evidence emerging from P.Mich. inv. 5760a,

Perhaps, the greatest evidence regarding the importance of Cretan wine and its massive transportation towards the west comes from the studies on Cretan amphora. Specifically, the Cretan vessel have been found in every corner of the Empire (Fig. 6.11), with tens of thousands of fragments being discovered in Rome. According to the Cretan amphora distribution map, only a small percentage of Cretan exports have been discovered in the eastern Mediterranean, while a significant number are concentrated in the West and Italy. During the Flavian dynasty, AD 69-96, Cretan amphorae comprised more than 20% of the wine vessels arriving in Rome (Fig. 6.12).[1010] If one considers the yearly wine consumption in Rome was around 75 million litres,[1011] it is obvious how crucial Cretan wine was. Indeed, during the first and second centuries, except under Trajan, it was present in more significant quantities than wine from Gaul, even though it underwent a longer and more difficult sea crossing. At the same time, approximately 40,000 sherds of Cretan amphorae were discovered during excavations in a number of horrea dating to the first half of 2nd c. AD in Monte Testaccio, Rome.[1012] Moreover, Cretan amphorae constituted the most frequently attested vessel in the assemblages dating to 1st c. AD from Puteoli.[1013] The vessel was also abundant in Pompeii, where only the Dressel 2-4 outnumber Cretan amphorae.[1014] Around 400 vessels were discovered in Pompeii,[1015] forty-one of which bear the inscription Lyttios. This is the largest group of inscribed amphorae discovered in the city.[1016] In addition, based on amphorae bearing the inscription 'ἐπιτυνχάνοντος (*sic)* (τῶν) Καμπανῶν', it has been assumed that Cretan wine was also exported to Capua, perhaps as a means of taxation from Knossos.[1017] The above evidence, in combination with the absence of imports in the east, indicates that the Cretan markets were concentrated towards the west. Having in mind the above, it could be suggested that Cretan wine was specifically transported towards Rome with the Annona or in private boats serving the grain trade.[1018]

The importance of the north coast of Crete

[1010] Rizzo 2003: 207.
[1011] Morley 2007: 577.
[1012] Casaramona, Colantonio et al. 2010: 113.
[1013] Marangou-Lerat 1995: 159.
[1014] Tchernia 2008: 62.
[1015] Marangou-Lerat 1995: 130-154.
[1016] De Caro 1992; Chaniotis 2008: 90; Gianfrotta 2011: 190-92.
[1017] Tchernia 2008: 62.
[1018] Tchernia 2008; Arnaud 2011: 71.

Further evidence regarding the developments that occurred in the coasts of Crete derives from a group of ostraca found in Chersonesos and studied by Nikos Litinas. These finds led to a new hypothesis considering the trading circumstances on the island and, consequently, its participation in Imperial scale trade. Inscribed ostraca, 92 in total, were discovered close to the Roman port of Chersonesos revealing that different commodities were shipped from the harbour during different seasons (Fig. 6.10).[1019] The ostraca dated between the second half of the 2nd and the first half of the 3rd c. AD.[1020] Gallimore (*ZPE* 190) compares these ostraka with those found at Ilôt d'Amirauté at Carthage (late 4th cent. AC). He argues that they relate to wine production in Lyttos, with the storage and export of the wine taking place at the harbour of Chersonesos.[1021] Overall, the quality of Cretan wine has been praised by several ancient authors.[1022] All the evidence mentioned above indicates a tremendous logistic chain of production and distribution and reveals a very well-organised economic system entirely based upon commerce and sea transactions, at least during the first two centuries AD.

Additional evidence regarding the importance of the northern coast of Crete as well as the participation of the island in a broader network of interactions, comes from papyrus P.Mich. inv. 5760a.[1023] The terminus post quem of the scroll is 117 AD, as it mentions the name of Publius Aurelius, who owes his name to the emperor Hadrian.[1024] Therefore, the date of this scroll further supports the hypothesis that the northern coast of Crete began to develop under Roman rule between the 1st and 2nd centuries AD. In general, this papyrus offers some fascinating evidence of the maritime connections of the Roman period (Fig. 6.13). The papyrus describes in detail the harbours a merchant ship visited to reach Alexandria from Rome. Its importance for this chapter is based on the fact that it provides specific information about the commercial activity along the north coast of Crete and, more specifically, of an area called Attalion, which according to M. Guarducci, is the modern area

[1019] Considering the sailing season, it has been proposed that Egypt provided grain to Rome for approximately four months, starting in June. During summer, Crete 'suffers' from the strong north winds (Meltemia), then perhaps the southern passage would have been the most convenient one for this period of time (similarly to Paul's journey).
[1020] Litinas 1999; 2008.
[1021] Gallimore 2014: 203-209.
[1022] Chaniotis 2008: 90; Hadjisavvas and Chaniotis 2012.
[1023] Heilporn 2000: 340. The papyrus discovered at Kom Aushim (Egypt) in 1929 by the University of Michigan.
[1024] Ibid.: 341.

of Bali.[1025] Buoldemonti, on his trip to Crete in 1415, referred to Bali also as Cape Attali.[1026] This is the same port that appears under Astale in the *Stadiasmus Maris Magni*.[1027] Furthermore, the port is the second stop that the vessel made during its journey to Alexandria (Fig. 6.14). Additionally, the same papyrus offers some evidence of the size of Roman ships: of the eight ships registered, one was a local ship of 30 tonnes, five were open sea vessels of 45 to 75 tonnes, one was 210 tonnes and the last was around 375 tonnes (Fig. 6.15). This last colossal vessel arrived from Ostia and probably served in the grain trade between Rome and Egypt.[1028]

The available archaeological material indicates that the island of Crete played a crucial role in both participating in and maintaining the multiregional networks that shaped the Imperial world. Acting as a stepping stone between various multiregional maritime networks, Crete allowed for expansion across the eastern and central parts of the Empire. Its unique geographic location and vast agricultural production created an amazing opportunity for its inhabitants (foreigners or local elites), who took advantage of the new circumstances and actively participated in the international emporium. Such a discussion naturally leads to the next tier of connectivity, the 'small worlds' networks, which in some cases might have been formed following previously established contacts between traders or were based upon traditional networks that were retained for several generations between neighbouring regions. Overall, they were based on the impact of international networks on local coastal economies by exploiting the sea routes and the newly introduced emporia arising from the grain trade. In a few words, emporia are born out of large network transactions but, from then on, turn into individual hubs that create independent networks and interactions.

'Small worlds' Networks: By connecting smaller networks through key harbours, more extensive networks formed, reducing the obstacles of interaction among previously far apart nodes.[1029] The island's importance and harbours as a redistribution centre support the hypothesis of small worlds networks.[1030] On the other hand, due to the large quantities of

[1025] Ibid.: 342, 346, 348. Bali is located in the centre of the island, between the cities of Rethimnon and Herakleion.
[1026] Buondelmonti 1983: 55.
[1027] *Stadiasmus* 346-348.
[1028] Morley 2007: 585.
[1029] Ibid.: 75.
[1030] Another potential term for this kind of networks is 'Pelagic'. The term "pelagic" describes bodies of water that are enclosed by land or islands and are part of a larger sea, such as the Mediterranean.

exports and imports, Cretan harbours had the role of redistribution centres, where new trading patterns and networks were introduced and expanded. The origins of this tier of connectivity must be traced back to the Hellenistic period. An examination of the pottery assemblages from the large harbour sites and administrative centres shows that different types of amphorae and finewares are attested. Specifically, the differentiations in trading patterns between networks developed around the island during the Imperial period become evident. By looking at the evidence in the pottery chapter, one can see that Gortyn, located in the southern part of the island, had more imports arriving from regions of North Africa than any other site in Crete, perhaps due to its strong connection with Cyrenaica as the capital of the province, while at the same time Knossos, as the newly introduced Italian colony (1st c. BC), had more contacts and connections with the west, and Italy.[1031] Similarly, Chersonesos and Itanos due to their locations in the eastern part of the island were in more substantial contact with the Aegean islands, Asia Minor (especially Chersonesos), and generally the eastern Mediterranean.[1032]

The above outcomes indicate that small worlds existed throughout Crete, while the island's size, geography, and even natural morphology influenced and shaped the local maritime economy. Different economic maps were formed among the different regions of Crete, elements reflected through the different forms of economies and trading networks attested along the island. As a result, Cretan harbours and coasts could be divided into high and low dynamic regions (Fig. 6.16). Compared with the Hellenistic period, one of the significant differences with the Imperial period was that the Cretan poleis were no longer in military dispute as endemic warfare ended after the Roman occupation. Nevertheless, Cretan poleis seem to have kept their distance in matters of administration and economy. Perhaps a new clash arose among the Cretan poleis during the Imperial period, forming a 'warfare entrepreneur' between the different economic agents (e.g., traders) attested in Crete's different harbours and commercial centres. Can one assume that a financial antagonism existed between the families who controlled the Cretan trade? Did different markets along the island compete in trading export goods? The presence of foreign traders all over the Crete, as well as the involvement of the Cretan poleis in different emporia (via small worlds), but also the need to certify a product, for example, the stamp Lyttios found on Cretan

[1031] See Chapter 3, tables 5 and 6 (Knossos), and table 27 and 27 (Gortyn).
[1032] See Chapter 3, table 1 (Chersonesos), and table 15 (Itanos).

amphorae,[1033] leads me towards the assumption that a sort of economic rivalry between Crete's different 'economic maps' was more than likely. [1034]

According to the epigraphic record, many Italian and Roman traders were active throughout the island.[1035] Most migrated to Crete from the 1st century BC onwards, mainly from Delos, regions of the Greek East, Campania, and Italy in general. People with Roman names are known from Hierapytna, some of whom were related to trading families from Italy.[1036] Furthermore, their names indicate contacts with other bigger Cretan centres, like Gortyn, Knossos, and Lyttos.[1037] The most well-known family from the 2nd c. AD in Hierapytna were the Flavii Sulpiciani Doriones.[1038] Members of this family obtained high political rank in Crete, including the title of the high priest of the Kretan Koinon in AD 169.[1039] Similarly, the evidence from Gortyn indicates the presence of Italian traders in the city from the 1st c. BC, includes several proxenoi and politai.[1040] Their names were linked with trading families from Delos, Campania, and the Greek East.[1041] Gortyn, as the island's capital, and the first 'Romanised' polis on Crete, must have been used as a commercial centre for the various Italian traders before expanding their businesses around the island.[1042] On the other hand, Knossos turned into a Roman colony in 27 BC, while previously, in 36 BC, Augustus had granted a large part of its surrounding territory to Capua. Knossos' location was ideal for exploiting local recourses, mainly wine and olive oil. These changes affected local inhabitants to a great extent, with Italians taking control of agriculture production and focusing on export activities. Evidence is provided by the increased production of local amphorae, mainly during the 1st c. AD.[1043] Finally, as the evidence shows, Eleutherna must have also participated in Imperial trade as prosopographical analysis reveals that trading families who were commercially active in the East settled in Eleutherna, including the Tonnii, Offilius, and Sabellius.[1044] The name of Tonnius is inscribed upon a Cretan amphora discovered in

[1033] Chaniotis 1988: 72-73; Marangou-Lerat 1995: 131-133; Chaniotis 2008: 90.
[1034] See also Chaniotis 2008: 96.
[1035] Baldwin Bowsky 1994: 39-44; Baldwin Bowsky 1999; Baldwin Bowsky 2011; Trainor, Mitsotaki et al. 2019.
[1036] Baldwin Bowsky 1994: 39-44.
[1037] Ibid.: 28.
[1038] Ibid.: 19-22.
[1039] The high priest was called *Cretensium concilii pontifex* (Κρητάρχας). See Baldwin Bowsky 1994: 41-42 (no. 33), *(I. Cret. IV. 275*).
[1040] Karampinis 2022: 243.
[1041] Baldwin Bowsky 2001: 42-43.
[1042] Baldwin Bowsky 2011: 432.
[1043] Trainor, Mitsotaki et al. 2019: 7.
[1044] Baldwin Bowsky 2009: 165.

Pompeii.[1045] This, in combination with the amphora production facilities known from the area, constituted further evidence for the commercial identity of Eleutherna.[1046] Overall, the role of foreign traders indicates a change not just in the Cretan economy but also in Cretan society itself, with economic differences and antagonism between the merchant families of the island being a given.

Apart from the apparent differences in the archaeological evidence seen in the transformation of the urban landscape via the construction of large public buildings and harbour infrastructure, the formation of economic maps via the different 'small world' networks constitutes further evidence for economic growth. In addition, the concept of the 'globalisation' of Imperial Crete,[1047] indicates a chronological difference between the north and south coast in adopting Roman culture. In matters of urban and rural space, Gortyn and its surrounding areas seem to adopt the Roman style (houses, public buildings, and more) immediately after the foundation of the new Province, whereas the evidence from Knossos indicates that 'new and original buildings do not appear to be constructed until much later in the mid-1st c. AD'.[1048] This delay in development is also seen at Kissamos, Kydonia, and Chersonesos.[1049] Based on this, a potential 'antagonism' in markets and trade sounds appealing. The foundation of the Annona in the 1st half of the 1st c. AD for the support of grain trade transformed the whole north coast of Crete by allowing the northern poleis and harbours to participate in the international commercial world. Simultaneously, the most crucial element supporting the argument considering the economic maps, commercial antagonism, and 'small worlds' networks, is the role foreign traders had upon the commercial character of Crete. Finally, the development of religious networks between the coastal sanctuaries should be included in the small world interactions scale.[1050] As shown in Chapter 4, the three discussed coastal religious centres saw significant development during the 2nd c. AD. At the same time, a closer relationship must have existed between the two temples of Asklepios at Lebena and Lissos with Gortyn, while both sites seem to have

[1045] Ibid.: 175.
[1046] Ibid.: 221.
[1047] Sweetman 2011: 449-450.
[1048] Ibid.: 447. See also Sackett and Branigan 1992.
[1049] Ibid.: 449.
[1050] Further work upon the role of the coastal sanctuaries of Crete and their connections with other coastal religious sites could shed light upon different aspects of the local economy and networking in the eastern Mediterranean. Further studies regarding coastal religious sites have been conducted by Malkin 2011; Kowalzig 2018.

connections with other temples across the Aegean, Asia Minor and ever Cyrenaica. Further research on this type of network could shed light on unknown aspects of the Roman economy.

The above evidence brings this discussion to the next scale of this analysis. Different economic circumstances arose across the different parts of the island by forming different economic maps, primarily via the formation of the small world networks that occurred based on the location of each emporium and, in several cases, based upon the traditional contacts that might have already existed between the coordinating nodes. The unique character of each site affects both its outer connections and those in its interior. The next part of this analysis will attempt to present the regional and local networks that advanced and developed in Crete during the Imperial period via the interpretation of a smaller scale of interactions, which were still vital for the overall economy of Crete.

Small-scale Interactions

Regional Networks: As shown in Chapter 4, the size, geological character, and commercial diversity of the island reinforced diverse economies across Crete. The concept of 'economic maps' (see Fig. 6.16) derived from the economic development and prosperity analysis of a single harbour could also be added to an analysis of trading patterns, which is built upon the examination of the 'small worlds' networks. As mentioned above, the 'small worlds' networks were based upon the redistribution character of Cretan harbours. These 'small worlds' also created links of interactions with the island's markets, forming regional networks. The regional networks analysis is based on the port hierarchy concept suggested in the multi-scalar view of the Cretan harbours. Three main scales were proposed based on specific criteria; the commercial importance of a site, its overall prosperity, and the ease of connectivity its location provided. The three proposed categories were ranked from a high to low tier, including the harbour cities and the inland administrative centres (Chersonesos, Hierapytna, Kissamos, Knossos, Gortyn), the dependent harbours (Matala, Lasaia), including the islets scattered around Crete (Dia, Leuke, Kaudos), and the various transhipment nodes (Phoinix, Tholos).[1051] As already demonstrated, Cretan harbours were also involved in Imperial trading routes alongside their small world interactions. Similarly, the regional

[1051] See Chapter 4.

networks resulted from smaller and easier-to-manage scales of interaction, mainly with sites from the surrounding areas.

Indeed, the new trading patterns were not just a large source of income for the harbour cities but for a much greater area over which they had influence. This was not necessarily other harbours but, in several cases, sites in the island's interior. The foundation of regional networks is formed by analysing a logistics chain of activities between local industries and markets. It is also crucial to understand the vital role that production centres and local farms had for the commercial identity of the island and how they were also greatly supported by the economic development brought about by participation in the various commercial networks.

As mentioned in the multiregional and 'small worlds' sections above, the different economic maps around the island formed individual interactions with markets beyond them by importing specific products. These links can also be seen in the shipwreck evidence where in several cases, the imported cargoes found on the island's southern coast differed from those in the north. For example, imported goods reaching the harbours of Knossos and Gortyn on the north and south coasts originated from different regions, with some of these imports scattered between the two cities via a possible trading route or markets through central Crete.[1052] Due to the various regional networks on the island, new local markets were introduced, bringing together imports from local sites. This scale was much smaller compared to the multiregional or 'small world' tiers analysed previously discussed, but such redistribution was needed to supply everyday life on the island. At the same time, both sites might have been suppliers of specific imports. For example, Knossos and Gortyn seem to have been the two main redistribution centres of Italian Sigillata in Crete (Figs. 3.112, 3.113).[1053] Understanding that local products and commodities were distributed via these regional networks around the island is also essential. The island's self-sufficiency in some of its products (e.g., wine, olive oil) would also have allowed the regional distribution of each county's products towards the eastern or the western parts of the island, respectively. Specific areas produced specific goods that perhaps other regions did not have. As already stressed in the previous paragraphs large quantities were much easier to move via the sea

[1052] See Chapter 3.1 for a detailed analysis of the imported amphorae and fine wares attested in Knossos.
[1053] See Chapter 3.1.

and as a result specific maritime networks are expected to have existed. Moreover, big production centres must have related to a road network that allowed them to transport their commodities towards the sea and the harbours for exports and at the same time, move large quantities of imported pottery from the harbours to the island's interior.

Overall, the new era brought the coastline and inland valleys together by creating links between production and distribution centres, creating a form of interdependence between the two economic zones. Establishing road networks on the island during the 1st and 2nd c. AD boosted regional networks, allowing a more accessible and safer way for inland transportation and connectivity. The *Tabula Peutingeriana* (Fig. 6.17) and the milestones presented in the previous chapters constitute useful sources of evidence since they provide researchers with an idea of the road system that existed in the late Roman world.[1054] In the case of Crete, and for the needs of this thesis, they constituted tools in identifying regional networks via potential road systems that existed on the island during the Roman times.

Considering the harbour of Hierapytna, Gallimore provides evidence of several Cretan amphorae found in the excavated layers, which were initially produced across Crete. Among the findings is the ARC typology attested mainly in Gortyn and the ARC1 or Cretan 1 found in western Crete, specifically at Kissamos, Dermatos, and Palaiochora (Fig. 6.18).[1055] Furthermore, other examples of Cretan amphorae produced in Chersonesos, Herakleion, and other regions were attested in the pottery assemblages studied (Fig. 6.19).[1056] Further evidence of regional connectivity occurred from the harbour of Chersonesos. Specifically, the mosaics attested in the Roman harbour have been identified by the excavators as being similar to those found in Villa Ariadne in Knossos and Heraklion,[1057] based on their typology and the motifs used. The mosaics date to the 1st half of the 2nd c. AD. In central Crete and specifically at Eleutherna, excavations in a bathhouse, Roman villas, and a public facility brought to light 20 stamped fragments of Italian Sigillata.[1058] Most of them date to the mid-1st c. AD. These fine wares reached Eleutherna via Knossos or Gortyn, the leading importers

[1054] Of course, the Tabula dated to the 4th c. AD, but it is the closest evidence we have to the Imperial times.
[1055] Gallimore 2011: 329.
[1056] Ibid.: 329-337.
[1057] Papadaki and Galanaki 2012: 268.
[1058] Baldwin Bowsky 2009.

of western fine wares on the island, or from western centres such as Aptera[1059] and Kydonia.[1060]

Further evidence considering regional networks derives from the study of coastal quarries.[1061] With such a large number (Fig. 6.20), sometimes in areas with no evidence of habitation, the cargo was directly loaded into the vessels and travelled to its destination. Harbour infrastructure must have been essential for the safe loading of the ships. For example, the stone-carrying shipwreck from Rhodopou,[1062] which was identified as a local direct type of journey, constituted further evidence of the identification of this regional tier of connectivity. The stone cargo was not an opportunistic trade, where the vessel made stops at one port after the other trying to sell their load. They would have had specific orders from clients as part of a commissioned or direct trade. Furthermore, a recent discovery of a marble quarry outside Istron (Fig. 6.21) has changed the perception of the stone trade in ancient Crete with the Tziligaki noting that it is a '*prevailing myth*' that Crete did not have sources of marble and that it was entirely imported during the Imperial times.[1063] According to Harrison,[1064] the marble from the quarry east of Istron was probably used to construct capitals, bases, architraves, and reliefs during the Antonine period in Gortyn and Knossos.[1065] In combination with the abandonment of Parian marble quarries,[1066] such as the underground quarry of Nymphs during the mid of the 2nd c. AD,[1067] Crete would have managed to support part of its needs locally. Finally, another exciting piece of evidence for local networks comes from Lasaia, one of the principal harbours of Gortyn, indicating the dual role of the harbour, first as a dependent node to the regional network formed with Knossos, and second by taking advantage of local networks as Lasaia's economy was connected to stone quarries and copper deposits from the nearby area of Chrisostomos.[1068]

Overall, it is evident that a great range of regional networks, both maritime and land based, developed between the various harbours and cities of Crete during the Roman period.

[1059] Baldwin Bowsky and Gavrilaki 2010: 214; Baldwin Bowsky 2019.
[1060] Karampinis 2022: 252.
[1061] See Chapter 5.2, 'The Rhodopou Shipwreck'.
[1062] Ibid.
[1063] Tziligkaki 2018: 231.
[1064] Harrison 1990: 150.
[1065] Tziligkaki 2018: 248.
[1066] Korres 2000: 72.
[1067] Evelpidou, Tziligkaki et al. 2018.
[1068] Mourtzas and Kolaiti 2021: 15.

These networks expanded gradually, forming connectivity links across the island. Of course, this section's purpose is not to discuss or reconstruct every potential connection or interpret the new road system.[1069] Instead, it is aimed at interpreting small-scale interaction and regional networks as a natural continuity of the large-scale networks presented earlier in this chapter. Identifying regional networks is crucial for the interpretation of the new economic and trading patterns introduced in Crete during the Imperial period. To summarise, based on archaeological and literary evidence presented above the following associations between Cretan sites are considered safe hypotheses (Fig. 6.22): Matala, Lebena as Gortyn's harbours,[1070] Dia and Heraklion in the service of Knossos, while Hierapytna must had influenced a large part of the eastern Crete, including the Mirabello Gulf via the transportation of goods between the south and north coast through the isthmus where there is also evidence of rural farms and amphora production facilities, indicating imports and exports. In Central Crete, the 'sympoliteia'[1071] between Chersonesos and Lyttos has been discussed in several parts of this thesis,[1072] while towards the west, Lissos and Sougia must have been in constant relation to each other and with Elyros, while further in the north Kissamos and Pollyrhenia seem to have retain their contacts since the Hellenistic times. Finally, contacts might also have existed between Lappa and the poleis of Aptera, Kydonia, Gortyn, and Eleutherna, via the transportation of imported pottery, specifically Italian Sigillata.[1073] Below, local networks are discussed to conclude this circle of interactions from an international sphere down to the most negligible relations formed during that time.

Local Networks: This tier constitutes the last on the scale of interactions and is the smallest scale of connectivity. It concerns the interactions between sites located on a day's journey from each other.[1074] This is constructed upon the sphere of influence a harbour had on its surrounding area and the level of dependence between coastal sites. These include all small sites surrounding the large harbours, coastal or terrestrial. Dependent relationships based on production and consumption were attested all over Crete. Smaller harbours could

[1069] For studies considering the road networks attested along Crete see: Tzifopoulos 2004; Baldwin Bowsky and Niniou-Kindeli 2006; Pazarli, Livieratos et al. 2007; Chaniotis 2013.
[1070] The workers who restored the sanctuary of Lebena in the 2nd c. AD can be traced back to Gortyn and to the construction of the Praetorium (Melfi 2007: 144).
[1071] *I. Cret. IV.165* (SEG 13-466). Regarding the sympoliteia between Gortyn and Phaistos: Chaniotis 1996a: 422-425 (No.71); Di Vita 2010: 57.
[1072] Chaniotis 1996: 430-432; Perlman 2004: 1155.
[1073] Baldwin Bowsky and Gavrilaki 2010: 214; Baldwin Bowsky 2019.
[1074] See Chapter 5.2, 'Model Analysis'.

provide agricultural products and services through a transhipment market by gaining access to the broad Roman world. For example, the imported pottery in Sfakia appears in far greater numbers than the local ones.[1075] This constitutes a unique example regarding the whole island, where local amphorae constituted the majority of finds in the assemblages studied. This is a clear indication for the site as a transhipment harbour.

Another example concerns the daily provision of commodities to harbours are the coastal sanctuaries. One can assume that a fixed market existed between these sites and their neighbours concerning the delivery of supplies. The interaction between Lissos and Souyia constitutes an interesting example. The regular need for goods suggests that a local network must have supported Lissos. It was in immediate connection with Syia (Sougia) and perhaps with other smaller harbours along the southwest coast; additionally, passing ships also probably stopped at its port to trade, which constituted another essential source of supplies and donations for the sanctuary. As a result, the site would have made great use of its harbour with vessels loading and unloading daily.

Further evidence for local networks could derive from the interpretation of maritime villas. Usually, such villas formed small communities, controlled by a wealthy person. Specifically, 'maritime villas of the early Empire could have belonged to high officials sent directly from Rome, rather than to local, colonial elite'.[1076] Overall, the archaeological record indicates that maritime villas were connected to agricultural production and storage in a way that is similar to rural villas, with the exception that they could have 'distribute products by sea transport in a very cost-effective manner'.[1077] Regarding Crete, these types of sites constituted an understudied element of the local economy. Following the examples from other areas (e.g., Italy and Croatia), it is likely that such villas were largely self-sufficient. They would, however, have been 'attached' to the local markets to cover parts of their needs, mainly for imports or for providing their own commodities into the markets. The sites of Minoa, in the southeast part of Akrotiri, Makry Gialos, southeast Lasithi, and Pacheia Ammos on the Mirabello Gulf, constitute the only known examples of maritime villas in Crete (see Fig. 4.1). These small communities usually had some harbour infrastructure,[1078] as one can see with the example

[1075] See Figure 4.65.
[1076] Begović Dvoržak and Dvoržak Schrunk 2004: 85.
[1077] Marzano 2018: 126, 137.

of Minoa,[1079] that allowed them communication via the sea (Fig. 6.23). Perhaps, Minoa communicated with the large city of Aptera in Sougia Bay or Kydonia a little bit further on the west. In the case of Makrys Gyalos, located east of Hierapytna, Baldwin Bowsky suggests the existence of an amphora production workshop in its premises,[1080] which constitutes further evidence for the commercial role of the site. The villa at Makrys Gialos must had been in Hierapytna's sphere of influence, while a commercial relationship with the islet of Leuke could have been possible. Finally, on the bay of Mirabello, at Pacheia Ammos, a large building which was interpreted as a warehouse by Sanders is located.[1081] Kelly notes that there is a potential bath construction extended to the building.[1082]

6.5 Discussion

In the previous paragraphs, a network model was established, where larger nodes were 'unfolding' their connectivity links into increasingly numerous small-world and regional networks (Fig. 6.24). From the large grain-trade networks to the 'small-worlds' tier, Cretan harbours were connected to other regional ports beyond Crete, forming trading relations. Cretan distribution centres, and probably the rest of the Roman Mediterranean, therefore operated with three different sources of commodities: locally produced ones, those arriving via small world interactions, and lastly, those emerging from the large maritime routes through the grain trade and generally long distant journeys. These three individual connectivity links were scattered, mixed, and redistributed towards the wider Mediterranean and the island's interior. Regarding the previously discussed model, with the bisection of large networks into smaller ones, it is essential to declare that commodities were the actual 'fuel' of this circle of interactions. A circle that redistributed, 'recycled', and even returned to its original starting point. All the above constitutes a complex procedure

[1078] Concrete walls 85m long were identified by the coast (Sanders 1982: 169), but no evidence of this construction survives today due to the modern road that covered the ancient remains.
[1079] Moreover, in Minoa, the remains cover a significant area, with a bathhouse, several assistant rooms, and even a waterfront revealed during the excavations. Minoa was also related to a small aqueduct. Ancient authors refer to the region as Minoa, a name that seems quite popular for commercial coastal sites (Strabo 10.4.3).
[1080] Baldwin Bowsky 2006a: 567. Among its facilities are a bath complex and a valanio, with its entire floor covered in marble. The water was supplied from the cisterns to the bathhouse through a system of built-in pipes.
[1081] Sanders 1982: 140.
[1082] Kelly 2006: 394. This bathhouse was connected to an aqueduct traced to another site called Vasiliki, 3km to the south, strengthens this hypothesis.

whose hermeneutical success requires the consideration of different economic, natural, and human factors.

The archaeological record from Crete confirms that direct sailing and trade were the undisputed instruments behind the island's commercial activities. The results from the previous chapter showed that all shipwrecks dating to Imperial times were involved in direct trade, with only one notable exception, the recycling ship from Ayia Galini, which was probably involved in tramping.[1083] But it does not mean that the vessel was travelling in a straight line from harbour A to harbour B. As we have seen, the division of maritime networks into different scales of interactions and tiers of connectivity makes the analysis of voyaging and trading challenging. At the same time, each loaded ship found in the harbour of emporia ready to set sails resulted from a highly calculated economic procedure, usually between a handful of people. In a few words, every journey comprises a logistic chain of investment and risk. Naukleroi, merchants, and money lenders constantly searched for new economic opportunities throughout the Mediterranean basin, and Crete had great potential. The Cretan amphorae found all over the Mediterranean, especially in Rome, indicated a well-organised direct trade, which was under the control of experienced merchants. At the same time, the large quantities of imported pottery indicated vessels on return journeys, bringing in goods and taking out others. All these journeys were perhaps the result of fixed negotiations between people involved in sea trade. The existence of maritime contracts constituted further evidence of the complexity and unpredictability of maritime networks. Chartering,[1084] naulotike,[1085] and bottomry loan contracts,[1086] were sailing contracts used all over the Empire. The existence of famous trading families in Knossos and Gortyn suggests that similar contracts might have existed on the island.

Taxation and Shipping Contracts

[1083] See Chapter 5, Table 30.
[1084] The ships and their crew were rented for a specific amount of time.
[1085] Naulotike was an agreement between a naukleros and the charterer (or the between several charterers) where the ships' journey has been discussed and scheduled before setting sail.
[1086] Bottomry loans covered the risk of shipwreck, as the borrowed capital and the interest on the loan was only payable if the ship did not sink. Such a loan had deadlines considering the duration of a journey. See The example of Phormio who rejected to reload to his cargo into the same ship (Demosthenes, *Against Phormio*, 7-10).

Imports and exports constituted a great source of income for private individuals and the state via taxes and port fees. Except for portoria, an equivalent of ellimenika to cover the port fees, other taxes found on harbours were the eisagoge (for imports) and exagoge (for exports). Before any transaction, the merchant had the right to show the potential buyers a deigma, a sample of their cargo, before a final agreement.[1087] In several cases, such as in the port of Canaus,[1088] foreign vessels might be granted the so-called ateleia, which allowed them a 20-day period to sell their goods before being charged with export taxes. Unfortunately, there is no evidence indicating the use of portaria (either state-controlled or libertas) in Cretan harbours.[1089] On the other hand, portoria were collected in the harbours of Cyrenaica,[1090] which could reflect similar policies to the imperial harbours of Crete, based on the fact that the two regions shared the same administration policy as a joint province.[1091] Ships carrying state cargo related to the Annona were exempt from the portoria.[1092]

Furthermore, the dangers and unpredictability of the sea and sailing season is a crucial natural factor to be considered, making the singing of maritime contracts vital for the overall industry. It is not a coincidence, that maritime loans were avoided during winter sailing due to the high risk. Specifically, 'it appears then that the shipowners and naucleri were more involved personally in trading operations during the winter months, a role that was usually devolved to the merchants during the summer'.[1093] On the other hand, the stowage of the cargo played an essential role in the seaworthiness of the vessel and its overall journey. A ship might not have the time to load, unload or rearrange the spatial planning of the cargo, 'would have needed to be organised in such a way so that space was left for this complementary load'.[1094] Furthermore, 'an alternative would be for the crew to place goods

[1087] Cic., *Rab. Post.* 40–5. during a transaction at Puteloi.
[1088] Marek 2006: 171-221 (no.34); Arnaud 2011: 65.
[1089] For a detailed presentation of roman taxes see lex portorii Asiae.
[1090] Cervidius Scaevola, Iustiniani Digesta, 19.2.61. translation: 'A man hired a ship to sail, for a fixed fee, from the province of Cyrene to Aquileia; the cargo was three thousand metretae of olive oil and eight thousand modii of grain. It turned out, however, that the loaded ship was detained in that province for nine months and the cargo was unloaded and confiscated. Can the ship collect from the lessee the passage money agreed on in the lease? He [Scaevola] responded that in a situation like this one he can' (Watson 2011: 115). See also Laet 1949: 295.
[1091] Gallimore 2015: 284.
[1092] Wilson 2009: 217.
[1093] Ibid.: 69.
[1094] Ibid.: 71.

to be sold at the top of the cargo and in the middle of the hull, which could be replaced with the new items bought on the way. In the second option, the new goods may have been preferably loaded in the same fiscal district as the main cargo, and in both cases, delicate items must have been loaded rather than heavy ones'.[1095] Overall, the existence of maritime contracts and loans to support these journeys and the various taxation systems along the Empire's harbours constituted maritime trade, not only the most complicated economic system in the Mediterranean but also the most profitable one.

To sum up, the different tiers of connectivity attested around Crete and the wider Mediterranean were direct open-water trade connections, often carefully prepared in advance but with an undeniable opportunistic character. An experienced trader would have never abandoned a great deal, and captains and crews knew it. The example of harbour transactions described above may sound like a somewhat random process; however, the whole journey, including the loading and unloading of commodities, was planned in advance via contracts.[1096] That is why in several cases, the presence of a representative onboard could have allowed changes in the schedule and stops or not. Overall, maritime contracts and loans provide evidence of the nature of sailing routes and trading patterns. Still, it seems that the whole journey could have changed or altered during its duration. The contracts were there to protect and provide insurance, but at the same time, they seemed fragile. It is not a coincidence that most of the known reports about these types of transactions survive today mainly via the dikai emporikai,[1097] which means legal battles between loaners and unethical borrowers. Overall, maritime trade in Imperial times was divided into different scales and tiers; at the end of the day, the human factor characterised trading patterns, providing sea transactions with a complex and unpredictable character. Below, a theoretical construction of two vessels trading along the eastern Mediterranean is presented to provide an illustration of these processes.

[1095] Ibid.: 71.

[1096] Arnaud 2011: 71.

[1097] Examples of dikai emporikai dating to the Late Classical and early Hellenistic times: Lysias, *Against Diogeiton* 6; Demosthenes, *Against Aphobus* 11; *Against Zenothemis* 14; *Against Apaturius* 6; *Against Phormio* 7–10; *Against Lacritus* 7–16; *Against Polycles* 17; *Against Dionysiodorus* 3. Examples of bottomry loans and chartering contracts dating to the Roman period: Plutarch, Cato Maior 21.6; *Casson 1986 (P.Vindobonensis G.19792);* Casson 1990 (*P.Vindobonensis 40.822);* See also Arnaud 2011 for further discussion upon dikai emporikai and Roman chartering loans.

Example

This hypothetical example involves two private ships following reverse sailing routes between the central and eastern Mediterranean during the summertime while serving the needs of the grain trade. For the purpose of this analysis, both vessels stopped at the port of Chersonesos. Ship A moved grain from Alexandria towards Rome, while ship B sailed towards Alexandria from Rome for the same purpose. Ship A's journey involved several stops in the eastern Mediterranean, passing by the Palestine coast, along Cyprus or south Asia Minor, towards the island of Rhodes or Kasos, and then along Crete or through the Aegean and Peloponnese before reaching Italy. This journey resembles Paul's during his transfer to Rome (Fig. 6.25).[1098] Ship B crosses south Italy, passes towards west Greece and the south Peloponnese before reaching Crete and Rhodes, and then moves towards south Asia Minor/ Cyprus, the Palestine coast, and finally Alexandria. At this point, it is crucial to mention the private nature of the vessel and that the journey was based either upon a maritime chartering contract that allows whoever is in control of the nauklerus (under a contract or a loan) to decide the fate of the journey and cargo for a specific amount of time, or that the merchant(s) involved in these journeys might have been the naukeroi themselves.

While ship A was carrying grain from Alexandria, the crew rearranged the spatial planning of the cargo so that space was left for the addition of complementary loads during the ships' various stops towards Rome. As a result, during the vessel's stop at an emporium in Rhodes, the crew unload a deigma of the commodities that could have been collected anywhere in the eastern Mediterranean. In addition, due to a great opportunity, they reloaded several amphorae of locally produced wine and a smaller number of vessels containing commodities from other neighbouring areas like Asia Minor, Crete, or the Aegean regions, indications of small-world interactions. After submitting the portaria, the eisagoge and exagoge taxes, the ship moved towards the north coast of Crete and the harbour of Chersonesos. A similar kind of transaction might occur, with the crew loading a number of Cretan amphorae containing wine and perhaps unloading deigmata of commodities bought from the eastern Mediterranean or even those from Rhodes that had previously been loaded. At the same time, part of the commodities loaded in Crete could have been locally produced; for example, the exported wine leaving Chersonesos harbour might originate from the vineyards

[1098] Paul, *Acts of the Apostles*, 27.8.

of Lyttos, similar to the other wine carriers found in Italy. This example indicates evidence of regional and local networking. Simultaneously, other commodities could have traded at the Cretan harbour, either locally produced or gathered from small-world networks, from Aegean, the eastern Mediterranean, and even with goods from Rhodes that had previously reached Chersonesos as part of another redistribution cargo.

Meanwhile, ship B on its arrival in Chersonesos from Italy, brought within its opportunistic cargo commodities to trade on its way to Alexandria. Among them could have been products from all over central Italy, both amphorae and finewares, as seen in the pottery analysis, as well as pozzolana ash, similar to that used to construct the harbour at Chersonesos.[1099] At the same time, other commodities originated from the western Mediterranean, for example, the Spanish amphorae found in the Palaikastro shipwreck, which might have reached Rome's harbours as redistribution goods, could have been found in the markets of Crete as part of an opportunistic cargo. The successful negotiation following the deigma presented in Chersonesos allowed them a good profit, part of which used to cover the eisagoge tax. Similarly, other commodities could have also been obtained and moved towards the east. On its arrival in Rhodes, the vessel will again unload a deigma of goods brought either from the west or simply from Crete. Following a successful negotiation, they managed to sell part of the Cretan amphorae cargo, making a profit while paying the eisagoge tax. In a similar logic, this circle of interactions continues creating a chain of interactions based on large-direct and small-world tiers of connectivity. These chains of circles are then responsible for distributing commodities to the regional and local networks. In this way, commodities from every corner of the Empire were arriving in Crete and other Mediterranean regions. The two vessels, passing by Crete, continue in opposite directions with ship A, moving the grain cargo and perhaps other commodities to the harbours of Rome, and ship B reaching Alexandria after having sold the opportunistic cargo, or not, at the various stops in the eastern Mediterranean. Of course, none of this would matter if the two ships had ended up being wrecked …

[1099] See Chapter 4.2, 'Harbour Cities : Chersonesos'.

Conclusion

This chapter discussed the different scales of connectivity that Crete was involved in during the Roman period and how maritime networks shaped the island's overall economic development and social hierarchy. The establishment of the Annona and the grain trade turned the Mediterranean into a massive market with commodities from all over the Empire being exchanged throughout the basin. Harbours and emporia developed, and new ones founded, with coastal regions on these trade routes gaining great commercial potential. In this new economic maritime world Crete was no exception. The new trading networks turned Crete into a node of commercial interaction by exploiting its unique geographical location and agricultural production. The Cretan harbour cities flourished, allowing the building of significant public works while expanding maritime and inland connectivity networks. Cretan society also changed significantly, with foreign traders turning into the ruling class by gaining control of both the means of production and the distribution of local goods.

But what activated such interactions across the Mediterranean? The need for supplies is the answer. Rome, the heart of the Empire, was supplied via the main trade arteries, which in their turn provided the smaller 'veins' (small world and regional networks), allowing them to flourish and naturally develop. In the case of Crete, this is more than noticeable. Keeping in mind that most of the sites in the north seem to expand and start developing during the mid-1st c. AD, similarly with the first evidence of the starting point of Annona, and the arrival of foreign traders on the island, it becomes evident. Arguably, the trading families found all over Crete brought the knowledge and methods for successful long-distance trade with them. At the same time, the most crucial element of their success was their connections and experience of the commercial world that allowed them to put Crete on the international map. Overall, the exploitation of agricultural sources via exports by trading families around Crete is reminiscent of a similar phenomenon in the province of Baetica, with the five most prominent families controlling a significant part of the overall olive oil exports of the province.[1100]

[1100]De Salvo 1992: 193–98, 396–99; Rodríguez 2004; De Salvo 2006; Arnaud 2011: 70.

Furthermore, the large assemblages of imported pottery indicate the multiregional networks connected to the island and Crete's commercial focus towards the west and Rome. Simultaneously, the quantities of exported Cretan amphorae found throughout the Empire further support this hypothesis. Nevertheless, the island's 'commercial power' allowed the island to form new trading patterns with specific regions forming small-world networks by expanding and developing their commercial activities beyond the grain trade. Progressively a smaller scale of interactions developed in the island's interior, forming regional and local networks between the Cretan Poleis and logistic chains between the production and distribution sites. Following the analysis of maritime networks that Crete participated in provides a great source of arguments for the final chapter of this thesis, the Maritime Cultural Landscape of Crete.

Chapter 7: The Maritime Cultural Landscape

Establishing the Roman Empire and 'mare nostrum' set the foundations for an unparallel development across the Mediterranean basin. This new, massive 'organism' was shaped under Rome but constantly needed a harmonic collaboration among its different parts. The need for supplies and communication between the capital and the provinces of the Empire created massive links of interactions all over the sea. Ships, as pieces of machinery, and sailing routes as expressions of cognitive expertise, were major tools in this collaboration. A chain of developments seemed to occur, leading to coastal economic growth across the Mediterranean. The subdivision between the various connectivity links around the Imperial world made any form of interaction possible, sometimes even between regions separated by tremendous distance. Local harbours expanded and new clusters of networking developed over time, while trade and shipping turned into the most profitable businesses.[1101]

In the previous chapters, different aspects of the archaeological record of Crete were analysed, aiming to provide a more precise interpretation of the economic development and conditions under which Cretan poleis expanded and changed during the transition from Hellenistic to Imperial times. In searching for the MCL, a series of models and potential theoretical structures were proposed, including classifying harbours hierarchically, the division of the island into economic maps, the interpretation of shipwrecks into different trade groups and types of journeys, as well as the understanding of maritime networks as being composed of different tiers of connectivity and scales of interactions. This was done to reconstruct MCL, which according to Westerdhal, 'comprises the whole network of sailing routes, old as well as new, with ports and harbours along the coast, and its related constructions and remains of human activity, underwater as well as terrestrial'.[1102]

Westerdhal's model was mainly based on communities in the Baltic Sea, however, it was adapted for use in the ancient Mediterranean and Crete, particularly given the importance of the movement of people and products throughout the basin, where harbours constituted the main instruments of economic interactions. Effectively, the interpretation of different

[1101] *Emporoi* and *naukleroi* were a new developing class, changing once and for all the markets and the way people interacted with trade.
[1102] Westerdahl 1992: 6; 2011.

forms of harbours reveals an interconnected network of maritime facilities serving different purposes in different regions of the island. Each of the harbours discussed had unique characteristics related to their archaeology, geography, and participation in specific economic and maritime networks. Building upon Westerdhal's ideas, this approach incorporates the theoretical model of 'small worlds' through the concept of multiscalar harbours. This involves creating an MCL tailored specifically for Crete's archaeology, based on thorough personal fieldwork that examined a diverse range of coastal sites.

Although the island was divided into several economic hubs and administrative centres, in earlier scholarship, Crete was treated as a single entity regarding its economy or role in the Imperial world. For a better understanding of the island's nature, it is crucial to evaluate how different regions adjusted to transformations and collaborated with one another during the Imperial era. That is precisely what this thesis attempted to do by breaking down the island into different scales and economic maps, trying to perceive the different aspects that drove the alteration of its overall economy, always in conjunction with the development of different maritime networks. Once again, the size, location, and regionality of the island had a crucial impact on this analysis. Previous works have discussed phenomena such as peace, the cosmopolitan character of the island, and differences in society and economy. This thesis set the basis for identifying the actual mechanisms that brought these changes.

7.1 The new era

Following the Roman occupation of Crete in 67 BC, a series of developments occurred throughout the island, resulting in its cultural and economic transformation. Coasts and harbours had a leading role in these new developments, with the sea being the ultimate instrument in these changes, a source of opportunities and wealth. After almost a millennium of introversion, the coasts and harbours expanded to such a great degree that, except for the new economic hubs (harbour cities), they also turned into administrative centres, replacing, in several cases, the traditional powers of the interior. Of course, the strong pillars of the island (e.g., Gortyn, Knossos) enjoyed a smooth transition in the new era and connection with the sea via their dependent harbours and islets.

Imperial Crete flourished in the first half of the 2nd c. AD when the various harbours and poleis faced their most significant urban development. This accompanied the funding of

large road networks all over the island and the obvious development that the coasts faced, including the reconstruction of the large coastal sanctuaries, which all helped to stimulate maritime interactions. Large public buildings, including aqueducts, theatres, and bathhouses, appeared around the coasts to serve the needs of an increasing population, while harbours in both the south and north expanded to accommodate passing ships. Extensive storage facilities and amphora workshops grew by the harbours to support the newly introduced trading patterns. That does not mean, however, that the entire Cretan coastline experienced similar levels of prosperity. The various transhipment harbours discussed in the multiscalar view (Chapter 4) did not reach the same levels of economic development as the harbour cities, which is evident in the archaeological record. The absence of advanced urban infrastructure and the fact that most of the vessels found in the ceramic assemblages studied earlier in this thesis are of foreign origins contributes further evidence to the discussion. As a result, different economic maps characterised the island of Crete during Imperial times.

The different economic realities of the Cretan landscape indicate another role for Crete in the gradually expanded Roman world. The large concentration of both western (e.g., Italian sigillata) and eastern imports (ESA, ESB, PRS), in combination with the concentrations of Cretan amphorae in Rome's biggest harbours, indicate a dual role for the island, as a transhipment region for the passing vessels connecting eastern and central Mediterranean, as well as being a critical provider of agricultural products (wine) for the capital itself. These different 'economic maps' developed around the island, forming regions of high and low dynamics in conjunction with the economic heartbeat of the Imperial world.

The Cretan Harbours

The success of Cretan harbours was primarily attributed to their natural shelter, access to agricultural production, and ability to support and host the multiregional trading networks reaching Crete. The island's location allowed its poleis to retain their traditional trading contacts with the eastern markets while at the same time offering them the chance to expand and direct their economies towards the central Mediterranean and Rome. Especially in the second half of the 1st c., local products (e.g., wine) were found all over the western Mediterranean. At the same time, the vast imports indicate trading patterns with regions far

away from Crete. The arrival of Italian traders boosted the local economy by providing the means and experience for creating and maintaining competitive trading networks with the rest of the Mediterranean's emporia. Crete's commercial potential expanded throughout the eastern and central Mediterranean while solid commercial relationships were formed with the surrounding areas (small worlds).

None of the above would have been possible without the actual means of interactions and networking, the ships. According to the archaeological record, during the 1st and 2nd c. AD, the Cretan ports commercially adapted to the new era by investing in developing and enlarging their harbour infrastructure, allowing them to host more boats and deal in products from across the Mediterranean basin. The evidence from the analysis of Cretan shipwrecks indicates a well-organised trade divided between different scales of interactions and multiple tiers of connectivity. At the same time, the presence of Cretan amphorae all along the Mediterranean and even in shipwrecks in the south France and Italy indicates well-organised trade between the nodes of connectivity and the actual means of interactions. Simultaneously, it is not a coincidence that 6 out of 7 shipwrecks carrying Cretan amphorae were discovered in the western part of the Mediterranean, a clear indication of the commercial concentration of the island towards the west. Interestingly, none of these vessels were associated with the Annona and the grain trade.[1103] Conversely, the flourishing Cretan harbour cities were supported by direct trade and the redistribution of products, which, combined with the island's unique location, created the right circumstances for significant economic development.

Overall, Crete did not just participate in the multiregional networks that shaped the Imperial world but contributed to maintaining and developing an inextricably linked Mediterranean. The island had a vital role in the maintenance and movement of imperial trade, performing as a steppingstone between the different multiregional maritime networks that expanded across the eastern and central part of the Empire. At the same time, its interactions with the Peloponnese, Aegean, and Asia Minor formed small world networks that boosted even further their local economies. The participation of the island in the large maritime networks brought new economic opportunities to its inhabitants by allowing them to experience

[1103] Gallimore 2016: 178.

levels of prosperity that Crete had never seen before. The island's location, products, and character made Crete a valuable commercial ally for the expanded Empire.

A new society

No revolts or political disputes emerging from the historical records regarding the Imperial times in Crete. The island experienced an unprecedented period of peace, particularly compared to the Hellenistic era, and was also much more prosperous. Piracy and internal disputes belonged to the past, while the new circumstances allowed the development and participation of Cretan poleis in various economic activities. It is essential to note that the transition of the island's landscape, economy, and infrastructure did not occur overnight but was a gradual process that spanned a significant period. During this time, Roman and Italian communities migrated to the island, bringing with them their distinctive cultural practices, commercial flexibility, and agricultural expertise. As a result, the island underwent a process of adjustment that ultimately shaped its new state.

Another vital part of this transformation was the changes in the social hierarchy of the Cretan society, which altered a state of hundreds of years of austerity, introversion, and endemic warfare. The island and its poleis retained part of their character, but at the same time, they became an integral part of the economic network of the Roman Empire. The new era changed the way of life in Crete, and subsequently, the social structure of the Cretan society was also affected. A rising wealthy oligarchy appears to have replaced the aristocratic families from the Hellenistic period.[1104] The impact of Imperial trade and the influx of foreign populations to Crete were the factors that led to this outcome. Moreover, occupations like merchants and craftsmen became crucial to the new flourishing economy. These changes boosted local agricultural production since more people were now involved in jobs related to Imperial trade and maritime activities. In addition, coastal development was enhanced by the participation of Romans who interacted with Cretan trade.[1105] Sources of their presence in Crete are provided by studying the available epigraphic record from around the island.[1106]

[1104] Chaniotis 2008: 91.
[1105] Hadjisavvas, Chaniotis 2012: 169.
[1106] See chapter 6.4, ‘Large-Scale Interactions’.

Overall, Cretan poleis and Cretan society did change, although probably less so for the lower classes who retained a much lower status compared to the traders and naukleroi.[1107]

7.2 Future research

A significant amount of work has previously been published on Imperial Crete and maritime research has seen an overall level of growth on the island, especially after the foundation of the Department of Ephorate of Underwater Antiquities in Heraklion.[1108] This thesis attempted to reconstruct the maritime cultural landscape of Imperial Crete by presenting new insights into the island and its interactions, mainly focusing on the 1st and 2nd c. AD. This thesis constitutes the first attempt to analyse three different sources of evidence – pottery, harbours, shipwrecks – through a maritime perspective and a methodological approach entirely focused on the role of the sea. The combination of the above allowed me to interpret the different developmental steps that took place until the final transformation of Crete, while at the same time producing a case study model that could be used all over the Mediterranean. Further study and research on Imperial Crete, however, still need to be done.

A more detailed study of the imported pottery of Imperial Crete could set new horizons for understanding the local economy to a greater extent. The pottery results presented in this thesis, via the interpretation of seven case studies around Crete, provided a tool for the analysis of the different maritime networks that the island was involved in during the Imperial period. At the same time, the reconstruction of the various sailing routes to which Cretan harbours were connected aimed to provide evidence for the different scales of interactions that existed around Crete. The results of this thesis could be used as the starting point for a future study that would aim to form a much more detailed interpretation of the trading networks and patterns that were introduced in Crete, this time via a more in-depth methodological approach, where the scale of connectivity will be visualised through the

[1107] For them, things did change, but only partially since they did not have to immigrate or be hired as mercenaries anymore, with new working opportunities existing on the island. During Hellenistic times, landowners were the ones who had the actual power, those who could provide for the syssitia, while the rest of them, those with no land and actual resources, had to support the various armies along the Hellenistic East or focused on piracy. In Imperial Crete, foreign traders' presence changed the island's economic patterns, with a new class emerging from the benefits of the new trading world. The Cretan landowners must have retained their wealth through their fields and agricultural production, but the case was not the same for the lower Cretan classes.

[1108] Karampas and Theodoulou 2023.

implementation of ArcGIS. At the same time, in collaboration with the local Ephorates of Crete, a study of the available pottery assemblages from the various rescue excavations that have taken place in the harbours of Crete is needed since it will provide safer results regarding the identification of trading patterns and maritime networks. For example, the harbours of Chersonesos and Kissamos constitute unique case studies that could provide a more constructive image of the maritime trends during the Imperial period. At the same time, such an endeavour would provide new evidence for interpreting more comprehensive studies regarding the overall Roman economy. For example, a more in-depth analysis of the 'small worlds' network between Crete and its surrounding regions and the role and activity of the various eponymous trading families could set the basis for a better understanding of eastern Mediterranean commerce. This could happen via an in-depth statistical analysis of the finds.

Another exciting research project when considering 'small-world' networks would to be study the relationship between Crete and Cyrenaica as a combined Province, '*Provincia Creta et Cyrenaica*'. Such an endeavour would been an excellent step for reconstructing the Eastern Empire's economic heart and the commercial, political, and social relationship between the Aegean and North Africa. The study of this commercial relationship could set the basis for identifying both multiregional and small-world interactions between the Aegean, eastern Mediterranean, and North Africa. Such a study can also discuss the actual role of administrative centres and the decisions taken all over the island. Was Gortyn the island's natural capital with true administrative power, or was it more like a Roman colony, like Knossos? Simultaneously, a study on the MCL of Cyrene could shed light on Cyrenaica's connection with the sea.

Last but not least, a new maritime project on the Cretan shipwrecks is needed to provide further evidence about the trading role and commercial identity of the island. This would require the relocation of the sites, some of which are known in scholarship only through reports and studies from the 1960s and 70s. My fieldwork and the analysis presented in Chapter 5 was the first-ever attempt to bring together all the known shipwrecks from Crete dating to Imperial times and interpret them according the principles of the MCL and more recent understandings of the Roman economy**.** As already mentioned, what makes my

proposed model different to previous shipwreck models[1109] is that Crete constitutes a provincial-scale case study, while other models interpreted case studies from more extensive parts of the Mediterranean. The presented model could be used to interpret connectivity and analysis of maritime trade indicators of similar case studies around the Mediterranean, always on a provincial scale. At the same time, sites like Chersonesos and Hierapynta, and even smaller harbours like Matalon, Tholos, and of course, the unique case studies of the Cretan islets (Leuke, Dia) scattered around Crete, are all sites that could provide new insights and evidence regarding the period discussed and the instruments that lead to their overall development. Most of these sites have not been explored for decades.

Finally, the coastal sanctuaries have the potential to reveal significant evidence regarding their impact on the overall Cretan economy and the formation of MCL. The interpretation and analysis of the potential maritime networks connecting the Cretan sanctuaries with other religious centres along the Mediterranean is an exciting project that could shed light on religious maritime networks and how these intersect with commercial ones the ancient world. As a result, a potential network analysis could investigate different tiers of connectivity that have not been previously considered. The political, administrative, and commercial character of these sites is poised to reveal an entirely new aspect for the studies of the Roman economy. It is not a coincidence that across the Empire, sanctuaries, especially during the 1st – 2nd centuries AD, undergo considerable development, mainly supported/funded by elite members of Roman society. This reveals the new role and ability of these sites to attract Rome's attention while serving as both religious and commercial harbours.

7.3 Epilogue: Crete, Rome, and the Mediterranean

As a key component of Mediterranean culture and history, Crete was inevitably impacted by the significant transformations that occurred on the sea and around the coasts of the ancient world. Throughout Imperial times, the distinctive geographic location of the island played a significant role in its development. Divided between East and West but at the same time independent and with rich agricultural production, Crete had everything it needed to succeed in these new conditions. The mixture of its unique wild nature with the 'industrial'

[1109] Boetto 2012; Rice 2016.

advancements of the Romans was the key to its viability. By retaining parts of its tradition indelibly but also by adopting new, thorough features, it managed to create an interconnected network of contacts and relationships, which at the end of the day, characterised the ancient Roman world. The connection between Crete and the sea is an illustration of the impact of the Roman empire, however, it also sets itself apart from it, making it a distinctive subject for studying the development of the ancient Mediterranean world.

Catalogue of sites

The catalogue of sites aims to provide further information regarding the case studies discussed in Chapter 4, for the purposes of the multiscalar harbour analysis. The purpose of the catalogue is to provide the reader with further insights regarding a site's size, dimensions, expansion, and other technical characteristics regarding its urban and harbour infrastructure. At the same time, historical and numismatist evidence and the key bibliography are provided.

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1. Chersonesos

Location (35°19'17.7"N 25°23'29.5"E)

The site of Chersonesos is located about 25 km east of Heraklion and constitutes one of the most popular tourist destinations in north Crete. During Imperial times, the city mainly developed around the hill and the new concrete-made harbour. Two small gulfs exist north and south of Kastri, forming safe anchorages. The south gulf, called Tigani by the Venetians, is the modern marina and where the ancient Roman harbour once stood. According to Strabo, *Λύττου δε ἐπίνειον ἐστὶν ἡ λεγόμενη Χερρόνησος'* which translates as '*The port of Lyttos was the so-called Chersonesos'*.[1110] Furthermore, Strabo mentioned the existence of a temple dedicated to Artemis Britomartis in the area, a building probably erected during Classical times by the Dorians of Tyrrhenian origin who colonised the city.[1111] The *Stadiasmus* confirms that water was available during antiquity.[1112]

Urban Infrastructure

Aqueduct: The city was provided with water by an aqueduct connected with a water tank just outside the town.[1113] On the road to Kastelli, on the left-hand side, a substantial segment remains, with piers of the arcades remaining that supported the conduit still standing to 12 m high (Fig. 4.7). The structure is made from concrete and ashlar blocks.[1114] The aqueduct is directed to the north towards Chersonesos, and, at a point, two conduits can be observed, with one of them turning to the west. The aperture of the conduit is about 0.35 m.[1115] In the region of Palatia, 800 m from the ancient town, the central reservoir of the ancient city was recently discovered and excavated (55 x 18.50 x 5.50 m).[1116]

Temple: On the north-western side of the basilica, by the entrance large blocks of stone are observable below the Byzantine layers. From their size and the layer on which they stood,

[1110] Strabo 10.4.14.
[1111] Plut., *Mor.* 8.
[1112] *Stadiasmus* 348.
[1113] Papadaki, Triantafyllidi et al. 2010: 40; Galanaki et al. 2006: 265-270.
[1114] Ibid.: 266.
[1115] Ibid.: 267.
[1116] Mandalaki 2006: 348: The walls are built in concrete and faced with brick. The capacity of the reservoir is estimated at around 5,500 m^3. The arched apertures between the halls functioned as filters, turning the tank into a *piscina limaria* for separating dirt from clean water.

they could be the base of a large building that once stood upon the acropolis, possibly the Greek temple described by Strabo. The most substantial evidence for the temple's existence comes from an inscription discovered in 1924 that referred to the presence of a temple of Britomartis.[1117] The inscription was found one kilometre east of the modern town, next to the church of Ayios Nikolaos.[1118]

Baths: Several bath buildings dating to the Imperial period have been found during rescue excavations in Chersonesos (Fig. 4.6),[1119] mostly dating to the Imperial period (1st – 3rd c. AD). Mainly known as balaneia/balnea, they consist 'of the typical set of chambers for cold, tepid and hot bathing arranged in a single row'.[1120] The best-preserved bath was found at the Tsagarakis plot comprising of 'parts of the cold baths with two plunge *bathtubs and two pools*, *a small part of the hot baths and other areas*' (undressing rooms, service corridor).[1121] Not all of the known baths from Chersonesos were public. Some of them belonged to luxurious houses (villas), such as the one at the Papadakis plot.[1122]

Theatre: Mariani identified the theatre and noted that its diameter was 27 m.[1123] Although it was Greek in style, it was constructed with the Roman building technique using stone, brick, and lime (Fig. 4.5). He also described the existence of a significant number of stones, which probably formed the koilon of the theatre.

Workshops: Cretan amphora workshops have been identified in Chersonesos,[1124] and types AC1 and AC2 are known to have been produced by the harbour. Except for wine exports, a great range of other economic transactions must have taken place in the port during the Imperial times.[1125]

[1117] Marinatos 1928: 79.
[1118] Ibid.: 79. 'Ευκλείδας και Λύκος οι Αλεξιμάχω Βριτομάρπι χαριστηήιον'. To the east of the church Marinatos saw a submerged structure. In Chersonesos, the cult of Asclepius might also have existed (*I.Cret*. I, VII, 5, II. 1-2).
[1119] Grigoropoulos, Galanaki et al. 2008: 304.
[1120] Ibid.: 304.
[1121] Galanaki, Grigoropoulos et al. 2006: 269.
[1122] Grigoropoulos et al. 2008: 306.
[1123] Mariani 1896: 90-91.
[1124] Marangou 1999: 274.
[1125] Litinas 1999-351.

Mosaics: The mosaic from Ayia Paraskevi street (Fig. 4.8)[1126] was found 1.5 m from the fountain/mosaic, could have been part of the seaside villa with the pyramid-shaped fountain and fishing scenes. This theme is highly connected with the surrounding environment.[1127] A pyramid-shaped fountain[1128] decorated with a mosaic (a sea-nature scene with fishermen) and an apse found to the north of the mosaic are further indications that they were from a large house.[1129]

City Walls: Evidence of the Hellenistic wall can be seen on the north side of Kastri Hill.

Harbour infrastructure

The harbour consisted of three large moles which created a rectangular 'λιμήν' to the south of the hill (Fig. 4.4). Today, only parts of the third mole survive (mole C), while moles A and B were destroyed during the construction of the modern quay and breakwater at the east of the current harbour. Overall, the harbour was 270 m in length from the north to the south and had a 150 m width from east to west. The entrance to the harbour between the L-shaped mole (A and B) and the southern mole (C) was 90 m. The estimated length of the wharfage of the harbour was 330 m. All three moles were surrounded by breakwaters covering the east part of mole A and the south parts of mole B.

Mole A and B: Mole A was 150 m long, and mole B was 30 m long (Fig. 4.12). The overall width of moles A and B was 5.3-5.2 m. Today they are buried beneath the modern marine installation. The two eastern moles were made from concrete and rubble, with their base (in the seabed) formed by square blocks of stone '*that remained in situ at the seabed level'*.[1130] Five-pointed features run along the centre of mole A, which have been described as *'stumps of rectangular stone bollards'*.[1131] Two are in the north shoreward part of mole A, close to the shore, about 9 m from each other, and the other three are in the southward position of the same mole, 8 m apart from each other. Their size was 0.65 m in length and 0.55 m in width. Additionally, several vertical recesses were discovered along mole A. These sockets were 6.8 m apart and had a depth of 0.6 m and a width of 0.8 m.

[1126] Leatham and Hood 1959: 267.The mosaic in Ayia Paraskevi follows the technique *opus tessellated*.
[1127] Ibid.: 269.
[1128] The pyramid-shaped one is known as 'Σαρακηνός.'
[1129] Sweetman 2013: 188.
[1130] Brandon et al. 2014: 89.
[1131] Leatham and Hood 1959: 267.

Mole C: The central part of the southern mole has been destroyed, and consequently the mole is preserved in two parts, with a total length of 22.7 m (Fig. 4.11). It was estimated to be originally around 165 m long. The beginning of mole C runs 15 m eastwards and its top aligns with the current sea level. The eastern end of it 'terminates abruptly'[1132] at a depth of about 1.8 m. Possibly, more of the installation might lie beneath the sand of the harbour bottom. Overall, the width of mole C is 2.6 m,[1133] compared to 5.3-5.2 m for moles A and B. The beginning of mole C runs in line with the other surviving part of the mole for about 100 m to the east.[1134] The eastward part of mole C constitutes the eastern end of the harbour, and, in combination with mole B at the north, it formed the entrance to the port.

Quays: The harbour also had two concrete quays in the southwest part in the corner where the south mole begins (Fig. 4.9). The concrete piers have an overall length of 30 m and a width of just 2.6 m. Today the quay is about 0.65 m above sea level. Parts of the dock can be traced for 60 m, starting from the southwest point of the southern mole (mole C) and expanding to the north. Only the southern 30 m survives above sea level. Furthermore, on the southern mole are three bollards (0.5 m long and 0.4 m wide) at 8.30 m and 8.55 m from each other (Fig. 4.10).[1135] The southern point of the quay is 2.5 m from the beginning of the southern mole (mole C). Furthermore, at the south of the concrete quay and mole C the remains of some probably earlier harbour works exist, which are a series of stone blocks today mainly covered by modern installations. According to Mariani, who visited the site in 1896, a series of vertical walls existed by the bay, and were interpreted as ship sheds.[1136] In the north of the harbour, by a small bay another small concrete wall appears running 10 m to the east: possibly a jetty or perhaps just a building division.

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[1132] Ibid.: 269.
[1133] Ibid.: 269.
[1134] Ibid.: 269.
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[1136] Mariani 1894: 91.

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2.Kissamos

Location (35°30'03.8"N 23°38'43.5"E**)**

Modern Kasteli or Kissamos is in the northwest part of Crete, between the large peninsulas of Rhodopou and Gramvousa. Pliny refers to the city as "Cisamon",[1137] and Ptolemy as "Kisamos polis".[1138] There is a 3rd c. AD inscription referring to the Βουλή (parliament) of Kissamos, consisting of further evidence of the city's independence.[1139]

Urban Infrastructure (Fig. 4.13**)**

Road System: the decumanus maximus ran from the east to the west of the city with a width of 4.5-4.7 m (Fig. 4.2). Several parts of the decumanus maximus have been identified all over Kissamos, including three sections running from the city's west edge towards the east and the harbour's entrance. The decumanus was made of large rectangular stone slabs with a sewerage duct in the middle.[1140] It is difficult to provide an exact date for the construction of the road. The cardo maximus runs from the north to the south part of the city, with a width of about 4.20 m. Like the decumanus, a sewer system existed underneath the cardo *maximus*.[1141]

Theatre: The theatre is probably located in the southern part of the modern city towards Polyrrhenia. At the corner of a house, the remains of Roman masonry forming a curve can be seen, which Tzedakis associated with a theatre.[1142] A statue of Hadrian was also found by Savignoni close to this location.[1143]

Baths: Baths have been identified around the city; for example, two were discovered during rescue excavations in 2014, and are typical of Roman baths found elsewhere on the island and more generally in the Roman world (Fig. 4.16).[1144]

[1137] Plin., *HN* 4.59.1.
[1138] Ptol. *Geog*. 3.17.8.
[1139] *I. Cret. II. VIII*. 101 no.11. See also Markoulaki, Christodoulakos et al. 2004: 357.
[1140] Markoulaki, Christodoulakos et al. 2004: 360.
[1141] Ibid.: 363.
[1142] Tzedakis 1972.
[1143] Ibid.: 366.
[1144] Pateraki 2020: 778.

Mosaics: Among them are the famous mosaics of Ώρες και Εποχές';[1145] the so-called *Health Centre Mosaics*, like the Centaur and the Panther;[1146] the scene of Dionysus; two scenes from Menander's comedies (the Sikyonians and the Theophoroumene) and an image of Menander or possibly Homer, among other fragments. Moreover, mosaic scenes like the *Grape-Picking scene*[1147] and the Mosaic of the Tritons[1148] are further examples of the quality of the art in Kissamos. All the mosaics date to the mid-2nd c. AD.[1149]

Agora: According to a 2000-2001 excavation, a massive peristyle was discovered close to Mavros Molos and represents a potential site where the ancient market of Kissamos stood.[1150]

Workshop: At the site of Pyrgos, a large pottery workshop was excavated from 1997 to 1998.[1151] This must have been about an acre in area and was mainly active from the 1st c. to the 3rd c. AD when it was turned into a metallurgy workshop (Fig. 4.22). The workshop was abandoned during the middle of the 4th c. AD.

Cemetery: The burial grounds located to the north of the city, close to the ancient shoreline. Most graves are crock-cut or built and date from the 1st to the 3rd c. AD.[1152]

Aqueduct: Water came to town from the SW, related to with the aqueduct and from the south from a non-identified source.[1153]

Harbour infrastructure

Breakwaters: Today, most of the surviving breakwater (named Mavros Molos because of the black stones used for its construction) lies onshore, clearly showing that the ancient harbour existed at least 100 m onshore, in an area which the modern expansion of the city has covered. In the bay of Mavros Molos, two installations are immediately visible, one on the west, probably dating to Imperial times, was made of large blocks of limestone jutting out

[1145] Markoulaki 1987: 33-59; Markoulaki, Christodoulakos et al. 2004: 366-371; Sweetman 2013 : 251, 267-270.
[1146] Markoulaki 1987: 324.
[1147] Tzedakis 1972: 637-38.
[1148] Markoulaki 1999: 197-199.
[1149] Sweetman 2013: 288.
[1150] Ibid.: 365.
[1151] Paterakis 2004: 375.
[1152] Ibid.: 373.
[1153] Angelakis, Christodoulakos et al. 2021: 17-18.

into the sea and a second to the east formed of a pile of smaller stones creating a mainly submerged line a few meters in length, which is considered to date to the Hellenistic period (Fig. 4.14). The Roman breakwater is large with a length of 150 m and a width of 15 m; it now stands 6 m above the current sea level.[1154] The breakwater consists of 1 m long rock boulders weighing around 1-1.5 tons.[1155] The southern side of the breakwater must be half-buried under the soil; looking at the north side, one can see that a large part of it is still submerged.

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[1154] Theodoulou, Foley et al. 2018: 309.
[1155] De Graauwn 2022: 17.

3.Hierapytna

Location (35°00'13.6"N 25°44'06.1"E)

The modern city of Hierapytna is in southeastern Crete, in the county of Lasithi. It is the biggest city in the county and the fourth biggest on the island. Hierapytna was one of the most significant city-states of Crete during the Hellenistic period and remained an important centre during the Imperial era. Ptolemy, in his description of southern Crete, refers to Hierapytna,[1156] while *Stadiasmus* refers to the site as a city with a harbour, as well as to the island of Chrysea that also has a harbour and water.[1157] Strabo refers to the plain of Hierapytna 'in Crete is a city Larisa, now joined to Hierapytna, where the plain that lies below is now called the Larisian Plain'.[1158] This passage probably refers to the Isthmus between Hierapytna and Mirabello. Furthermore, most of the evidence from this period comprises a series of treaties negotiated by Ierapetra with other centres. Chaniotis observes that of the 74 attested treaties negotiated by Cretan poleis, Hierapytna is named in 17 of them.[1159]

Urban Infrastructure

Baths: Among the few ancient public buildings identified is a bath complex whose construction date is unclear. It was found during a rescue excavation at the corner of Nikophoros Phokas road and Kyprou road.[1160]

Theatre: The small theatre was found near the eastern edge of the ancient city next to the church of Timios Stavros (Fig. 4.20).[1161] It is a typical Roman theatre constructed in *opus caementicium* using a solid mortar and small limestones.[1162] The koilon had a diameter of 67 m, while the orchestra had a diameter of 27 m.[1163] The eastern part of the koilon survives in better condition. The orchestra has a radius of 6 m, its outer width is 32 m, while it has a

[1156] Ptol. *Geog*. 3.15.4.
[1157] *Stadiasmus* 318.
[1158] Strabo 9.5.19.
[1159] Chaniotis 1996: 173.
[1160] Apostolakou 1990: 456.
[1161] Sanders 1982: 57-9, 139.
[1162] Sofianou 2020: 588.
[1163] Ibid.: 1968.

length of 36 m. The excavators estimated the overall capacity of the theatre to be around 1500 seats.[1164] The pottery and coins found on the site date back to the 1st and 2nd centuries AD.[1165] According to the excavator the theatre most probably dates to the first half of the 2nd c. AD.

Mosaic: Two plain mosaics are known from the area of Hierapytna discovered during rescue excavations at the sites of Alykes and Viglia.[1166]

Harbour infrastructure

The ancient harbour probably consisted of four elements (Fig. 4.18). First is the concrete mole, the remains of which can be seen today on the north side of the islet opposite Kales castle. The second is the islet itself, which is merged with the modern marina. The third part of the harbour was the outer breakwater which stood behind the islet, the remains of which can be seen at the southwest part of the modern breakwater. The rest of the construction probably runs eastwards where it was related to the fourth part of the harbour which are the now submerged reefs, upon which structural remains have been observed.

Eastern Breakwater: Only the eastern breakwater survives in its entirety. It is 130 m long with a maximum width of 35 m.[1167] The breakwater consists of two different layers of materials (Fig. 4.19). The lower part is a mound of small rough stones with a diameter of 0.40 m, forming a layer 1.5 m thick. Above this, located in the middle of the construction, are large boulders and rectangular ashlars about 3-3.5 m in thickness.[1168] The western breakwater does not survive along its whole length, with most of its eastern section probably buried underneath the modern mole leaving only the westernmost end of the installation visible. The western mole probably used to run southeast from the coast for 125 m and then turned and ran for a further 145 m to the east where it connected with the islet.[1169]

[1164] Ibid.: 589.
[1165] Sofianou 2020: 290.
[1166] Sweetman 2013: 209. See also Apostolakou 2002b: 343-345, 1996: pl. 207.
[1167] Mourtzas, Kolaiti et al. 2019.
[1168] Ibid.: 112-13
[1169] Ibid.: 113.

Fishtanks: A rock-cut fish tank in the region of Ferma near Hierapytna (and a possible quarry) was reported by Mourtzas.[1170] It was located during a survey when two other fish tanks and a salt pan west of the region of Ferma were also discovered.

Naumachia: Onorio Belli was the first to use the term naumachia to describe the inner harbour.[1171] Such an interpretation can no longer be supported by the evidence as we now known. Nevertheless, the term 'naumachia' has been broadly adopted in Cretan scholarship regarding the inner harbour of Hierapytna. K. Lehmann-Hartleban called it the 'Hellenistic harbour'.[1172] Considering the inner Harbour of Naumachia, Gallimore hypothesises that it might have been used as a darsana, a protected inner harbour used by the small boats, like the one in Portus.[1173]

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[1170] Mourtzas 1987.
[1171] The naumachia in the ancient Roman world referred to a basin for staging naval battles for entertaining purposes.
[1172] Lehmann- Hartleben 1923: 201.
[1173] Gallimore 2011: 134.

4.Kydonia

Location (35°31'06.1"N 24°01'14.4"E)

The ancient polis of Kydonia is located at the modern site of Chania. It was considered a strong polis during the Hellenistic period and the city probably underwent great development during the Imperial period. Today, few remains of the Roman city can be seen. This is likely due to Venetians constructing most of their buildings upon the Roman remains. The city is referred to in ancient literature by Homer,[1174] Herodotus,[1175] and Pausanias.[1176] A total of 96 coins have been discovered dating to the Hellenistic times.[1177]

Urban Infrastructure

Based on Belli's descriptions and plans from the 16th c., buildings such as a theatre and a temple must have existed.[1178] Among other buildings of the period, what predominates is the aqueduct built by Hadrian.[1179] None of these survive today.

Mosaics: The Poseidon and Amyone mosaic, dating to the 2nd c. AD, is probably the most well-known from Kydonia.[1180] This and other mosaics, including those found around the area of odos Korakas, show that this might have been the 'upper class' suburban neighbourhood.[1181] Further mosaics, include the Triton, which has an inscribed fragment (with the letters ΛΑ) and scroll panel, have been discovered in Cathedral Square. These perhaps indicate the existence of a bath house.[1182]

Harbour infrastructure

There are no remains of the ancient harbour, but Sanders mentions that Guarducci believed that the Roman infrastructure was probably used as a base for constructing the Venetian

[1174] Hom., *Od*. 3.292.
[1175] Hdt. 3.59.
[1176] Paus. 8.53.4.
[1177] Svoronos 1890: 96.
[1178] Falkener 1854: 26; Sanders 1982: 58, Spanake 1968.
[1179] Spanakes 1964; 1982: 235.
[1180] Sweetman 2013: 239.
[1181] Sanders 1982: 170.
[1182] Sanders 1982: 170; Sweetman 2013: 241.

port.[1183] Spratt wrote that the harbour was formed by a long transverse pier running east and west. This encloses a double bay, at the end of which stands a grand lighthouse. Captain Spratt also thought that the ancient mole of Kydonia's harbour lay underneath the current harbour.[1184] Scylax referred to the harbour of Kydonia as Limen Kleistos (closed harbour).[1185] Hadjidaki stresses that the Venetians, in order to build their harbour, used ancient sandstone blocks and that the present mole, which dates to the Venetian period, probably follows the contours of the ancient mole.[1186]

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[1183] Sanders 1982: 170.
[1184] Spratt 1865, Vol. II: 138.
[1185] *Periplous* 53.57.
[1186] Hadjidaki 1988: 89.

5.Matalon

Location (34°59'35.7"N 24°44'48.7"E)

The modern town of Matala is a major tourist destination in southern Crete and is located just a few kilometres from Gortyn. Its gulf forms a safe shelter protected from the north and south winds. According to Strabo,[1187] the site of Matalon was one of the two main harbours of Gortyn, the capital of Imperial Crete. According to Homer, Menelaus' ships were wrecked near the shores of Gortyn and Phaistos.[1188]

Urban Infrastructure

Tombs: The most famous evidence from the Roman inhabitation of Matalon comes from the carved tombs located in the north part of the beach, which have a single or double side chamber. Some of them were excavated and dated to the 1st or 2nd c. AD (Fig. 4.27).[1189] The lower Roman tombs in Malata are below the present sea level by at least 2 metres, which indicates a change in the sea level since the Roman period.[1190]

Harbour infrastructure

Slipway: Located on the south side of the cove, the slipway constitutes the most characteristic marine installation on the site (Fig. 4.26). The west wall of the cutting is preserved to a length of 38 m, its width is a regular 5.58 m at ground level, and it slopes towards the sea with a gradient of just under 12°.[1191] The sides of the slipway rise 12 m on the west side and 10 metres on the east side. The dimensions of the installation indicates that it was constructed to protect a warship, probably a guard ship against pirates.[1192] Blackman suggests that the ship for which the slipway was built must have been around 35 metres long since there must have been a clear space at the top of the slipway and a wooden device for hauling the ship.

[1187] Strabo 10.4.11.
[1188] Hom., *Od.* 3.290-295.
[1189] PAE 1969: 242; Sanders 1982: 161.
[1190] Sanders 1982: 181.
[1191] Blackman 1973: 14.
[1192] Ibid.

Fish tanks: two fish tanks have been located on the east side of the bay, opposite the Roman tombs (Fig. 4.28).

Storages: Close to the port facilities, a series of large, curved rooms can be seen that might have been used for storage associated with the harbour (Fig. 4.25).

Shipwrecks: Three mounds of Rhodian amphorae dated to the Imperial period were discovered outside Matalon (Fig. 5.9).[1193]

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[1193] Crile and Davaras 1963: 49.

6.Lasaia

Location (34°56'18.9"N 24°49'29.6"E)

Lasaia, is in the coastal village of Chrisostomos, just a few kilometres from Kaloi Limenes and Lendas (Lebena). Epigraphic evidence suggests that Lasaia became a dependent *polis* of Gortyn by the late 2nd c. BC.[1194] Lasaia flourished during Roman times, serving as one of Gortyn's harbours. The town had a Roman coin assigned to it as 'Thalassea',[1195] evidence for the site's maritime activities. Paul the Apostle during his passage from south Crete refers to the town of Lasaia, "we moved along the coast with difficulty and came to a place called Fair Havens, near the town of Lasaia'.[1196]

Urban Infrastructure

On the headland there are clear traces of buildings, among them a church with a large apse, a nave and two aisles, a group of buildings that were presumably the houses of merchants, a temple, a complex building with a courtyard and other constructions such as a cistern lined with mortar, which was supplied with water by an aqueduct, continuing about 600 m to the east to its source.[1197]

The Hellenistic acropolis was behind and above the town to the north on a flat-topped hill with steep slopes. Further north, an undefined number of tombs were most likely used during the Roman period. A small Hellenistic-Roman farmstead overlooking Lasaia was found on a raised knoll NNW of the ancient town.[1198]

Warehouses: The remains of at least five large buildings, probably warehouses, are located on the shore (Fig. 4.33). The walls of the warehouses were made of rubble and irregular stone blocks bound with mortar, parts of which still stand up to a height of 3 to 4 m.

Harbour infrastructure

[1194] Chaniotis 2000: 57.
[1195] Spratt 1865.
[1196] Paul, *Acts of the Apostles*, 27.8.
[1197] Blackman and Branigan 1975.
[1198] Blackman and Branigan 1975; Mourtzas and Kolaiti 2021: 18.

Breakwater: In Lasaia a 90-m long breakwater was surveyed, and some potential warehouses were examined onshore (Fig. 4.29).[1199] At the edge of the southern end of the breakwater and the NE of the islet Trafos, there is a 20 m-wide channel with a maximum depth of 8.40 m which allows ships to choose between the east and west part of the bay based on the weather.[1200]

Sea Level Change: Mourtzas and Marinos concluded that during the Hellenistic-Roman period, the sea level was 1 m lower than at present.[1201] On the western side of the breakwater, they observed a slightly submerged slab of beach rock. Implying that since antiquity, the sea level had risen only so much as to erode the buildings on the shore but that this had been insufficient to cover the breakwater fully.[1202]

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[1200] Mourtzas and Kolaiti 2021: 16.
[1201] Ibid.: 16.
[1202] Blackman and Branigan 1975; Flemming and Pirazzoli 1981.

7.Syia (Sougia)

Location (35°14'54.2"N 23°48'44.1"E)

The modern coastal village of Sougia is located in the southern part of the county of Chania was the ancient site of Syia. According to Stadiasmus, Syia had a capacious and well-sheltered harbour 'from Poikilassos to Syba 50 stades; a city with a good port'.[1203] Furthermore, it is reported by Stephanus of Byzantium that 'Syia was a small town of Crete and the port of Elyros'.[1204]

Urban Infrastructure

The coastal plain of Syia is divided into two parts by the Kamarianos torrential river. In the eastern part, are extant buildings from the Roman and Early Byzantine periods, including fortification walls, public buildings, and an extensive complex of thermae (Fig. 4.34, 4.35). The remains of the aqueduct coming down from Elyros can also be seen from Elyros to Syia (Fig. 4.37).[1205]

Mosaic: A small fragment of a leaf scroll was identified.[1206]

Harbour infrastructure

Sea Level Change: As Pirazzoli reports,[1207] on the rocks near this pier, traces of a series of erosion lines can be seen corresponding to the ancient shoreline. The highest of these lines, which can be correlated with the uplift of AD 365 AD, is 6.6 m above the present sea level and corresponds to a small bay where ships could find shelter. For further information considering the geological changes in the area, see Werner et al. 2018.

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[1203] *Stadiasmus* 331.
[1204] Steph. Byz. s590.8.
[1205] Andrianakis, 1982; Pashley 1837; Markoulaki 1982; Sanders 1982; Christodoulakos and Markoulaki 2006.
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8.Dia

Location (35°26'41.8"N 25°13'13.9"E)

The island of Dia is situated 6 miles offshore, opposite the modern city of Heraklion and Knossos. Four deep gulfs protected by headlands separate the southern side of Dia. The island's coves have offered secure refuge for shipping from the northern winds in several different periods, as seen from the various types of pottery attested in the seabed of the Ayios Georgios Gulf (personal observations).

Urban Infrastructure

One of the few important pieces of evidence scattered around the island are the remains of a wall close to the sea level in the Gulf of Ayios Georgios.

Harbour infrastructure

Waterfront: A large, submerged waterfront is located on the northwest side of Ayios Georgios (Fig. 4.42, 4.43).[1208]

Shipwrecks: A large Roman shipwreck carrying Rhodian amphorae were discovered by Cousteau in 1976 and was surveyed again in 2011, 2013, and 2021 (Fig. 5.7, 5.8).[1209]

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[1208] Kritzas 1988b: 10.
[1209] Parker 1992; Theodoulou, Foley et al. 2015: 623; Theodoulou 2022.

9.Leuke

Location (34°56'50.4"N 26°07'46.1"E**)**

Kouphonisi is an islet with an area of 5.25 km^2 located in south-eastern Crete, opposite the seaside village of Makrygialos. According to the epigraphic record the cities of Itanos and Hierapytna were involved in a conflict to control the island.[1210] Hierapytna, which had previously conquered Praisos, wished to control Leuke and the sanctuary of Zeus Dictaios because of the past connection that Praisos had with both these sites. At that time, Leuke must have been under the influence of Itanos.[1211] Ptolemy sent the garrison to Itanos and as a result, it is assumed that the islet was under the influence of Itanos.[1212]

Urban Infrastructure (Figs. 4.46, 4.47)

Bath: Among the most extensive and most complicated surviving buildings in Leuke is the bathhouse on the north of the island, excavated by Papadakis in the 1980s (Fig. 4.50).[1213] The overall size is 24 by 16 m, and comprises more than seven different rooms/spaces. Furthermore, the existence of a pair of stairs indicates the presence of another floor. In combination with the size of the known pools, the size of the construction suggests that an aqueduct would have been necessary.[1214] The mosaics, walls, paintings, and overall, the size and architecture of the bathhouse suggests that it was a public building.

Aqueduct: Today four linear channels related to the ancient aqueduct have been attested (Fig. 4.48). Feature 1 is the longest one (175 m), while 110 m further north, feature 2 begins (which is the continuation of feature 1) running for a length of 75 m. Feature 3 runs for about 475 m towards the north edge of the island and the settlement, while channel 4 runs in a parallel line. Today, the substructure's overall dimensions are 0.70 m in width and stand about 0.50 m from the ground, while the channel that runs through the construction is 0.35

[1210] Chaniotis 1996b: 33, No. 57.
[1211] *I. Cret*. III, IV, 9 (99-100).
[1212] Coutsinas, Guy et al. 2016: 334.
[1213] Papadakis 1985: 60.
[1214] Coutsinas et al. 2016: 441.

m wide and 0.20 m deep.[1215] The water supply system was connected to at least three different cistern complexes, the biggest located close to feature 1.

Theatre: The theatre combines the Greco-Roman style, with a semi-circular auditorium with 12 rows of seats in total (Fig. 4.49). It is mainly built upon a soft white type of limestone known all along Crete, while its western side is constructed on a wall.[1216] Papadakis calculated that the theatre could have hosted more than 1050 people. The excavation of the central scene of the theatre revealed a complex construction that included the foreground, an understage, the main stage structure, and two backstages, of which only the remains of the eastern one survives.[1217]

Mosaics: Several mosaics, in poor condition, were discovered in the islet of Leuke.[1218] The well-known pieces are from rooms A (a diamond and a cross) and B (four crosses) from House 1. These are simple, plain mosaics in white with black geometric decoration. Evidence of mosaics has also been identified in the bathhouse.[1219] The house and the bath both date to the 2nd c. AD.

Harbour infrastructure

Today, no visible remains of marine installations can be seen on the coast. Opposite the northwestern part of the island stands the tiny islet of Marmara, less than 120 m from the north shore of Leuke (Fig. 4.45). Stone blocks and columns were seen lying underwater at a depth of 2.5 m (Fig. 4.54), over 50 m, between the tiny islet Marmara and the shores of Leuke, which is where the ancient harbour might have stood.

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[1215] Ibid.: 339.
[1216] Papadakis 1977: 78.
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10.Kaudos or Gaudos

Location (34°51'44.7"N 24°05'02.5"E)

The island of Gaudos at the southern edge of Crete has been under investigation by the University of Crete for more than 25 years, making it the longest survey project conducted on the island.[1220] Literary sources referred to the islet by the well-known name of Gaudos or Kaudos.[1221]

Urban Infrastructure

Aqueduct: During a survey conducted in 1990–1995 by the 25th Ephorate of Antiquities of Chania and the University of Crete,[1222] it was found that a Roman aqueduct was located on the island (part of a water pipe 57 m long on a wall of 1 m average height). At the point of a route shift, a shaft is preserved, measuring 1.18 m by 0.50 m inside (Fig. 4.61). The wall, 0.60 m wide, bears a channel on top, 0.20 m wide, 0.18 m deep, plastered with *opus signinum* 1.50 cm thick. No covering for the channel has been found.

Harbour infrastructure

No actual harbour remains have been located at the island, except for possible submerged remains of a breakwater at Karaves, roughly excavated by the EUA around 2005, but never published. Safe anchorages are, however, scattered along the island's shores.[1223] At the site of Karave, an underwater investigation revealed a sunken ancient pier (90 m long and 27 m wide). It was built of rows of irregular stepped blocks forming a platform that rose about 1 m above sea level (Fig. 4.62). The pottery from the stratified layers is dated to the 1st c. BC – 1st c. AD and mainly consists of commercial amphoras for transporting wine from Kos and Rhodes.[1224]

[1220] Kopaka 1994: 729.
[1221] Strabo 1.2.37.
[1222] Kopaka et al 1996: 242-244.
[1223] Kopaka, Gontika et al. 2006: 278.
[1224] Tegou 2018: 26.

Shipwreck: Opposite the island of Gaudos is the islet of Gaudopoula. In 1997 a Roman shipwreck dated to the 1st c. AD, carrying wine and olive oil amphorae, was discovered by the EUA (Fig. 5.22).[1225]

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11. Phoinix-Loutro

Location (35°11'48.7"N 24°04'33.6"E)

The inscriptions from the site are all written in Greek, with one exception in Latin, suggesting the presence of the local population. Ptolemy refers to the harbour town as Phoinikus Limen.[1226] Another famous reference to the quality of the harbour of Phoinix comes from St Paul the Apostle.[1227] Moreover, a few inscriptions referring to prominent locals are also available.[1228] Finally, Stadiasmus notes that Phoinix was a city with a harbour.[1229]

Urban Infrastructure

Bath (?): There are the remains of what may be a bath building and at least four basilicas. Roman pottery has been found in abundance in Sphakia (Figs. 4.65, 4.66).[1230]

Workshops: Pottery kilns have been identified and excavated, not all of which have been published.[1231]

Harbour infrastructure

No harbour remains were located but based upon the *Stadiasmus Maris Magni*,[1232] and observations from the Sphakia survey both Poikilassos and Tarrha probably had an anchorage,[1233] while Phoinix must have had an actual harbour in the west bay of the site (Fig. 4.64).[1234] In most of the sites, pottery sherds from different periods were discovered, while a study of sea-level change indicates that the site was uplifted by about 4 m.[1235]

[1226] Ptol. *Geog*. 3.15.3.
[1227] Paul, *Acts of the Apostles 27–8*.
[1228] *I. Cret*, II.XX.1–8.
[1229] *Stadiasmus* 322.
[1230] Francis 2017: 7, 10.
[1231] Ibid.: 7.
[1232] *Stadiasmus* 329.
[1233] Müller 1855; Price, Higham et al. 2002: 197.
[1234] Ogilvie 1958; Nixon, Moody et al. 1988; Nixon, Moody et al. 1989; Nixon, Moody et al. 1990; Moody, Nixon et al. 1998.
[1235] Price, Higham et al. 2002: 198.

In the harbour of Phoinix, '*which represents the unique all-season port of Crete's south coast*',[1236] an inscription has been found dedicated to Jupiter Sol Serapis and the Emperor Trajan; the inscription was an offering from a ship's captain.[1237] The same inscription mentions a ship carrying corn from Alexandria, the name of which was *Isopharia*.

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[1236] Sanders 1982: 165.
[1237] Ibid.: 38.

12.Tarrha

Location (35°13'44.5"N 23°57'44.4"E)

Tarrha is the ancient name of a small maritime city located at the outlet of the Samaria gorge into the Libyan Sea. The first person to identify its location was Pashley.[1238] *Stadiasmus* notes that it is about 60 stades from Phoinix.[1239] The city minted its own coins.[1240] The engagement of Tarrha with the rest of the Greek world is attested by its participation in numerous alliances, including the Oreioi.[1241] Also, Phoinix seems to have probably received a sacred ambassador from Delphi and signed a treaty with Eumenes II of Pergamon.[1242]

Urban Infrastructure (see Fig. 4.67).

Temple: Tarrha was famous in antiquity thanks to its oracle and temple of Apollo.[1243] No archaeological evidence survives today.

Cemetery: The cemeteries are all composed of slab-covered graves dating from the Classical to the late Roman periods.[1244]

Wall: Weinberg investigated the fortification walls of the city. Here a single wall connects a fragmentary round tower to a double wall which was characteristic of the fortifications in Crete in general (Fig. 4.68).[1245] The walls in Tarrha seem to consist of a series of round (sometimes square) towers connected by stretches of wall. This would have provided a most redoubtable defence system, as the site is located on a hill and had natural advantages. One section of the wall was preserved to a height of 2.40 m.[1246]

[1238] Pashley 1837: 263-264.
[1239] *Stadiasmus* 322.
[1240] Svoronos 1890: 321.
[1241] Nixon, Moody et al. 1989: 207.
[1242] Francis 2017: 11.
[1243] Weinberg 1960: 90.
[1244] Ibid: 91.
[1245] Sanders 1982: 165, 16.3.
[1246] Weinberg 1960: 99 (pl.35).

Mosaic: Only a small fragment of Byzantine mosaic survives under the church of the Panagia.[1247]

Harbour infrastructure

No harbour infrastructure is visible today. The harbour that Buondelmonti entered in 1415 must be today buried under the pebbly beach, if we consider the uplift of the area, which is estimated at 4.5-6 m.[1248]

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[1247] Sweetman 2013: 255.
[1248] Pirazzoli 1988: 170-171; Price, Higham et al. 2002: 197.

13.Tholos

Location (35°09'07.0"N 25°51'35.8"E)

On the east side of Crete, in the Gulf of Mirabelou, many Roman remains have been discovered. The whole gulf seems to have been under a strong Roman influence with many coastal sites being located from this period. Probably the most important site was Tholos,[1249] which lies along the east side of the Bay of Mirabello at the mouth of the Platys River, which flows down from Kavousi mountains.

Urban Infrastructure

Warehouse: The warehouse has a north-south orientation and measures ca. 55.70 m (north-south) and 9.60 m (east-west). Sanders provides a detailed description of its construction (Fig. 4.71. 4.71a).[1250]

Springhouse: freshwater can today be seen running next to the remains of the spring. It consisted of a semi-circular limestone crevice with a ratio of 3-4 m.[1251]

Roman Building: An elongated structure made from concrete and stone, 100 m long by 10-15 m wide, dates to the Roman period. In the interior of the building, roof tiles, bricks, and amphora sherds have been discovered.

Harbour infrastructure

There is no evidence of any harbour infrastructure.

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[1249] Haggis 1996a.
[1250] Boyd 1901; Sanders 1982: 140-141; Haggis 1996b.
[1251] Haggis 1996b: 190.

Sanders, I. F. (1982). *Roman Crete : an archaeological survey and gazetteer of late Hellenistic, Roman, and early Byzantine Crete*. Warminster, Wilts., England: Aris and Phillips.

14.Pseira

Location (35°11'05.9"N 25°51'34.6"E)

Two miles west of Mochlos and 1.5 miles off the coast of Crete lies the island of Pseira, situated in the eastern part of the gulf of Mirabello. There is evidence of early settlements in one of the islet's headlands (Minoan), while a great anchorage exists in the cape's southern part.[1252] The site was reoccupied again in Roman times, probably as a military camp.[1253]

Urban Infrastructure

No remains have been located.

Harbour infrastructure

Waterfront (?): Leatham and Hood identified a conglomeration of stones as a Roman breakwater or a Roman waterfront (Fig. 4.77).[1254] Taking in consideration the sea level change in the area and the configuration of the rubble, however, we believe that it is a natural formation and not a manmade installation.[1255]

Shipwreck: A pottery assemblage from 1700 BC was found submerged off the Pseira islet.[1256] The assemblage was later identified as a Minoan shipwreck. Several intact local pottery vessels were recovered, but unfortunately, no parts of the ship's hull.

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[1252] Leatham and Hood: 1958-59: 277.
[1253] Seager 1910: 6-7.
[1254] Leatham and Hood 1958-1959: 278.
[1255] Personal observations (November 2020).
[1256] Hadjidaki-Marder, Betancourt et al. 2021.

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15.Lissos

Location (35°14'26.9"N 23°47'12.5"E)

The site of Lissos is located 3 km west of Suia and is only accessible via the sea. Lissos remained an important centre until Late Antiquity, thanks to its famous sanctuary of Asklepios. Excavations took place in Lissos from 1957-1960 under the direction of Nikolaos Platon. It is reported in the catalogue of Ptolemy in his description of the south side of Crete.[1257] At the same time, Lissos is also reported as a port in *Stadiasmus* and Pseudo Scylax. Specifically, in *Stadiasmus* it is mentioned that Lissos stands 30 km from Syba,[1258] while in Scylax's *Peliplous* it is mentioned that at the south of Elyros is the harbour city of Lissos,[1259] which stands beside Kriou Metopon. Lissos also participated in the political league of Oreioi with the sites of Tarrha, Poikilasion, Elyros, and Hyrtakina.[1260]

Urban Infrastructure

Temple: The temple was built of polygonal stones carved from pumice (Fig. 4.80). The upper rows were removed and most of the architectural elements were found far from their original position. Considering the temple itself, building A served as an auxiliary building (see Figure 85). It is a structure with external dimensions of 6.73 m and 13.74 m. It is noteworthy that the width of the façade is almost equal to that of the temple (6.58 m).[1261] From the typological features of the floor plan it was identified by Platon as a 'hostel for pilgrims'.[1262] Most probably, building A was one of the main buildings of the sanctuary, while a larger, multi-functional ensemble would have been housed in area M (Fig. 4.81).

Spring: In 1957 Platon identified an installation that probably had something to do with the sanctuary's spring.[1263] Since therapeutic water can still be found in the area of Hyrtakina, it was immediately assumed that the Asklepieion of Lissos was built around a spring of healing

[1257] Ptol. *Geog*. 3.15.3.
[1258] *Stadiasmus* 332.
[1259] *Periplous* 47.8.
[1260] Nixon, Moody et al. 1989: 207.
[1261] Kanelopoulos 2020: 756.
[1262] Platon and Davaras 1960; Shaw & Shaw 2000: pl. 8.13.
[1263] Platon and Davaras 1960.

water. Excavations in subsequent years uncovered a system to channel water from the spring to the sanctuary's spring, passing under the floor.

Mosaic: A mosaic is located inside the temple of Asklepios, where the altar and the snake pit were situated. It is a black-and-white tessellated mosaic with coloured panels.[1264] The mosaic is quite large, 6.9 x 5.5 m, and probably covered the entire room (Fig. 4.80).

Theatre: In the centre of Lissos are the remains of a concrete-made theatre (Fig. 4.82). The diameter of the koilon was c. 15 m. Just to the north of this are the remains of a basilica below the chapel of Ayia Kyriake. South of this complex are numerous fragmentary buildings of stone and tile-faced concrete from which you reach the modern beach.

Customs Office: About 40 m from the coast are the remains of a rectangular building, which have been identified as a Telonion, a customs office.[1265]

Cemetery: There are many vaulted tombs on the western slope of the site: most are about 2 x 3 x 2 m in height with arcosolia in the three doorless walls (Fig. 4.83).[1266]

Sculptures: more than forty sculptures were discovered during Platon’s excavations. These include one of the Asklepios himself.[1267] The majority depict boys and girls and is perhaps something related to the function of the sanctuary.[1268]

Harbour infrastructure

Waterfront: The waterfront at Lissos is 107 m long and lies about 90 m from the modern coastline (Fig. 4.84). Another wall, 90 m long, runs vertically towards the beach.[1269]

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[1264] Sweetman 2013: 241.
[1265] Sotirakis 1991: 94.
[1266] Spratt 1865, Vol. II: 448; Sanders 1982: 171-172.
[1267] Machaira 2011: 437-439.
[1268] Ibid.: 448.
[1269] Sotirakis 1991: 93.

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16.Lebena

Location (34°55'49.4"N 24°55'25.3"E)

The modern village of Lentas (Lebena or Λεβήν) is located on the southern coast of central Crete in the county of Gortyn. The name Lentas probably means Lion and is based on the shape of the western hill. Lebena is protected by cape Leon to the west and cape Psamidomouri in the east. Two main areas can be distinguished on the site, the Acropolis up in the twin hills where the Asklepieion and the Orthodox church stand, and the coastal area where the various maritime and trading functions would have taken place. The site was reconstructed probably during the first quarter of the 2nd c. AD during the reign of Trajan.[1270]

Urban Infrastructure (Figs. 4.85, 4.86)

Temple and surrounding buildings: The temple area (TA) consisted of the temple itself (Fig. 4.87), while in the west of the temple (behind it) the remains of two buildings stand today (B1). The western one must date to the Roman period due to the masonry used for its construction, while the eastern one (a long, narrow hall) looks like the older walls of the sanctuary and probably dates to Hellenistic times.[1271] At the north corner of the temple, a nymphaeum stood (Fig. 4.89), which was probably connected with the aqueduct found northwest of the site, surviving today for a length of 57 m (Fig. 4.90).[1272] Point Q in Fig. 4.87, potentially a reservoir, was not visible during my survey. The Roman city and houses probably stood between the eastern and central streams.[1273]

Agios Ioannis Church Area: At the south of the eastern hill, the remains of a Roman thermal building have been identified (B2). The available remains were probably part of a more extensive complex of thermal establishments.[1274] Considering the building remains on the edge of Psamidomouri cape (eastern cape), nothing that Taramelli described are visible today. Specifically, no traces of the 'Tempio a Mare' (temple of the sea) (T) or the aqueduct

[1270] Melfi and Camia 2004: 395-302.
[1271] Melfi 2006: 437.
[1272] Ibid: 437. No evidence of the channel survives today, even though Tramelli mentioned the existence of one at the top the construction. Melfi dated the aqueduct to the 2nd c. AD.
[1273] Melfi 2006: 438.
[1274] Melfi 2006: 439.

(AA) can be seen, which is also the case for the rock-cut squares noted by the edge of the cape. Instead, several walls are attested along the cliff, forming square rooms.

Coastal Remains: On the west side of the coast is building 'OO' (Figs. 4.91, 4.92). The presence of water channels and the discovery of an inscription that refers to 'a miraculous healing' via the water indicate that this building was part of the Asklepieion. Melfi suggested that it might have been used as an accommodation facility for healing purposes like sea-bathing and thalassotherapy.[1275] In addition, at the western corner of the bay, a few tens of meters away from building 'OO' Taramelli described a substantial circular building 'C', which he identified as a reservoir or a nymphaeum.[1276]

Mosaic: Three mosaics are notable in Lebena. The Hippocamp mosaic was found at the Treasury, located in the southern part of the west stoa. The one at the sanctuary of Asklepios is black and white with a geometric decoration located at the north corner of the cella. The polychromic mosaic in the domestic area was found in the central chamber of the Asklepieion.[1277]

Harbour infrastructure

No clear harbour facilities are attested anywhere around Lebena, inland or underwater.[1278] Hadze-Vallianou referred to a submerged harbour mole south of Psamidomouri.[1279] No traces of the mole were identified during my 2021 fieldwork unless Valianou was referring to a pile of stones a few meters from the shore west of the beach. Neither Spratt nor Belli[1280] attested any maritime installations along the coast of Lentas.[1281] Probably the most controversial topic in scholarship considering the topography of Lebena are the concrete remains (NN) at the southwest part of the beach. Building 'NN' has been interpreted either as a bridge,[1282] probably used as a passageway along the eastern stream, or as a building for maritime and trade activities, perhaps for storage or even ship sheds.[1283]

[1275] Ibid.: 442.
[1276] Ibid.: 442.
[1277] Sweetman 2013: 201-203.
[1278] Personal observations.
[1279] Chatze-Vallianou 1989: 9.
[1280] Belli probably did not identify the actual site of Lebena but another site nearby.
[1281] Spratt 1865 Vol.1: 349-353, Falkener 1854: 19-20.
[1282] Spanakes 1964: 251; Chadze-Vallianou 1989: 13.
[1283] Melfi 2006: 441. Based on Taramelli's manuscripts from 1894.

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17.Diktynna

Location (35°39'49.7"N 23°46'05.9"E)

Diktynnaion, located on the northeast side of the Rhodopou peninsula, constituted one of the most important sanctuaries in Imperial Crete. Among the ancient references to the sanctuary are those by Herodotus,[1284] Pseudo-Scylax,[1285] and Strabo.[1286] The cult of the goddess Diktynna Britomartis, identified with Artemis of the Greek pantheon, was widespread in the western part of the island. At the end of Trajan's reign, silver coinage was minted by the Cretan Koinon in 115-117, with Diktynna on the reverse.[1287]

Urban Infrastructure

Cisterns: Pococke, who visited Crete in the mid-18th century, saw the sanctuary of Diktynna and mentions the presence of impressive structures that were still preserved and in particular a brick building resembling a temple (Fig. 4.96).[1288] There were still grey marble columns and a large cistern 70 feet long by 30 feet deep, divided into four compartments. These Roman remains were at the bottom of a ravine below the temple.

Odeum: The existence of an odeum has been noted but with no supporting evidence. There is also the remains of a bridge, probably for bringing water down from the cisterns, which is made out of concrete.[1289]

Road System: According to the milestones discovered, road system must have existed, connecting Diktynnaion to the rest of the island.[1290] No evidence of the road is archaeologically confirmed.

Accommodation: Rooms existed that were attached to the sanctuary to accommodate pilgrims and worshippers (Fig. 4.97).

[1284] Hdt. 3.59.
[1285] *Periplous* 47.7.
[1286] Strabo 10.4.13.
[1287] Sideropoulos and Tzifopoulos 2004: 105. For the coinage Svoronos 1890: 123-12.
[1288] Pococke 1743.
[1289] Sanders 1982: 174.
[1290] Baldwin Bowsky and Niniou-Kindeli 2006; Sporn 2013: 2099.

Harbour infrastructure:

There is no evidence of any harbour infrastructure.

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Figures



Figure 1.1: The discovery of a Venetian wreck during Kalypso's survey in 1976 (Theodoulou 2022: 37).



Figure 1.2: View of Rhodian cargo shipwreck at Dia (Theodoulou et. al. 2015, Fig. 4).



Figure 1.3: Sea level change outside Lissos, SW Crete (Source: D. Karampas).



Figure 1.4: Cargo of stones from the Rhodopou shipwreck (Theodoulou, Foley et al. 2018: 306, Fig. 1).



Figure 1.5: Drone footage at Trachili cove, Elounda, where the remains of ancient sunken structures can be seen (Theodoulou 2022: 21).



Figure 1.6: Underwater footage of the Spanish Amphora shipwreck discovered outside Palaikastro (Project press release 2021).



Figure 2.1. The poleis of Crete in the Classical period (Karampinis 2022: Fig. 1).



Figure 2.2. Metellus campaign in Crete (Gallimore 2011: Fig. 2.1).

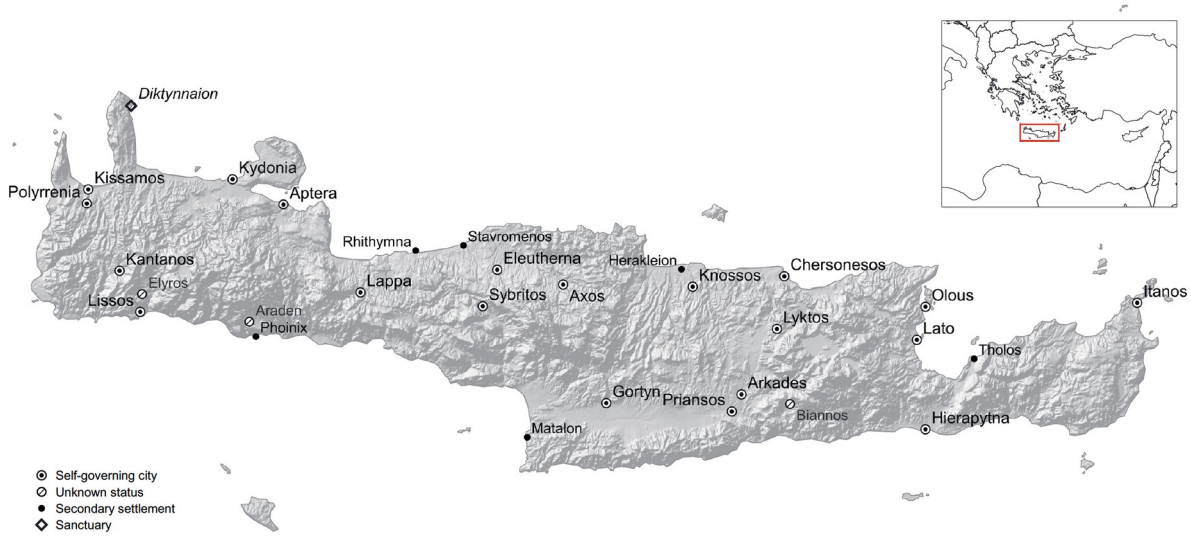


Figure 2.3. Poleis and secondary settlements of Roman Crete (Karampinis 2022: Fig. 2).

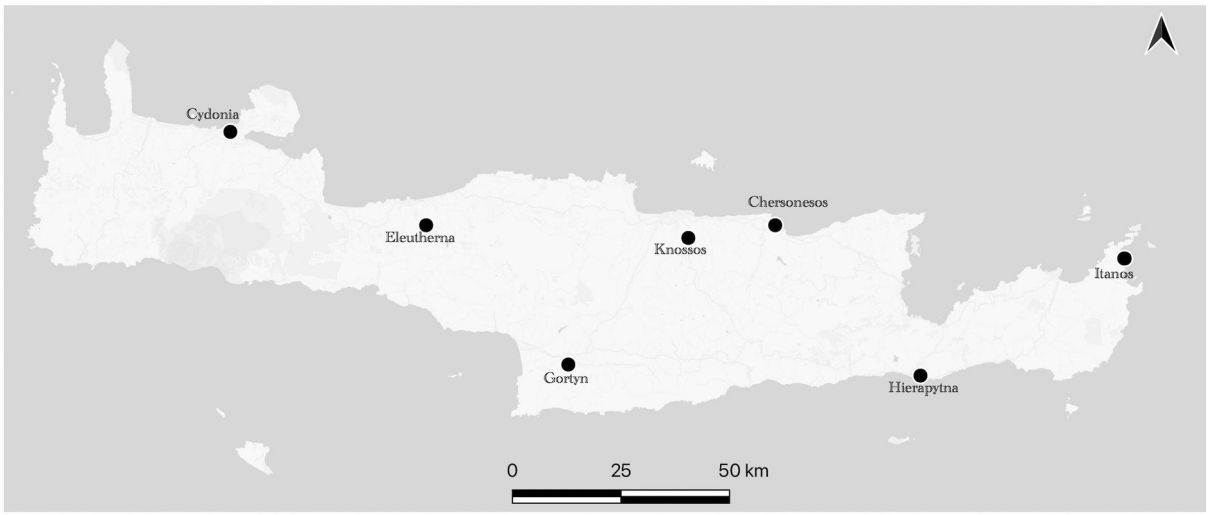


Figure 3.1: Case studies discussed in Chapter 3 (Source: ArcGIS, produce by D. Karampas).



Figure 3.2: The port of Chersonesos (Source: ArcGIS, produce by D. Karampas).



Figure 3.3: Pelike from the Chersonesos Necropolis (Galanaki 2006: 72-73).

Figure 3.4: Terra Sigillata B, Chersonesos (Vasilakis 2020: Fig. 1).

Figure 3.5: Candarli Ware, Chersonesos (Vasilakis 2020: Fig. 2).

Figure 3.6: ARSW (Hayes 50), Chersonesos (Vasilakis 2020: Fig. 3).

Figure 3.7: Amphora Dressel 14, Chersonesos (Vasilakis 2020: Fig. 4).

Figure 3.8: Later Roman C (Phocea), Chersonesos (Vasilakis 2020: Fig. 5).

Figure 3.9: LR1 amphora, Chersonesos (Vasilakis 2020: Fig.6).

Figure 3.10: LR2 Amphora, Chersonesos (Vasilakis 2020: Fig. 7a).



Figure 3.11: The site of Knossos (Source: ArcGIS, produce by D. Karampas).



Figure 3.12: Mould-made bowls from M. Asia, Knossos (Coldstream et al. 2001: Fig. 3.4, g-h).

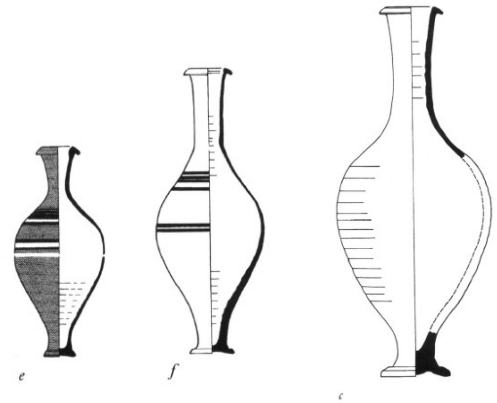


Figure 3.13: Unguentaria 2nd c. BC, Knossos (Coldstream et al. 2001: Fig. 3.16, c, and e-f).

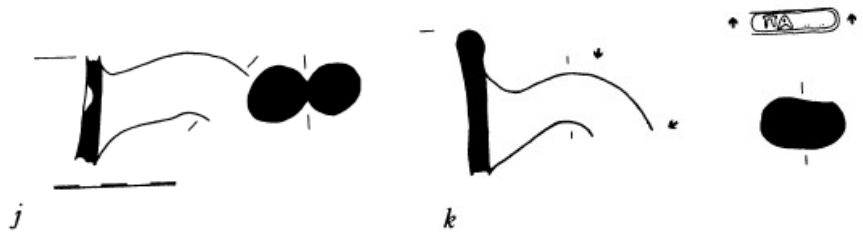


Figure 3.14: Aegean Amphorae: 1. Coan, 2. Handle with a stamp from Paros, Knossos (Coldstream et al. 2001: Fig. 3.19, j-k).

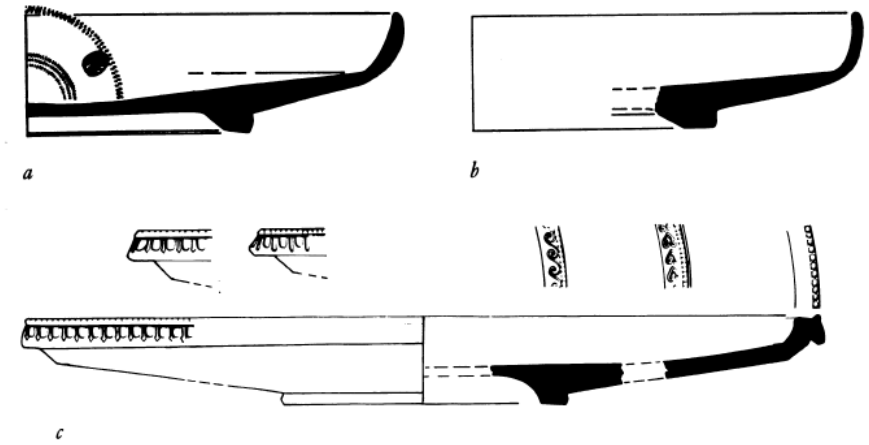


Figure 3.15: Eastern Sigillata A (dishes), Knossos (Coldstream et al 2001: Fig. 4.1).

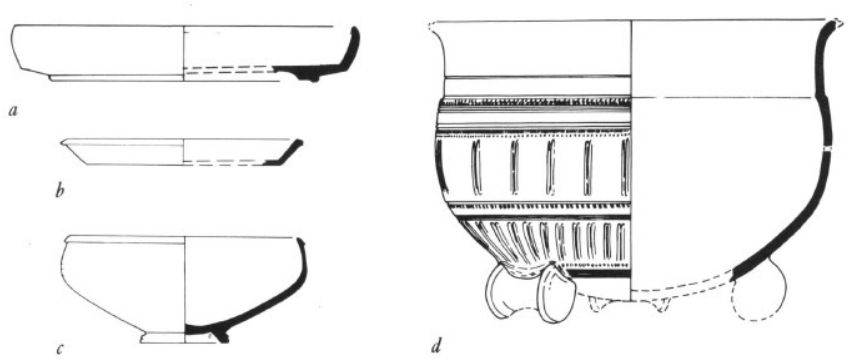


Figure 3.16: Cypriot Sigillata (dishes, bowl), Knossos (Coldstream et al 2001: Fig. 4.5).

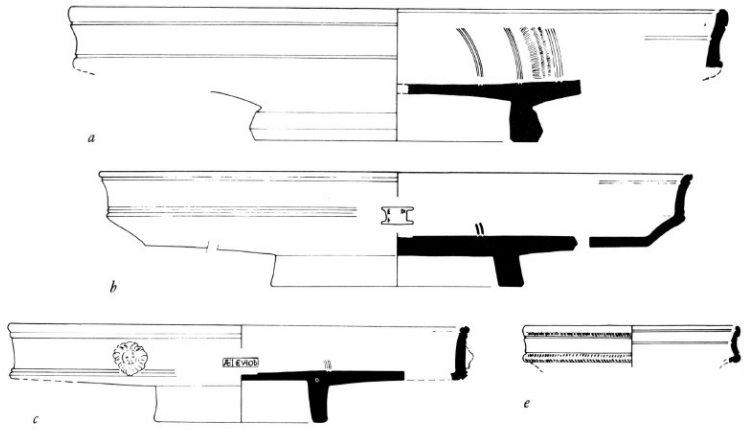


Figure 3.17: Italian Sigillata (plates), Knossos (Coldstream et al 2001: Fig. 4.2).

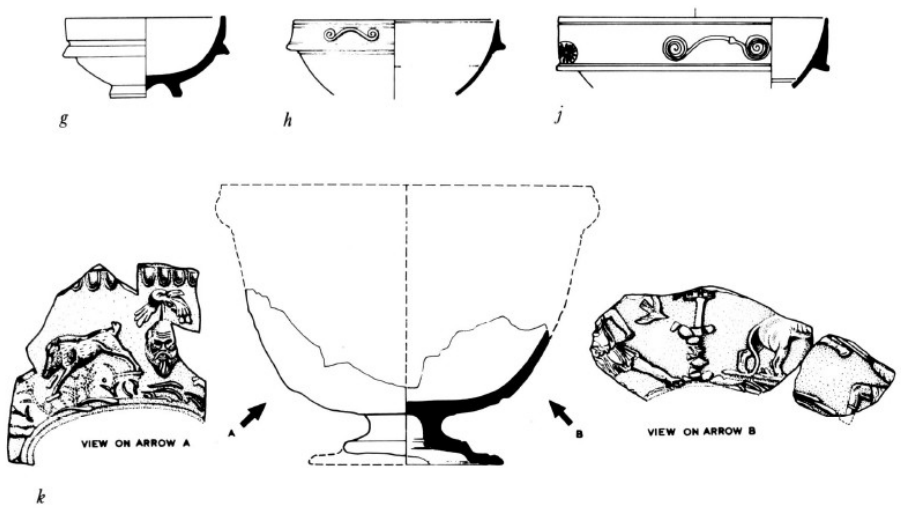


Figure 3.17A: Italian Sigillata (bowls), Knossos (Coldstream et al 2001: Fig. 4.2).

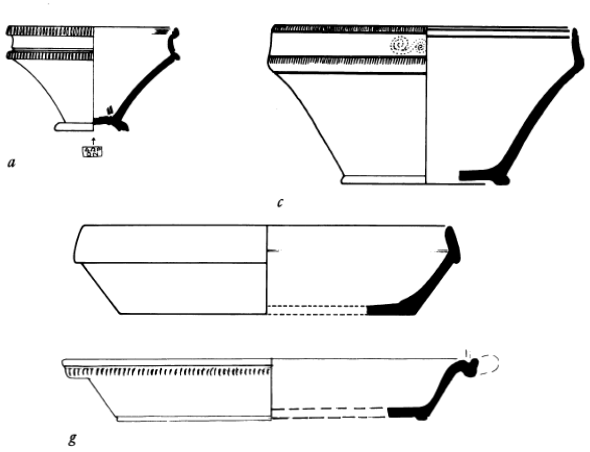


Figure 3.18: Eastern Sigillata B (dishes and bowls), Knossos (Coldstream et al 2001: Fig. 4.3).

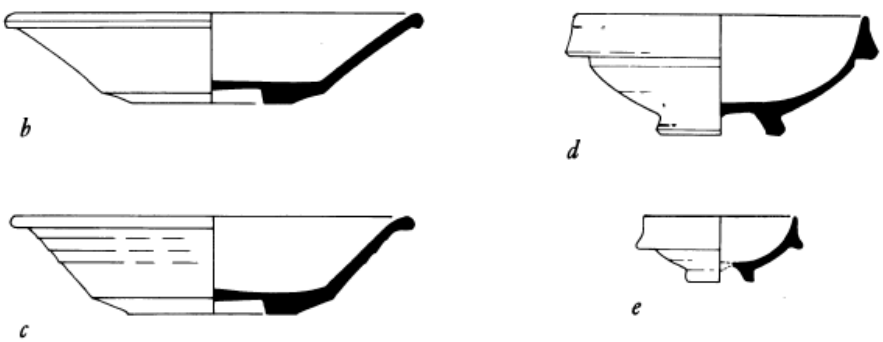


Figure 3.19: Pontic Sigillata (dishes and bowls), Knossos (Coldstream et al 2001: Fig. 4.5).

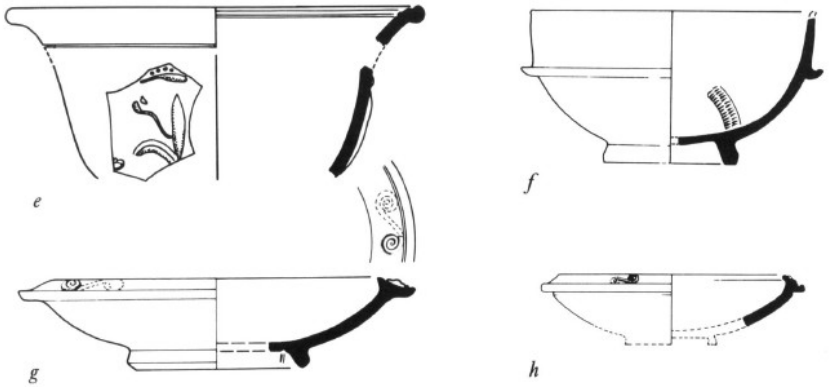


Figure 3.20: Candarli ware (dish and bowls), Knossos (Coldstream et al 2001: Fig. 4.4).

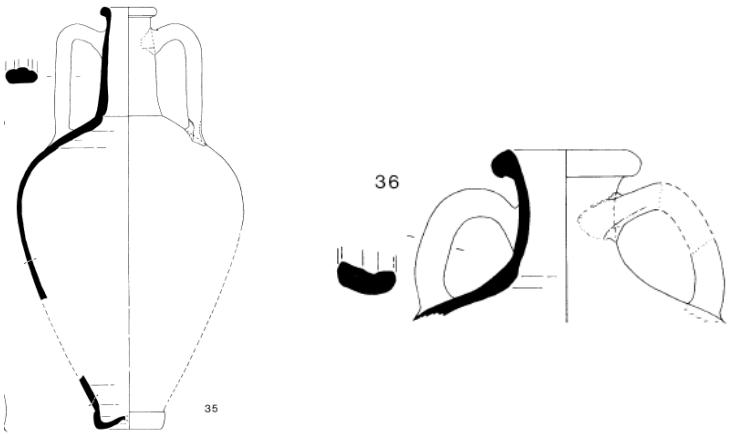


Figure 3.21: Western Types: Type 7 (Gaul) and Type 8 (North Italy), Knossos (Hayes 1983: Fig. 21: A36 and A35).

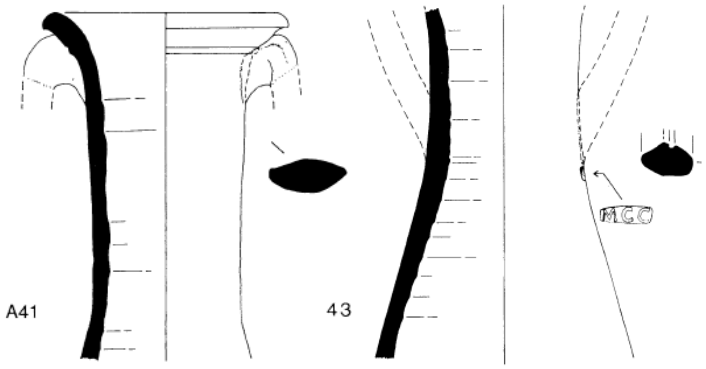


Figure 3.22: Spanish garum amphorae: Hayes type 9 and type 11, Knossos (Hayes 1983: Fig. 22: A41 and A42).

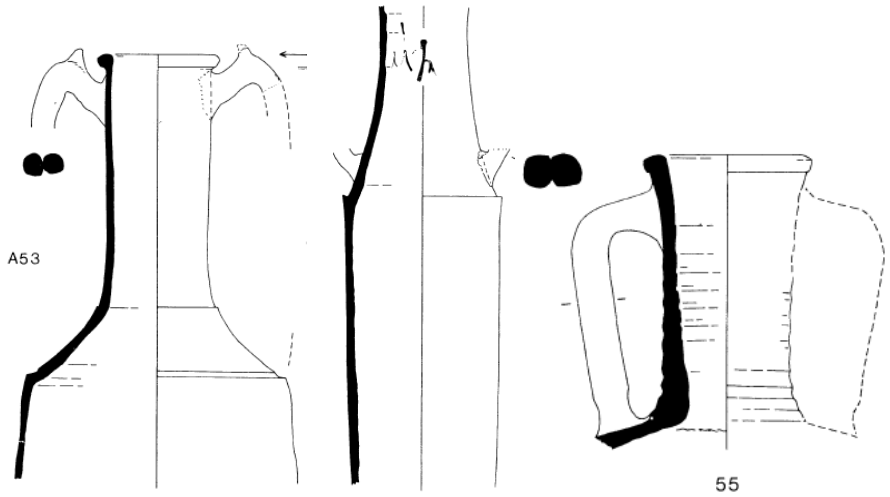


Figure 3.23: Sub-Koan types: Hayes types 19 and 21, Knossos (Hayes 1983: Fig. 23: A53, A58, and A55).

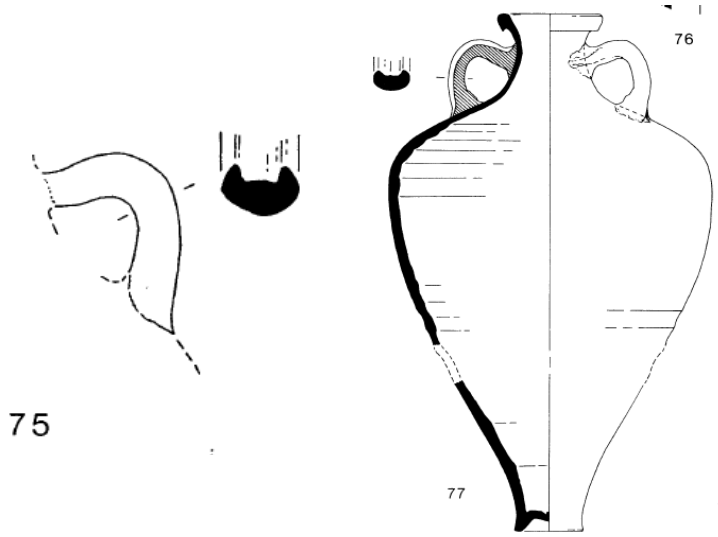


Figure 3.24: African Types: Hayes types 31 (Tripolitanian) and 33 (Mavritanian), Knossos (Hayes 1983: Fig. 24: A75 and A77).

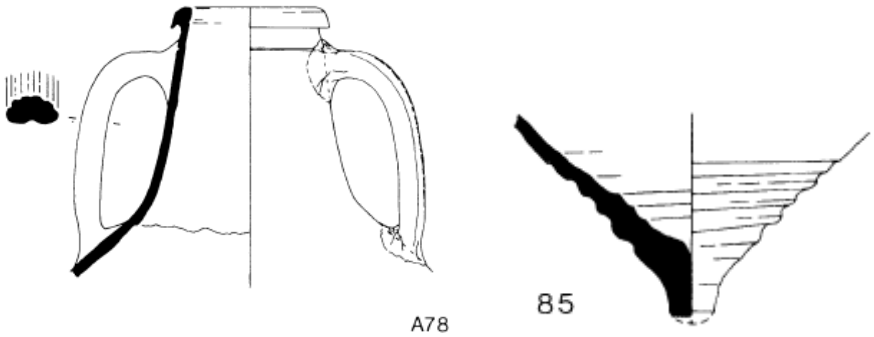


Figure 3.25: Aegean and Eastern Mediterranean types: Hayes 34 (Aegean) and 35, Knossos (Hayes 1983: Fig. 25: A78, A85).

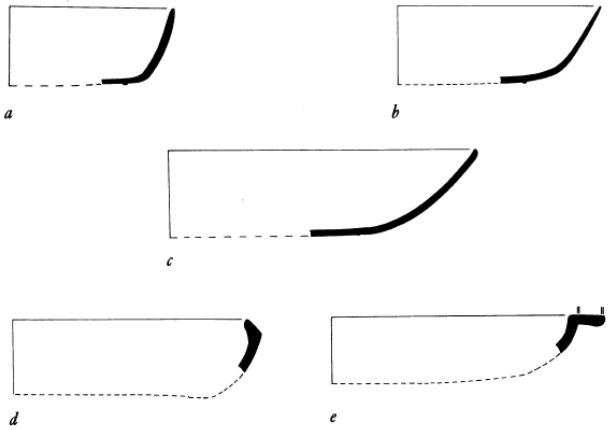


Figure 3.26: North African Red Slip ware (dishes), Knossos (Coldstream et al 2001: Fig. 4.6).

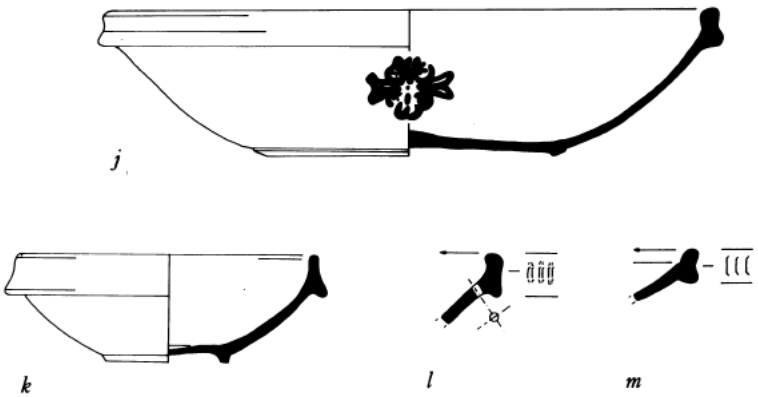
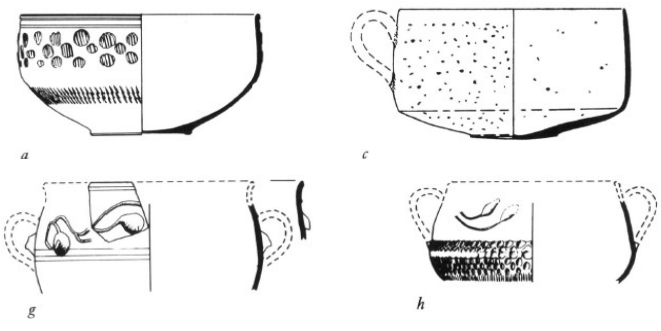


Figure 3.27: Phocean ware, Knossos (Coldstream et al 2001: Fig. 4.6).



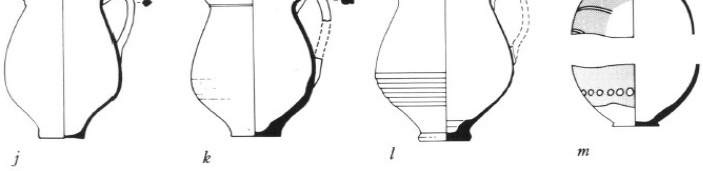


Figure 3.28: Thin-Walled ware (cups/mugs/beakers), Knossos (Coldstream et al 2001: Fig. 4.7).

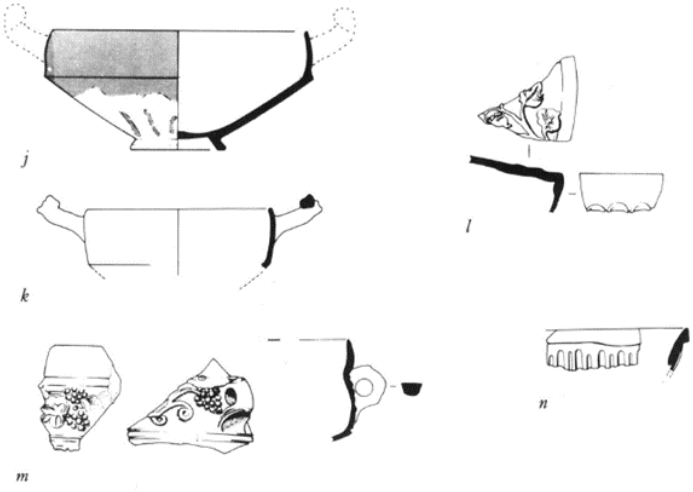


Figure 3.29: Knidian ware (bowls), Knossos (Coldstream et al 2001: Fig. 4.5).



Figure 3.30: The site of Hierapytna (Source: ArcGIS, produce by D. Karampas).

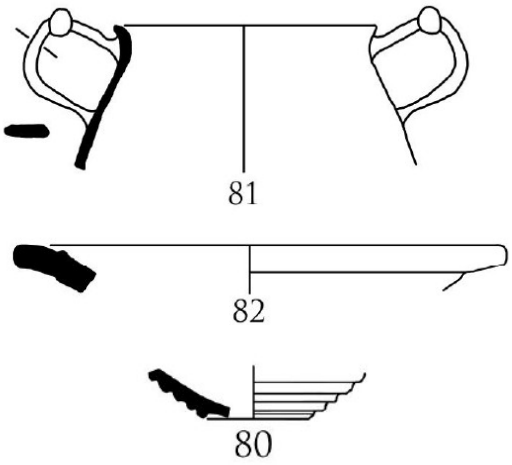


Figure 3.31: Attic ware (cantharos, dish, bowl), Hierapytna (Gallimore 2011: Fig. 5.10).

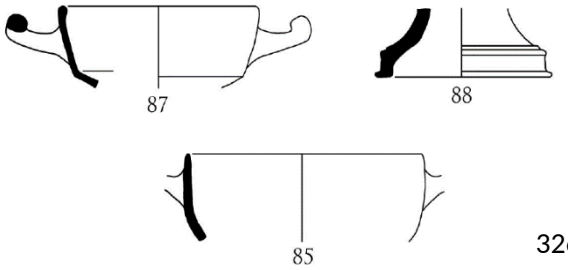


Figure 3.32: Aegean ware (cups and crater: 88), Hierapytna (Gallimore 2011: Fig. 5.9, 5.10).

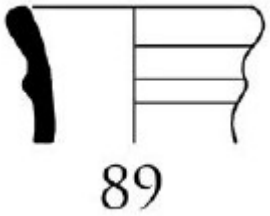


Figure 3.33: Lagynos ware (from Pergamos), Hierapytna (Gallimore 2011: Fig. 5.10).

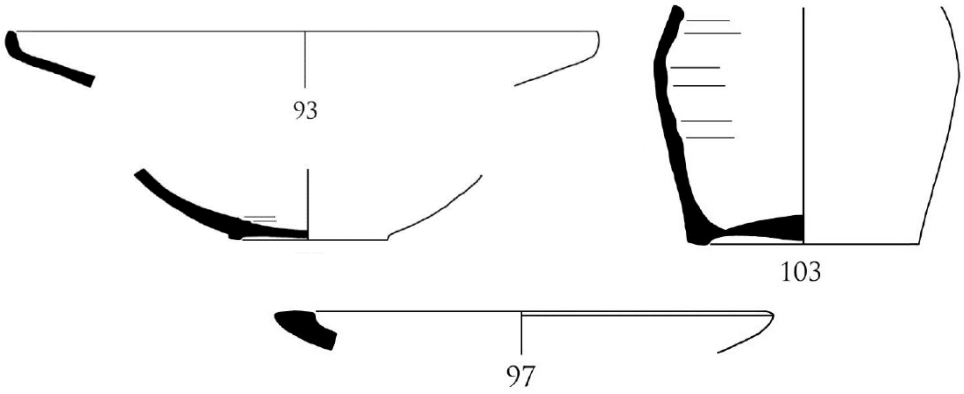


Figure 3.34: Grey ware (plates and a jar: 103), Hierapytna (Gallimore 2011: Fig. 5.10, 5.11).



Figure 3.35: Mold-Made Bowls, Hierapytna (Gallimore 2011: Pl. 5.2).



Figure 3.36: Pergamene Sigillata (Skyphos), Hierapytna (Gallimore 2011: Pl. 5.2).

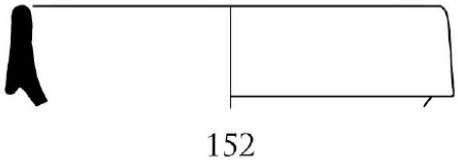


Figure 3.37: Italian Amphora (rim), Hierapytna (Gallimore 2011: Fig. 5.15).

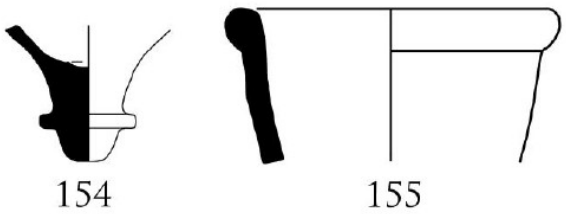


Figure 3.38: Knidian Amphorae (toe, rim), Hierapytna (Gallimore 2011: Fig. 5.15).

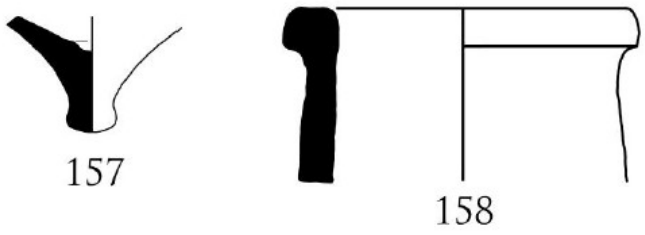


Figure 3.39: Rhodian Amphorae (toe, rim), Hierapytna (Gallimore 2011: Fig. 5.15).



Figure 3.40: Coan Amphora (handle), Hierapytna (Gallimore 2011: Pl. 5.2).

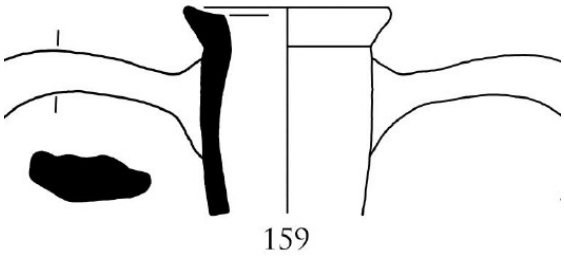


Figure 3.41: Thasian Amphora (rim, neck, and handle), Hierapytna (Gallimore 2011: Fig. 5.15).

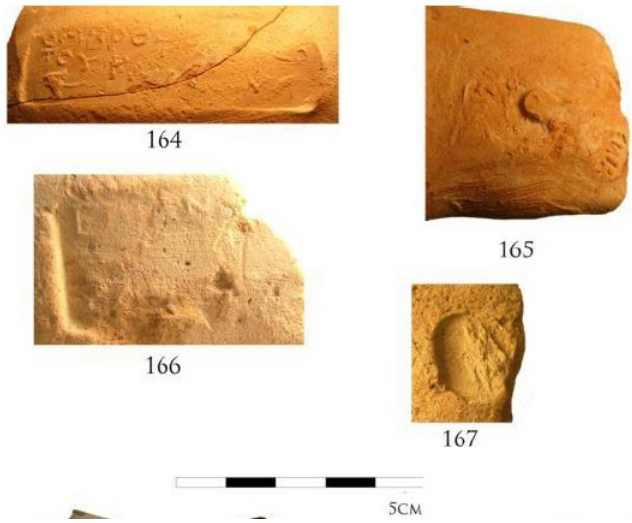


Figure 3.42: Stamped Amphorae (handles), Hierapytna (Gallimore 2011: Pl. 5.3).



Figure 3.43: Eastern Sigillata A (plate: 177 base sherd, cup: 184 rim sherd), Hierapytna (Gallimore 2011: Pl. 5.2).

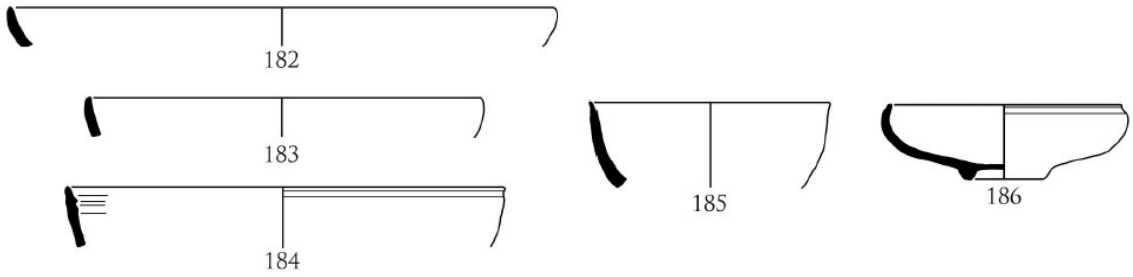


Figure 3.43A: Eastern Sigillata A (plates, cup: 184, bowls: 185-186), Hierapytna (Gallimore 2011: Fig. 5.16, 5.17).

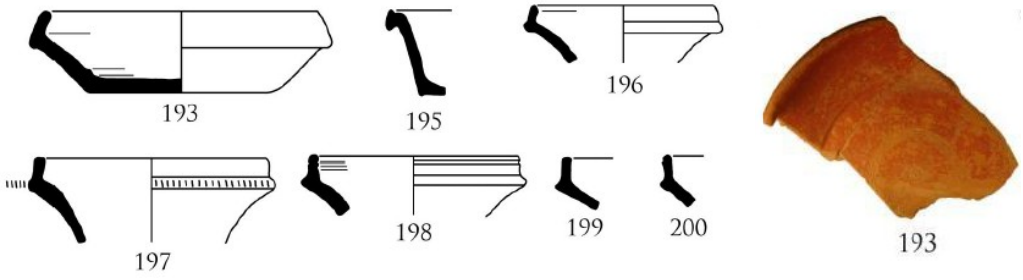


Figure 3.44: Eastern Sigillata B (plate, rim: 193, and cups), Hierapytna (Gallimore 2011: Fig. 5.17).

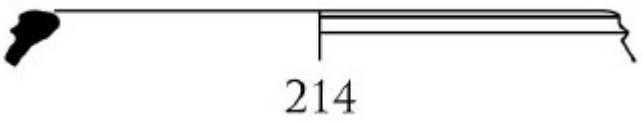


Figure 3.45: Cypriot Sigillata (krater, rim sherd), Hierapytna (Gallimore 2011: Fig. 5.18).

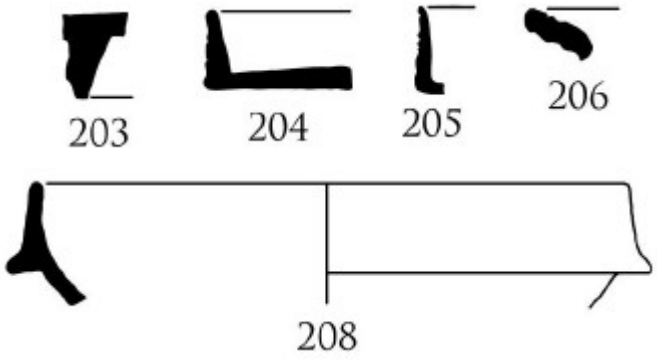


Figure 3.46: Italian Sigillata (plates, cup: 206,208), Hierapytna (Gallimore 2011: Fig. 5.17).



Figure 3.46A: Italian Sigillata (cup, base sherd with a stamp), Hierapytna (Gallimore 2011: Fig. 5.17, Pl.5.3).

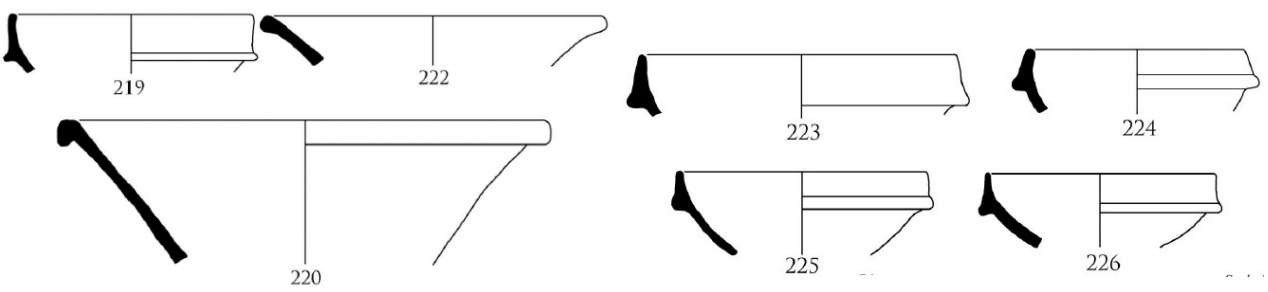


Figure 3.47: Çandarli ware (bowls and a plate: 222), Hierapytna (Gallimore 2011: Fig. 5.18).

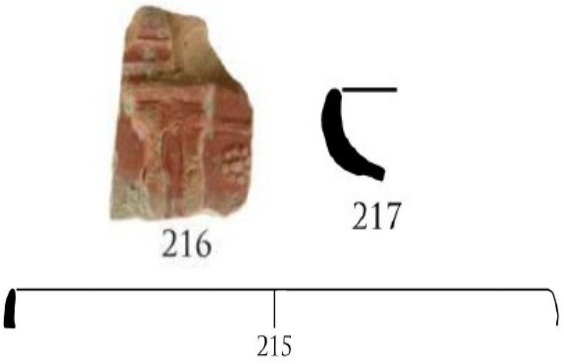


Figure 3.48: Pontic Sigillata (cup rim: 216, bowls), Hierapytna (Gallimore 2011: Fig. 5.18, Pl. 5.3).

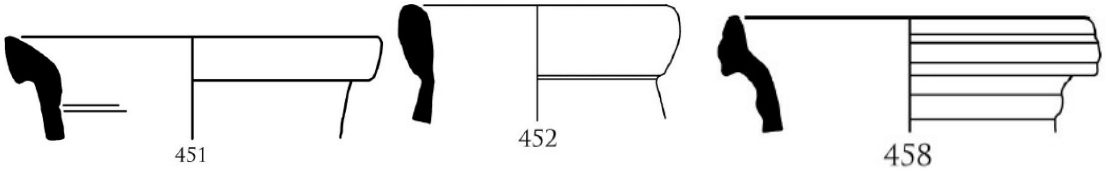


Figure 3.49: North Africa coast Amphorae (Tripolitanian, Africana 1/Keay 3A, Dressel 30/Keay 1), Hierapytna (Gallimore 2011: Fig. 5.39).

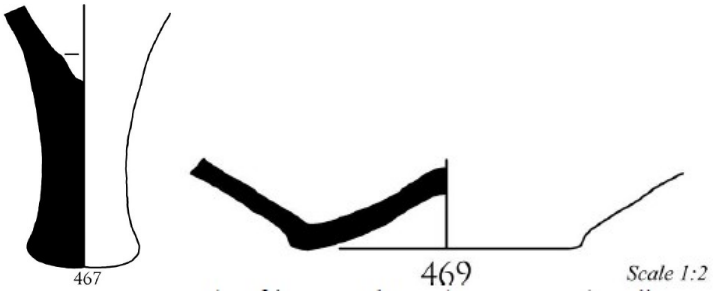


Figure 3.50: Italian Amphorae (Dressel 2-4), Hierapytna (Gallimore 2011: Fig. 5.40, 5.39).

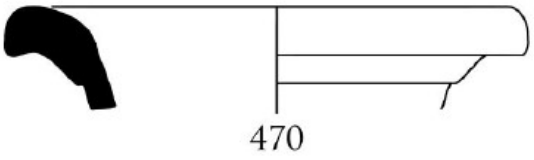


Figure 3.51: Spanish Amphorae (Beltrán 1/Dressel 7-11), Hierapytna (Gallimore 2021: Fig: 5.40).

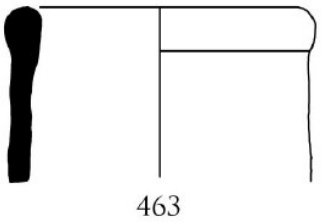


Figure 3.52: Egyptian Amphorae (Amphore Egyptienne 3 (AE3), Hierapytna (Gallimore 2021: Fig. 5.40).

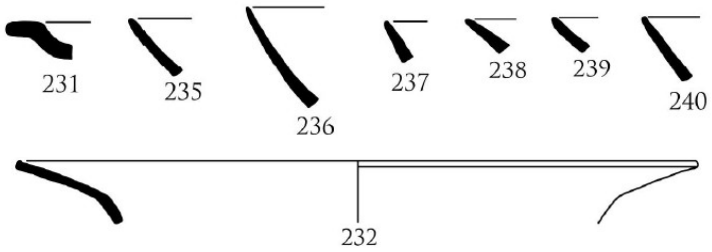


Figure 3.53: African Red Slip ware (AFR C: bowls, plate), Hierapytna (Gallimore 2011: Fig. 5.19).

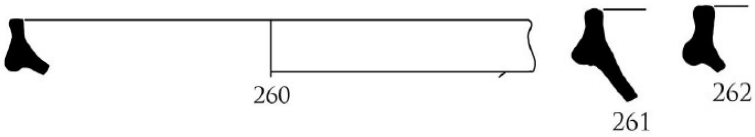


Figure 3.54: Phocaean Red Slip (Hayes form 3C. D), Hierapytna (Gallimore 2011: Fig. 5.20).

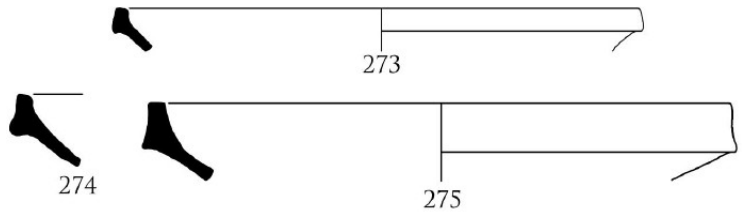


Figure 3.54A: Phocaean Red Slip (Hayes form 3F. D), Hierapytna (Gallimore 2011: Fig. 5.21).

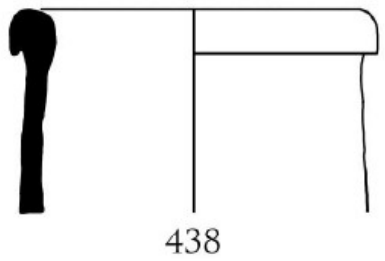


Figure 3.55: Eastern Mediterranean amphorae (Pamphylian), Hierapytna (Gallimore 2011: Fig. 5.38).

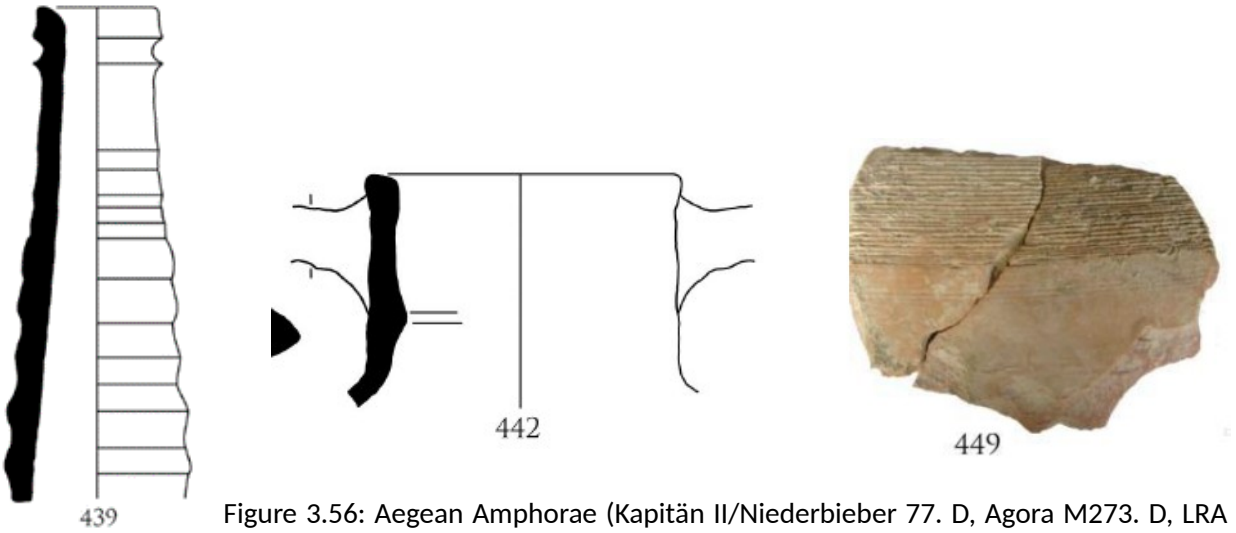


Figure 3.56: Aegean Amphorae (Kapitän II/Niederbieber 77. D, Agora M273. D, LRA 2), Hierapytna (Gallimore 2011: Fig. 5.38, 5.39, Pl. 5.4).



Figure 3.57: African Amphorae (Keay 25, Africana 1/Keay 3A, Keay 62), Hierapytna (Gallimore 2011: Fig. 5.39, 5.40).



Figure 3.58: Italian Amphorae (Keay 52), Hierapytna (Gallimore 2011: Fig. 5.40, Pl. 5.6).



Figure 3.59: Egyptian Amphorae (body sherd LRA7), Hierapytna (Gallimore 2011: Pl. 5.6).

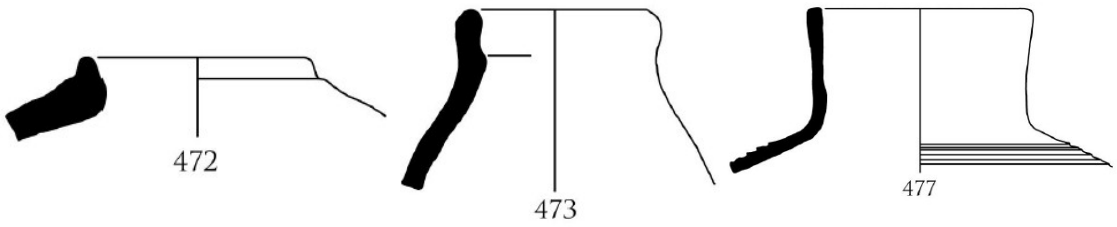


Figure 3.60: Syria-Palestine Amphorae (472, 473 = LRA 4, 477 = LRA 5/6), Hierapytna (Gallimore 2011: Fig. 5.41).



Figure 3.61: The site of Itanos (Source: ArcGIS, produce by D. Karampas).

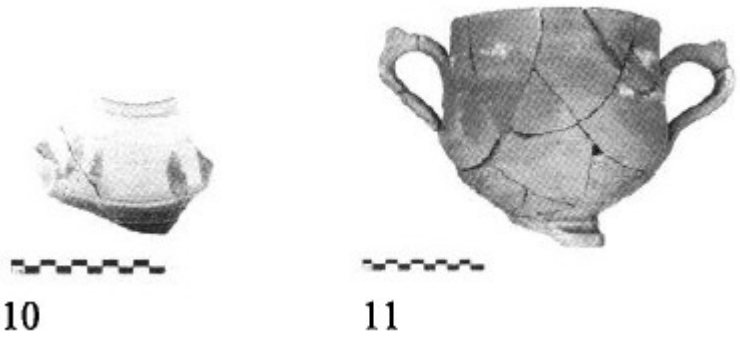


Figure 3.62: Hellenistic finewares (Rhodian Pyxis, West Slope Kantharos), Itanos (Apostolakou et al 2004: Fig. 10, 11).

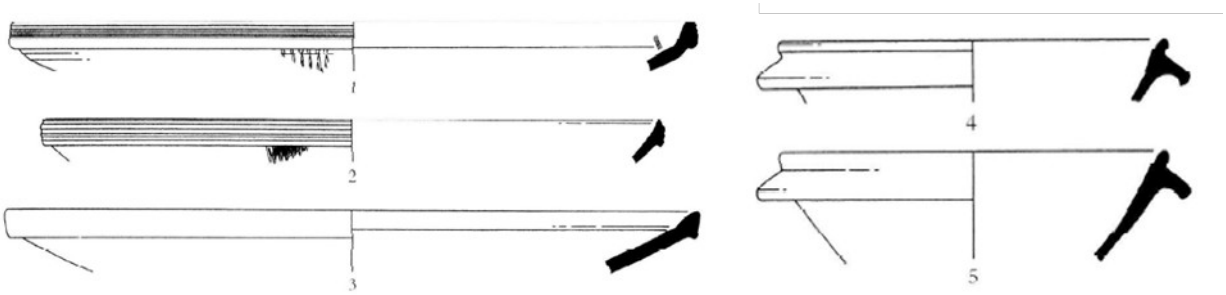


Figure 3.63: African Red Slip ware (plates, bowls), Itanos (Xanthopoulou 2004: Pl. 2).

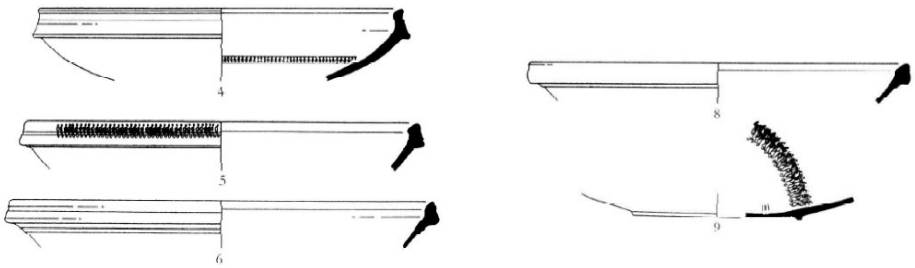


Figure 3.64: Phocean Red Slip (PRS 3: plates, bowls), Itanos (Xanthopoulou 2004: Pl. 4).

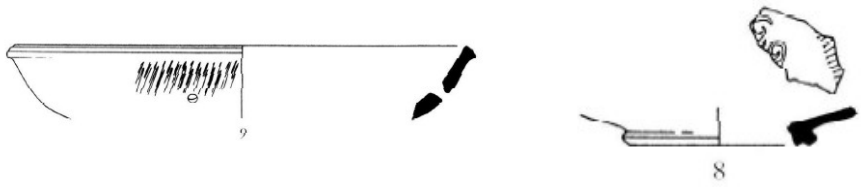


Figure 3.65: Cypriot Red Slip (9) and Macedonian ‘TS. Grise' ware (8), Itanos (Xanthopoulou 2005: Pl. 3).



Figure 3.66: The site of Eleutherna (Source: ArcGIS, produce by D. Karampas).



Figure 3.67: Various types of Hellenistic ware from Eleutherna (Avramidou 2005: Fig. 4).



Figure 3.68: Hellenistic amphora from Eleutherna (Avramidou 2015: Fig.6).

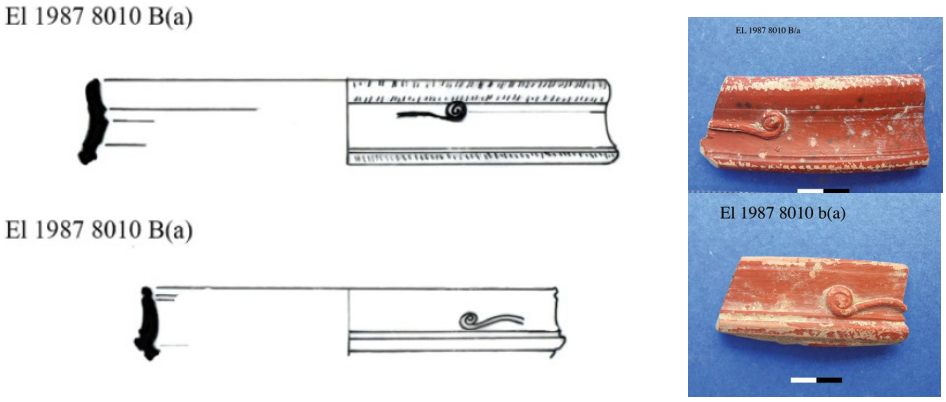


Figure 3.69: Italian Sigillata (Arretine wares), Eleutherna (Kelly 2012: Fig. 1a, 1b).

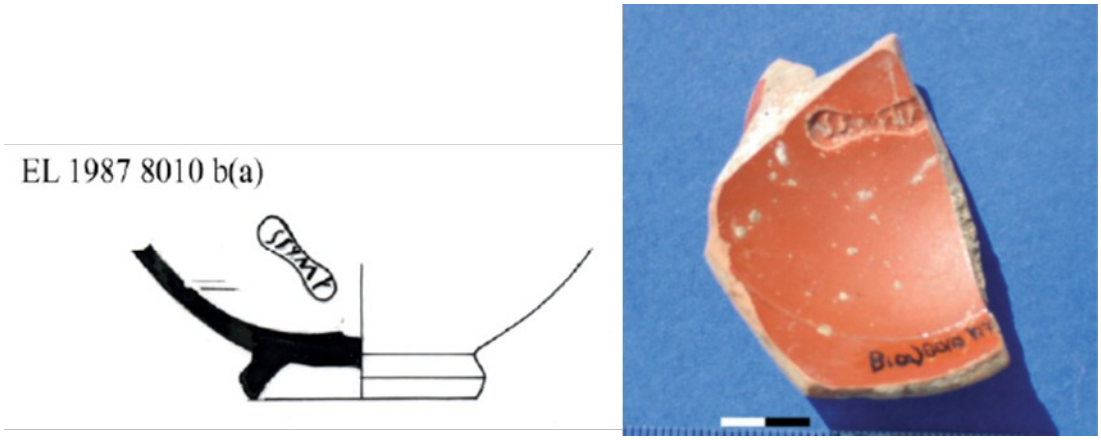


Figure 3.70: Italian Sigillata ('SEXMF/P'), Eleutherna (Kelly 2012: Fig. 1f).



Figure 3.71: Ring base of sigillata bowl in planta pedis stamp <A^T^E(?)V^O> (ceramic production at Pisa), Eleutherna (Kelly 2012: Fig. 3).

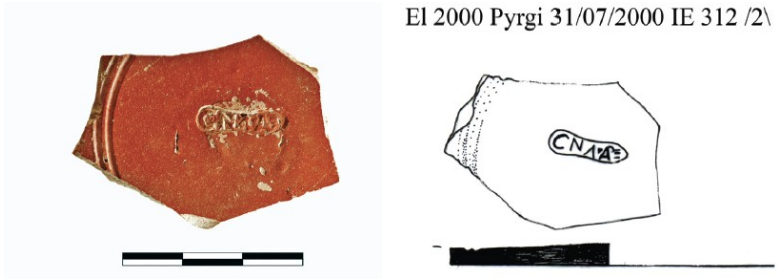


Figure 3.72: Flat base Italian sigillata in planta pedis stamp <CN.AA> (ceramic production at Pisa), Eleutherna (Kelly 2012: Fig. 4).

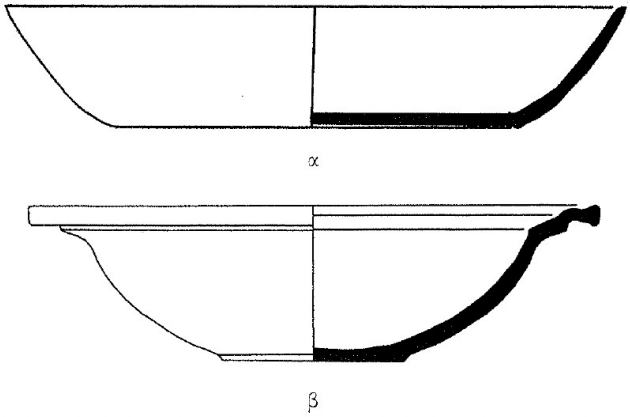


Figure 3.73: African Red Slip ware (Hayes forms 50 and 67), Eleutherna (Yangaki 2004: Fig.12 a, b).

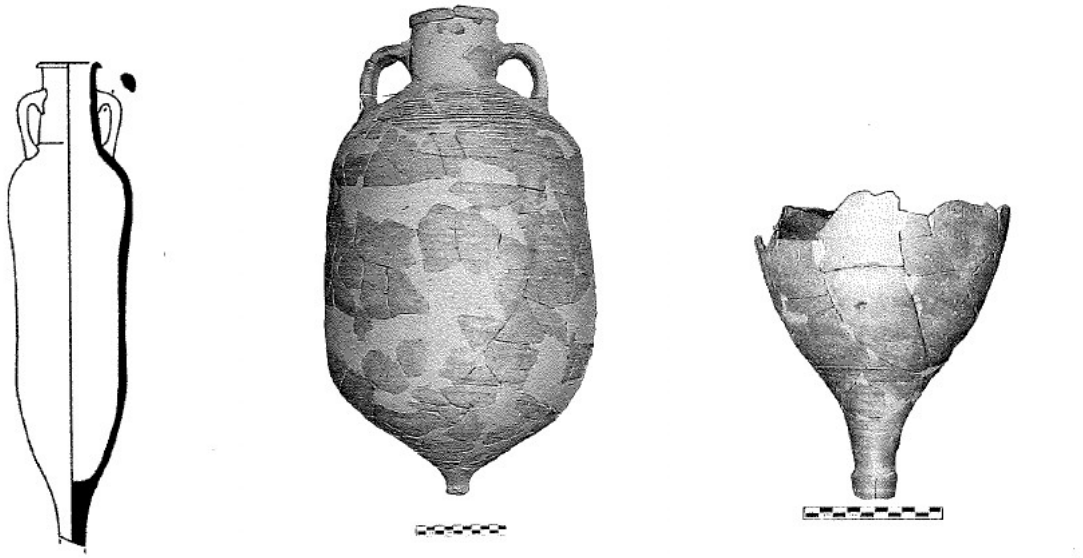


Figure 3.74: Later Roman Amphorae (Keay XXV, Agora M273, Carthage L.R.A. 3), Eleutherna (Yangaki 2004: Fig. 9a, 8, 10).



Figure 3.75: The site of Kydonia (Source: ArcGIS, produce by D. Karampas).

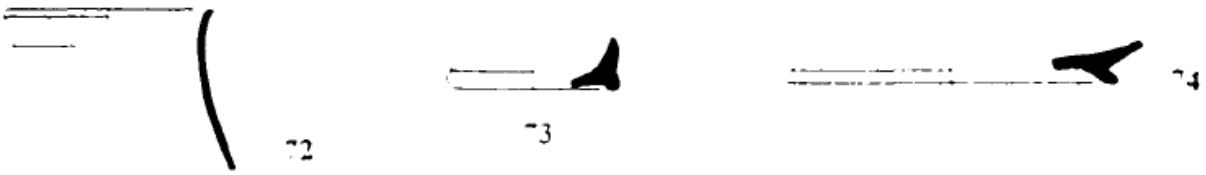


Figure 3.76: Various Black glazed Import wares (shreds from Kantharos, Skyphos, cup), Kydonia (Raab 2001: Fig.15).

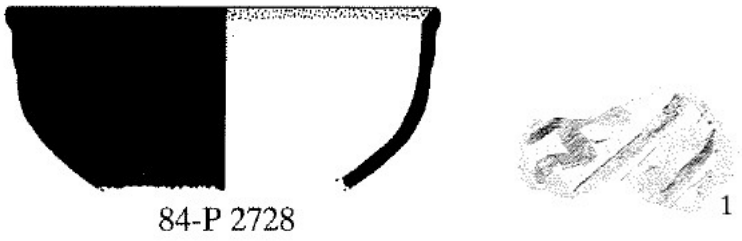


Figure 3.77: Hellenistic Thin-walled cups, Kydonia (GSE 1997: Pl. 62 and Pl. 71d:1).

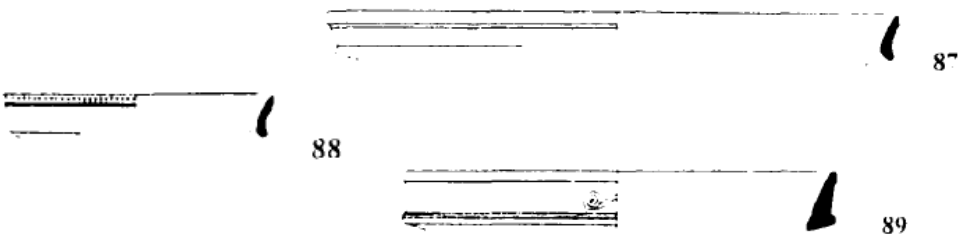


Figure 3.78: Italian Sigillata (sherds from plate, cup, dish) Kydonia (Raab 2001: Fig.11).

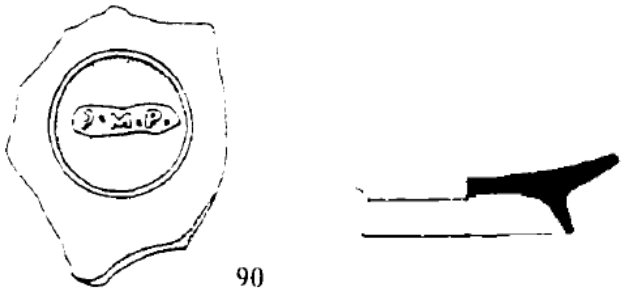


Figure 3.79: Eastern Sigillata A (bowl with planta pedis stamp '? – M – P'), Kydonia (Raab 2001: Fig.16).



Figure 3.80: Eastern Sigillata B (pedestal foot), Kydonia (Raab 2001: Fig.16).



Figure 3.81: Candarli ware (bowl rim), Kydonia (Raab 2001: Fig.16).

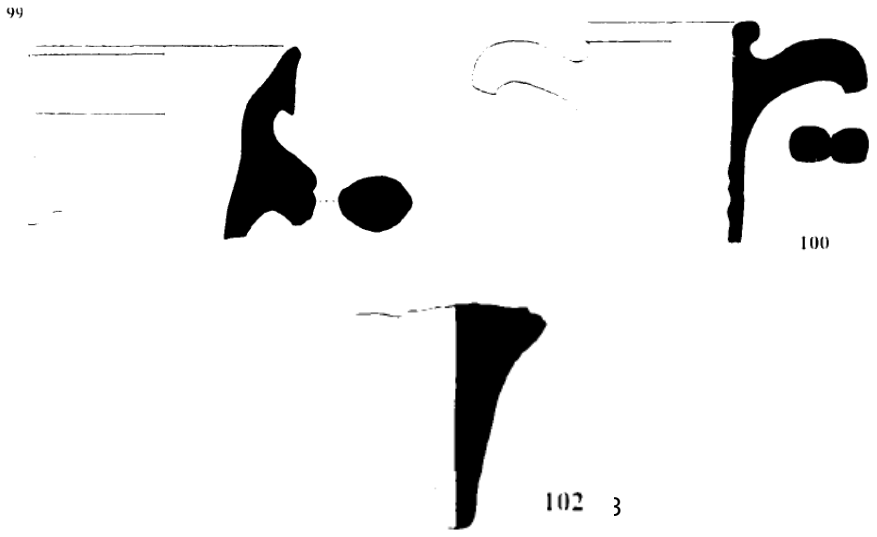


Figure 3.82: Imported Amphorae (99= Dressel 6, 100 = Coan, 102 = Rhodian) from the Garage excavation in Kydonia (Raab 2001: Fig.17).

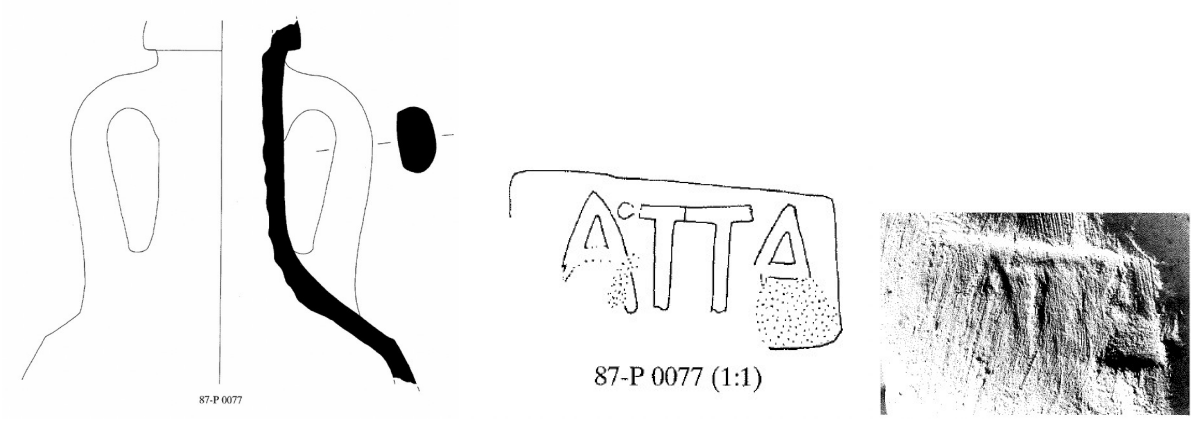


Figure 3.83: Italian Amphorae handle with the stamp 'ATTA' from the Kastelli square excavation, Kydonia (GSE 1997: Pl. 64, 87-P 0077/ Pl. 99: 1b).

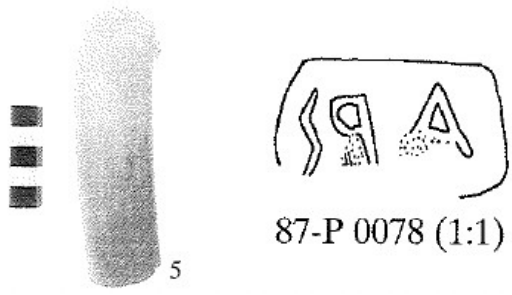


Figure 3.84: Italian amphora handle with the stamp 'ARI' from the Kastelli square excavation, Kydonia (GSE 1997: Pl. 96g:5, 87-P 0078,).

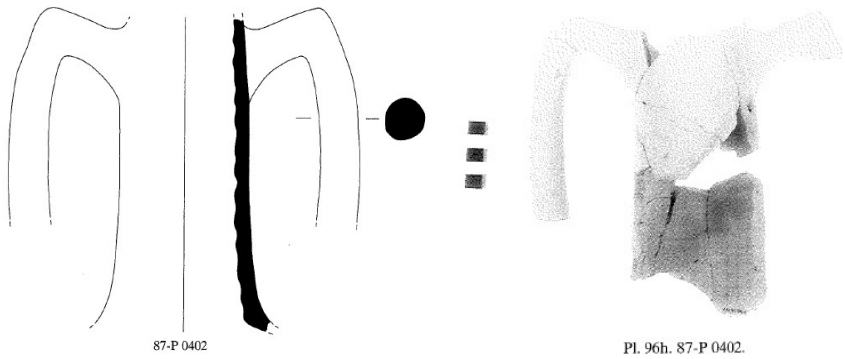


Figure 3.85: Rhodian Amphora (neck-handles) from the Kastelli square excavation, Kydonia (GSE 1997: Pl. 66, 87-P 0402/ Pl. 96h).

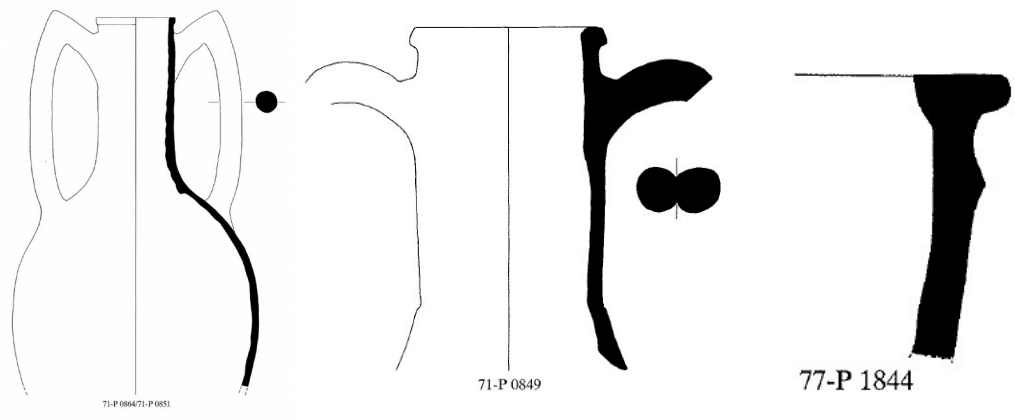


Figure 3.86: Amphorae: Rhodian (GSE 1997: Pl.65, 71-P 0864/71-P 0851), Coan (GSE 1997: Pl.65, 71-P 0849), Dressel 1 (GSE 1997: Pl.63, 77-P 1844) from the Kastelli square excavation, Kydonia.

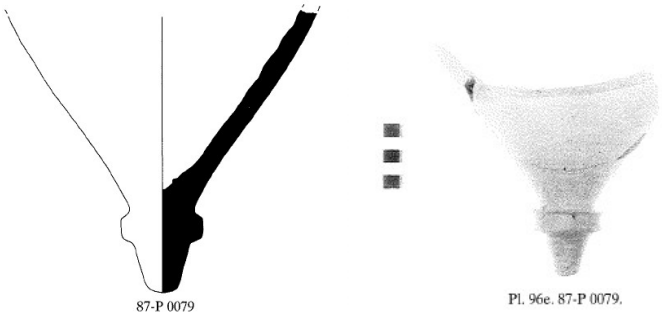


Figure 3.87: Knidian Amphora (toe) from the Kastelli square excavation, Kydonia (GSE 1997: Pl. 66, 87-P 0079/ Pl. 96e).



Figure 3.88: The site of Gortyn (Source: ArcGIS, produce by D. Karampas).



Figure 3.89: African Amphora (Mana C/van der Werff form), Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LIX: j).

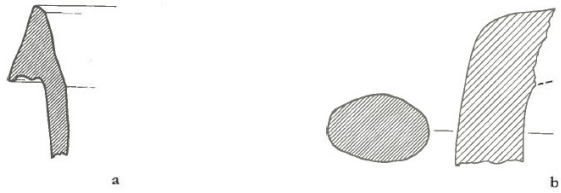


Figure 3.90: Italian Amphorae: 1) Greek-Italian type (Di Vita 2001: Vol. V.3 **, Tav: LXIII: A), and Dressel 1 (Di Vita 2001: Vol. V.3 **, Tav: LXIII: b), Gortyn.

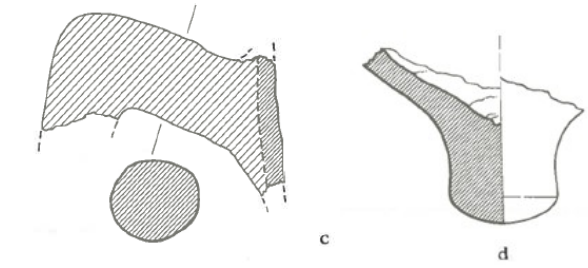


Figure 3.91: Aegean Amphora (Rhodian), Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LXVI: c-d).

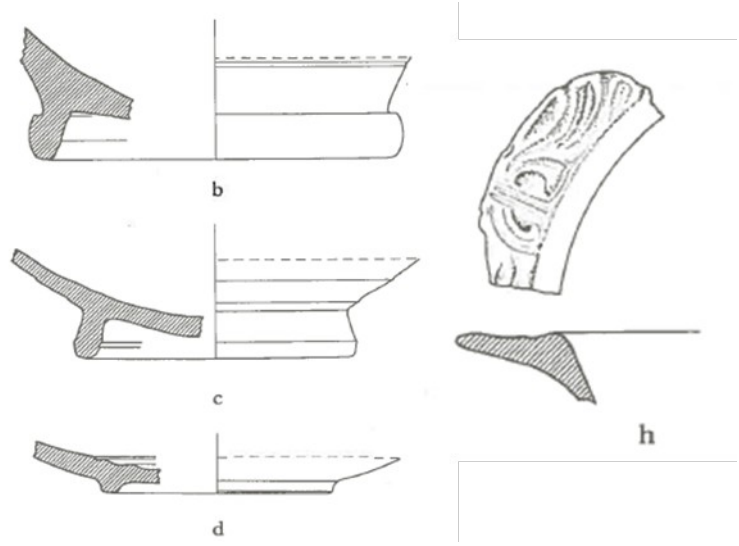


Figure 3.92: Eastern Sigillata A, Gortyn (Di Vita 2001: Vol. V.3 **, Tav. V: a, b, c, h).



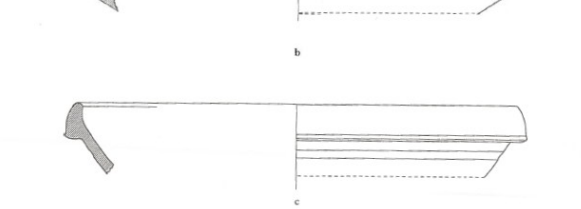


Figure 3.93: Cypriot Sigillata Ware, Gortyn (Di Vita 2001: Vol. V.3 **, Tav: XVIII: a, b, c).

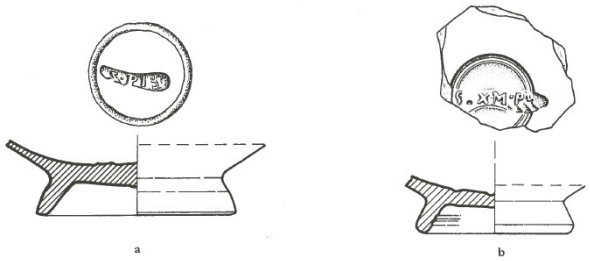


Figure 3.94: Italian Sigillata, Gortyn (Di Vita 2001: Vol. V.3 **, Tav. VII: a: 91PVII.1688-1, b: Inv. 5272).



Figure 3.94A: Italian Sigillata, Gortyn (Di Vita 2001: Vol. V.3 **, Tav. VII: d).

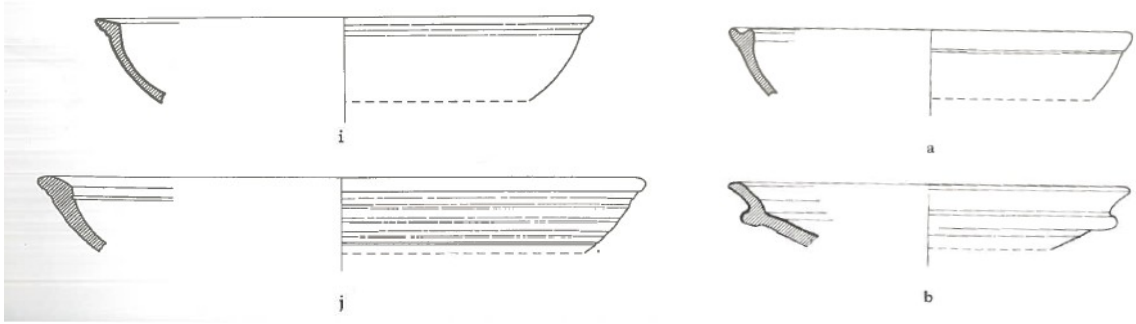


Figure 3.95: Eastern Sigillata B, Gortyn (Di Vita 2001: Vol. V.3 **, Tav. V: i, j – Tav: VI: a, b).

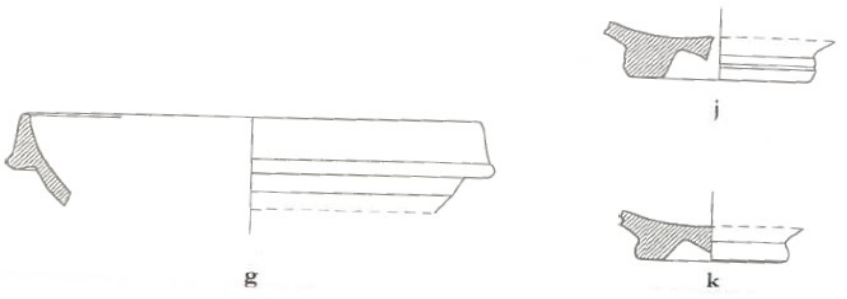


Figure 3.96: Candarli Ware (Eastern Sigillata C), Gortyn (Di Vita 2001: Vol. V.3 **, Tav: VI: g, j, k).

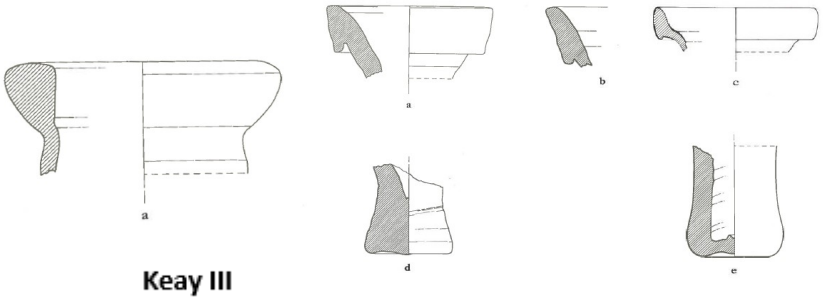


Figure 3.97: African Amphora: 1. Keay III (Di Vita 2001: Vol. V.3 **, Tav: LVI: a), 2. Keay IB (Di Vita 2001: Vol. V.3 **, Tav: LIX: a-e), Gortyn.

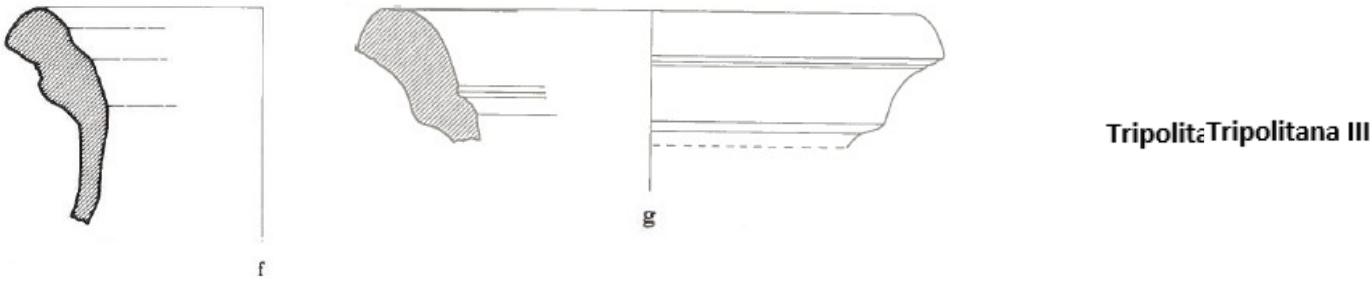


Figure 3.97A: African Amphorae (Tripolitana II and III), Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LIX: f, g).

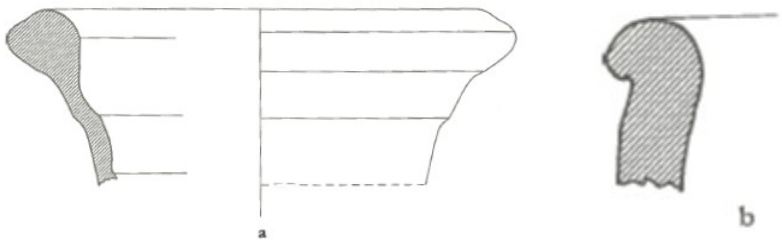


Figure 3.98: Spanish Amphorae from Gortyn: Dressel 7-11 (Di Vita 2001: Vol. V.3 **, Tav: LX: a), 2. Dressel 2-4 (Di Vita 2001: Vol. V.3 **, Tav: LX: b), Gortyn.

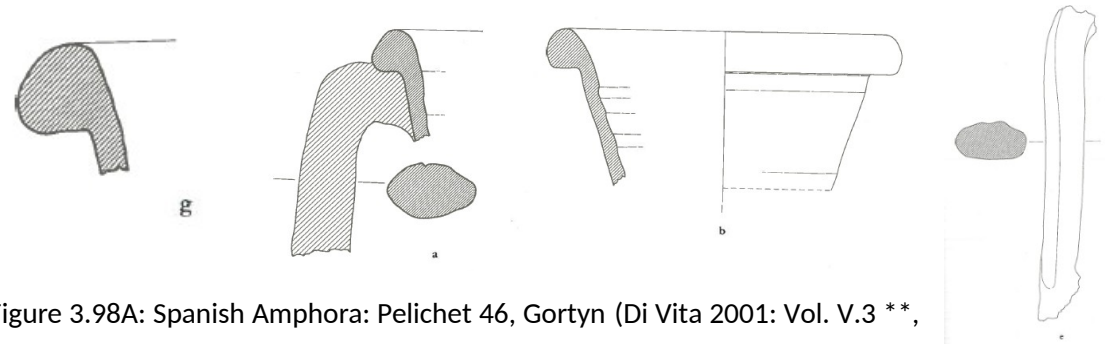


Figure 3.98A: Spanish Amphora: Pelichet 46, Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LX: g, LXI: a-f).

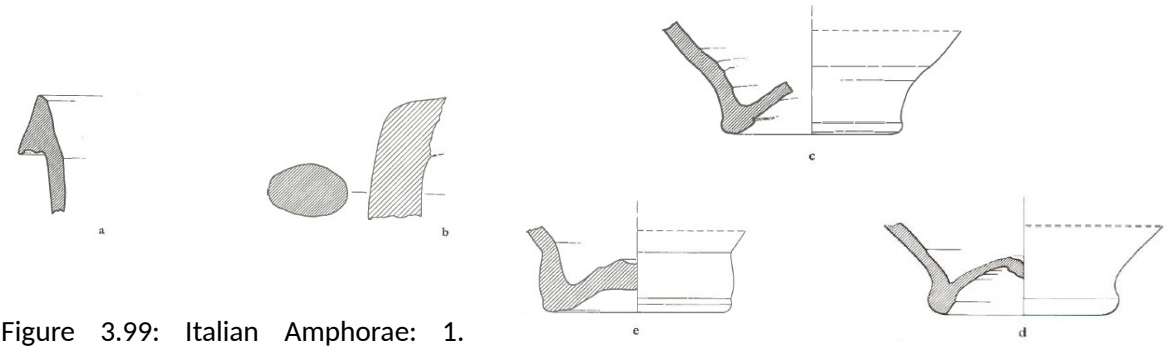


Figure 3.99: Italian Amphorae: 1. Dressel 2-4 (Di Vita 2001: Vol. V.3 **, Tav: LXIII: a, b), 2. MR1 (Di Vita 2001: Vol. V.3 **, Tav: LXIII: c-e), Gortyn.

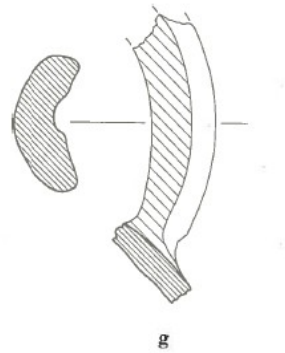


Figure 3.100: Gallic Amphora (Pelichet 47), Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LXIII: g).

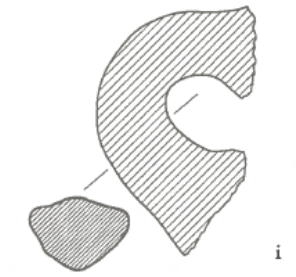


Figure 3.101: Syria-Palestine Amphora (Rhodian), Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LXVI: c-d).

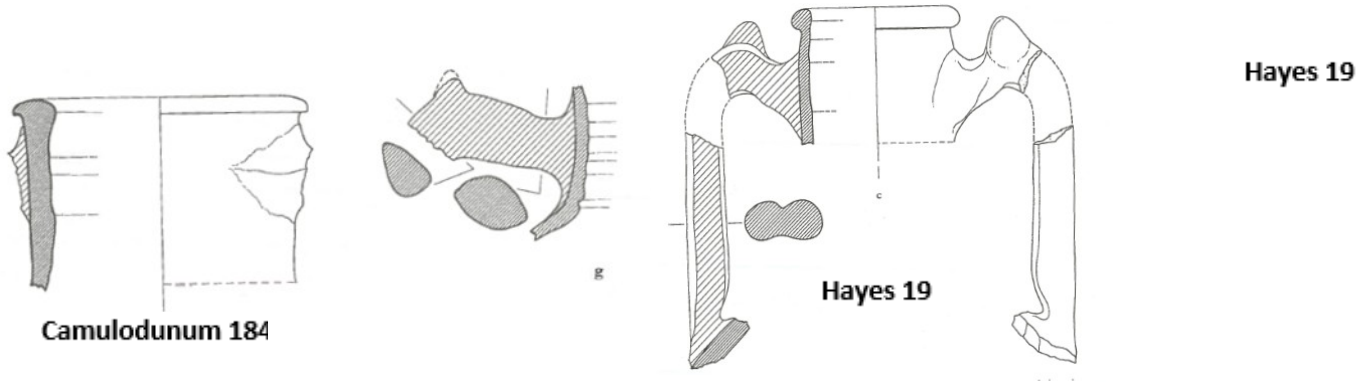


Figure 3.102: Aegean and Portic Amphorae: 1. Camulodunum 184. (Di Vita 2001: Vol. V.3 **, Tav: LXVI: e-g), 2. Hayes 19 (Di Vita 2001: Vol. V.3 **, Tav: LXVIII: c), Gortyn.

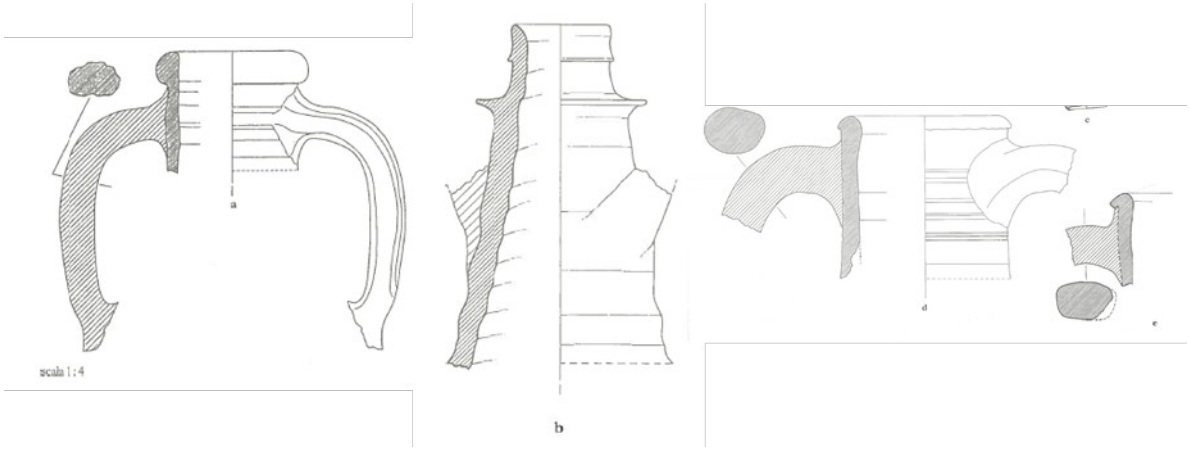


Figure 3.103: Aegean Amphorae: 1. Bottger 1982 (Di Vita 2001: Vol. V.3 **, Tav: LXVII: a), 2. Kapitan II (Di Vita 2001: Vol. V.3 **, Tav: LXVII: b), 3. Hayes 3A (Di Vita 2001: Vol. V.3 **, Tav: LXVII: d-e), Gortyn.



Figure 3.104: African Sigillata C (Flask fragment), Gortyn (Di Vita 2001: Vol. V3* t. I, Fig. 7).

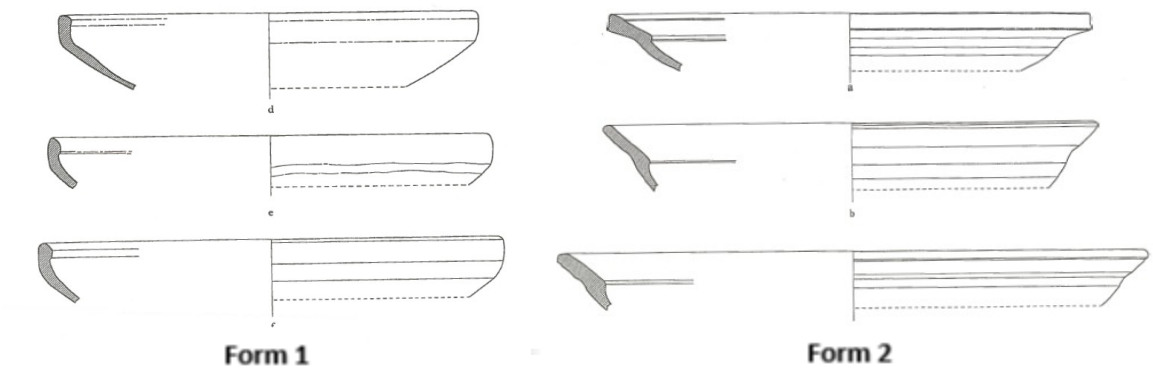


Figure 3.105: Late Roman C: Form 1 (Di Vita 2001: Vol. V.3 **, Tav: VII: d, e, f), Form 2 (Di Vita 2001: Vol. V.3 **, Tav: IX: a, b, c), Gortyn.

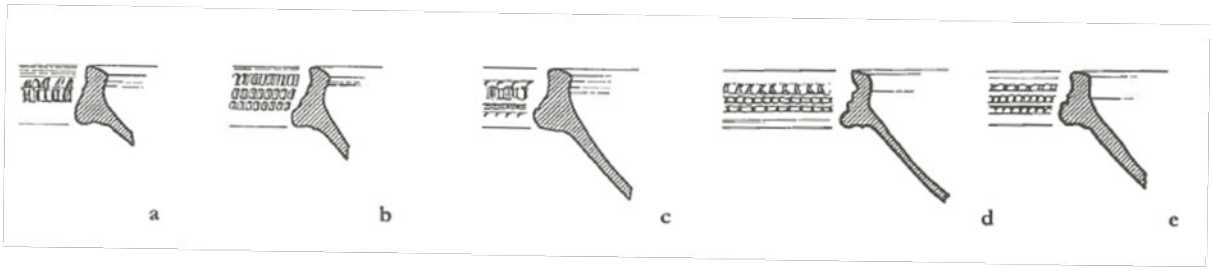


Figure 3.105A: Late Roman C (Form 3), Gortyn (Di Vita 2001: Vol. V.3 **, Tav: XII: a-e).

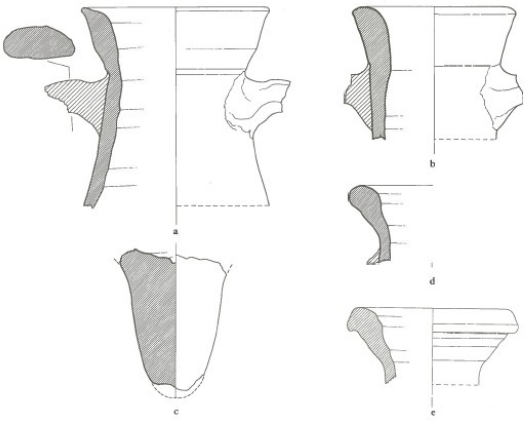


Figure 3.106: African Amphorae (Keay XXV), Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LVII: a-e).

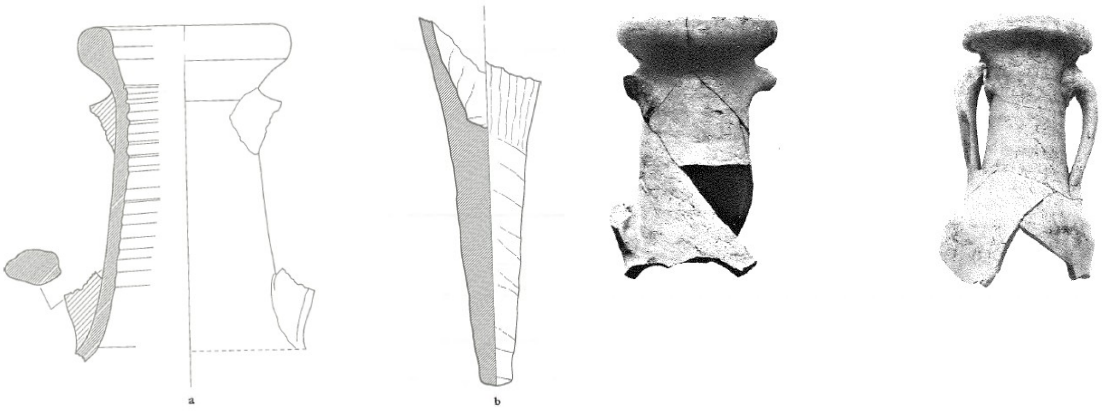


Figure 3.106A: African Amphorae (LR8B/Keay XVVI; spatheion), Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LVIII: a-b).

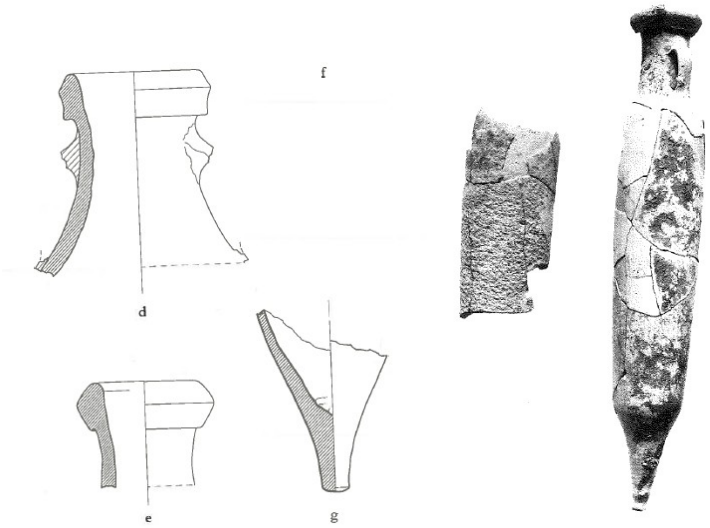


Figure 3.106B: African Amphorae (LR8a/Keay XXVI), Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LVIII: d-g).

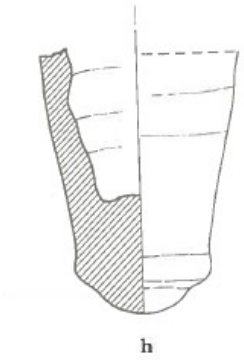


Figure 3.107: Spanish Amphorae: Keay XXII/Almagro 50, Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LXII: h).

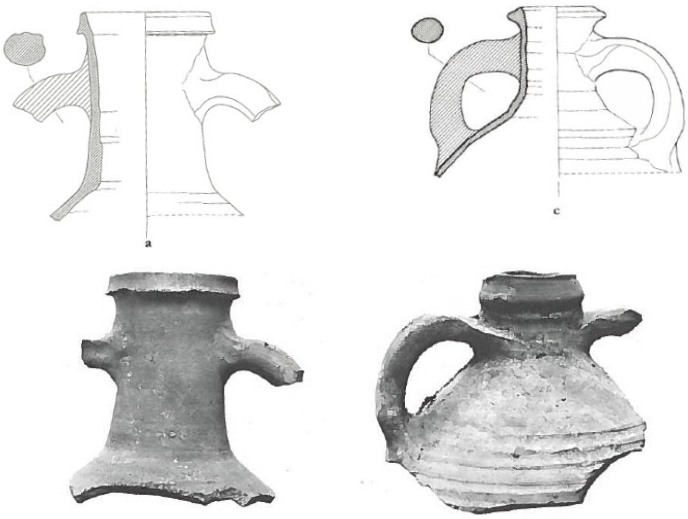


Figure 3.108: Italian Amphorae: Keay LII, Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LXIV, and Fig. 152-153).

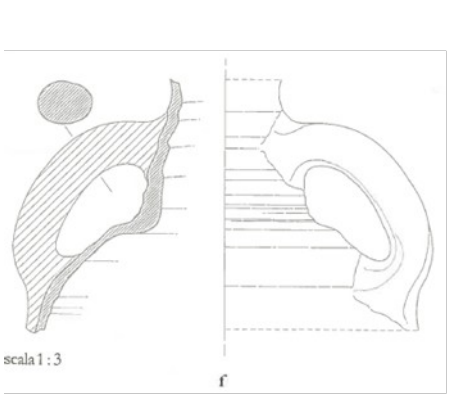




Figure 3.108A: Italian Amphorae: Ostia I, Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LXIII: f, and Fig. 154).



Figure 3.109: Amphorae from Northern Syria-Cilicia-Cyprus (?): type LR1, Gortyn (Di Vita 2001: Vol. V.3 **, Fig. 156-158).

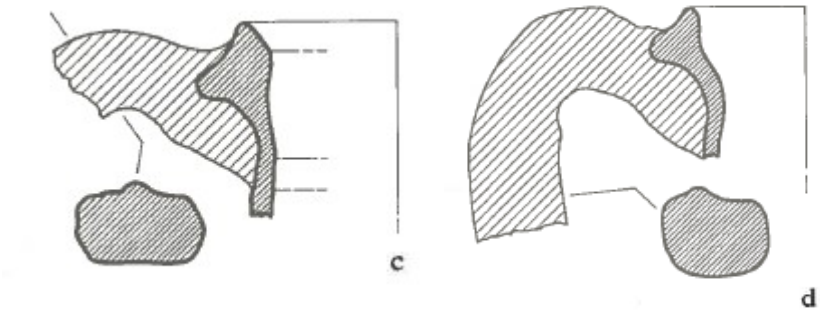


Figure 3.110: Syro-Palestine amphorae: Agora M334, Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LXV: c-d).

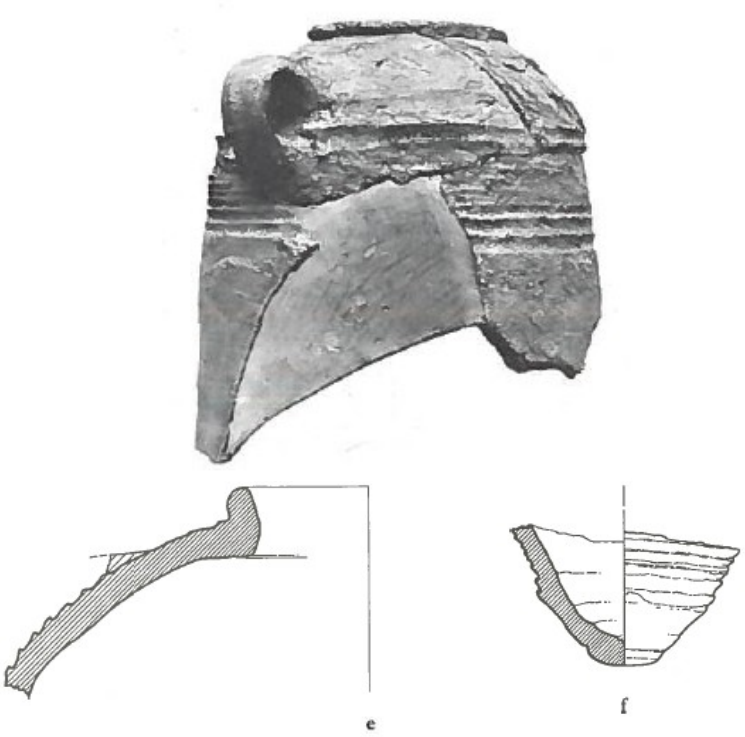


Figure 3.110A: Syro-Palestine amphorae: LR4, Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LXV: e-f, Fig: 155).

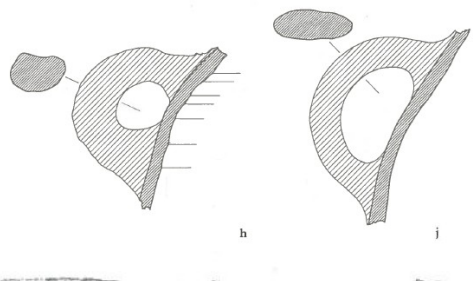




Figure 3.110B: Syro-Palestine Amphorae: LR5/Agora M329-330, Gortyn (Di Vita 2001: Vol. V.3 **, Tav: LXV: g-h, j, and Fig: 161).

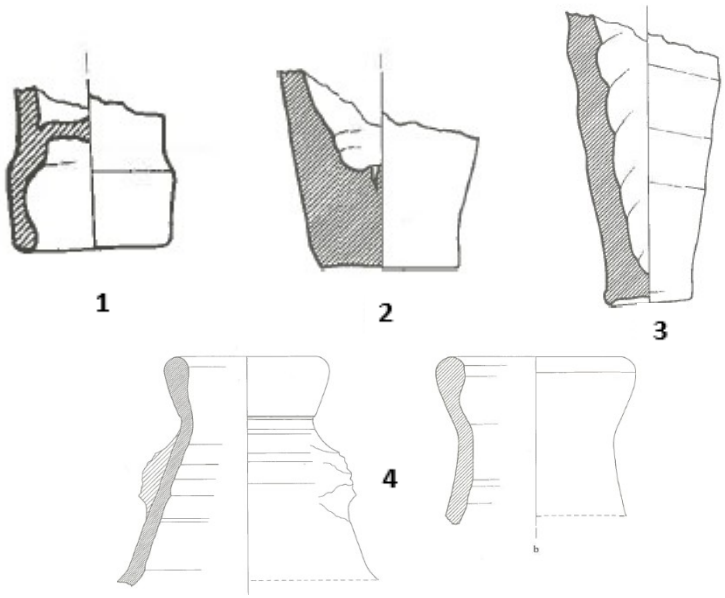


Figure 3.111: Aegean amphorae: 1. Hayes 3B (Di Vita 2001: Vol. V.3 **, Tav: LXVIII: F), 2. Unguentaria (Di Vita 2001: Vol. V.3 **, Tav: LXIX: h), 3. Late Coan (Di Vita 2001: Vol. V.3 **, Tav: LXVII: c), 4. Type LR2 (Di Vita 2001: Vol. V.3 **, Tav: LXXIX:a), Gortyn.

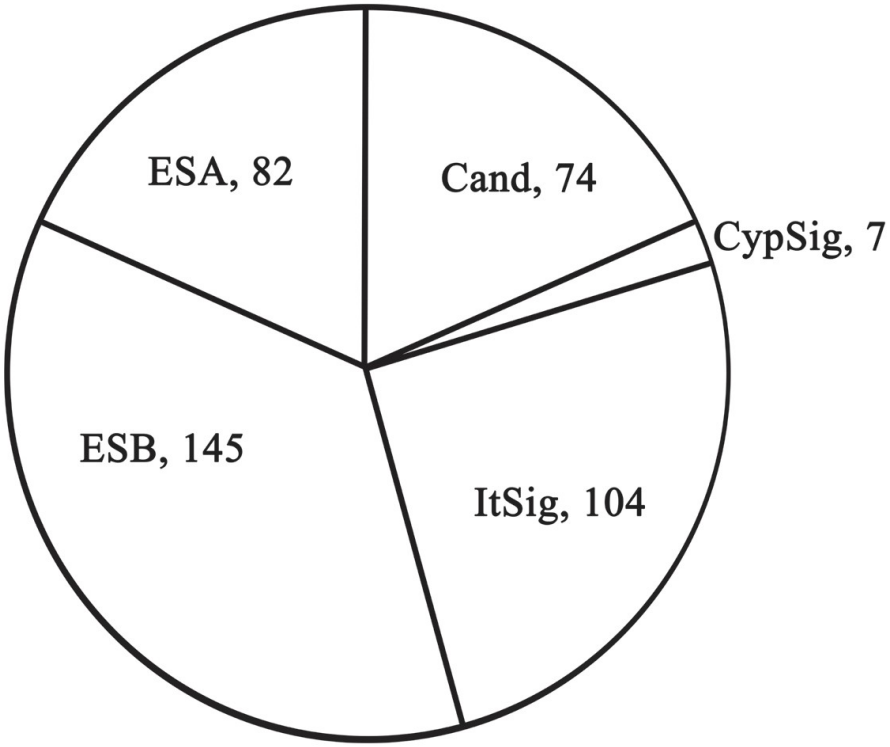


Figure 3.112: Roman Imported Finewares at Gortyn (Gallimore 2015: Fig. 10.2).

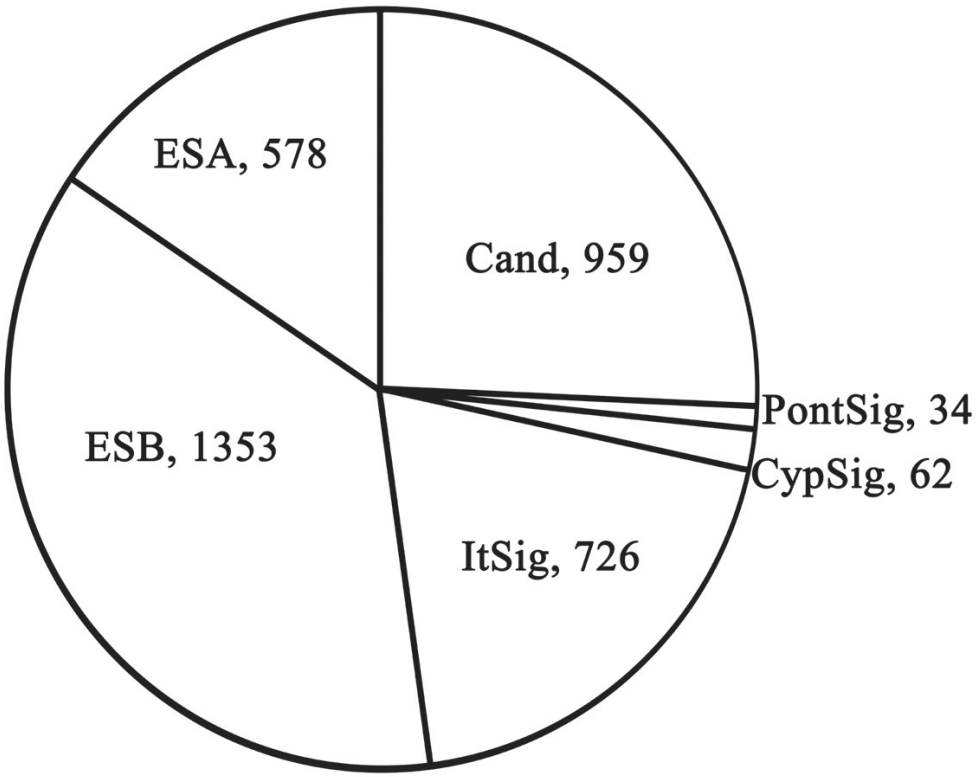


Figure 3.113: Roman imported finewares at Knossos (Gallimore 2015: Fig. 10.3).

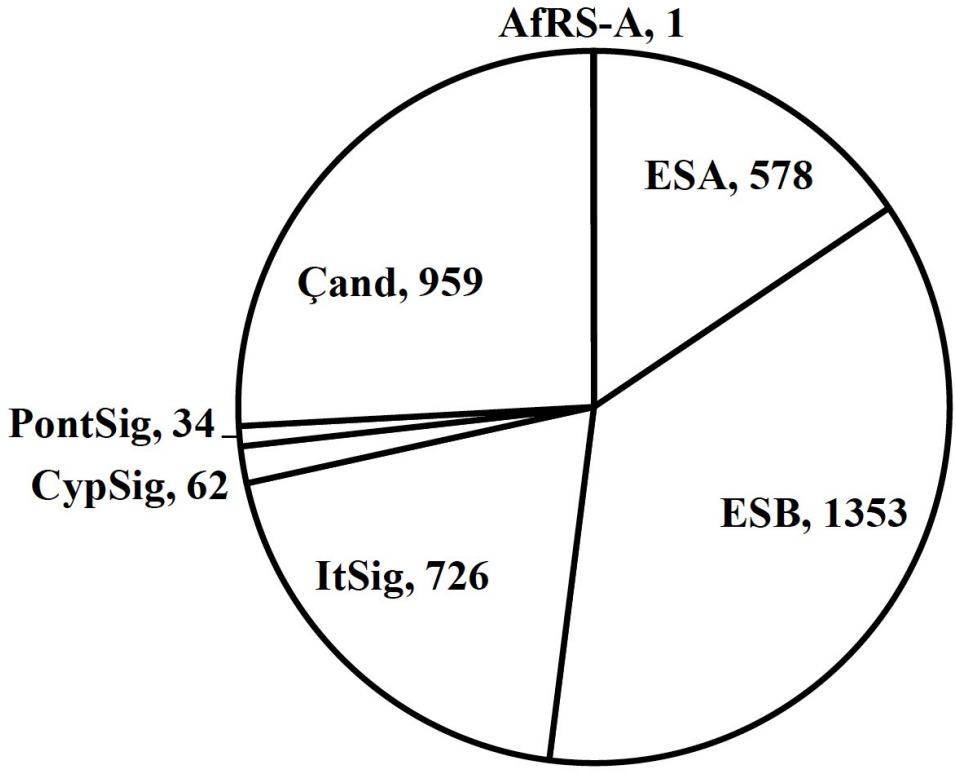


Figure 3.114: Roman imported finewares at Eleutherna (Gallimore 2011: Fig. 6.5).

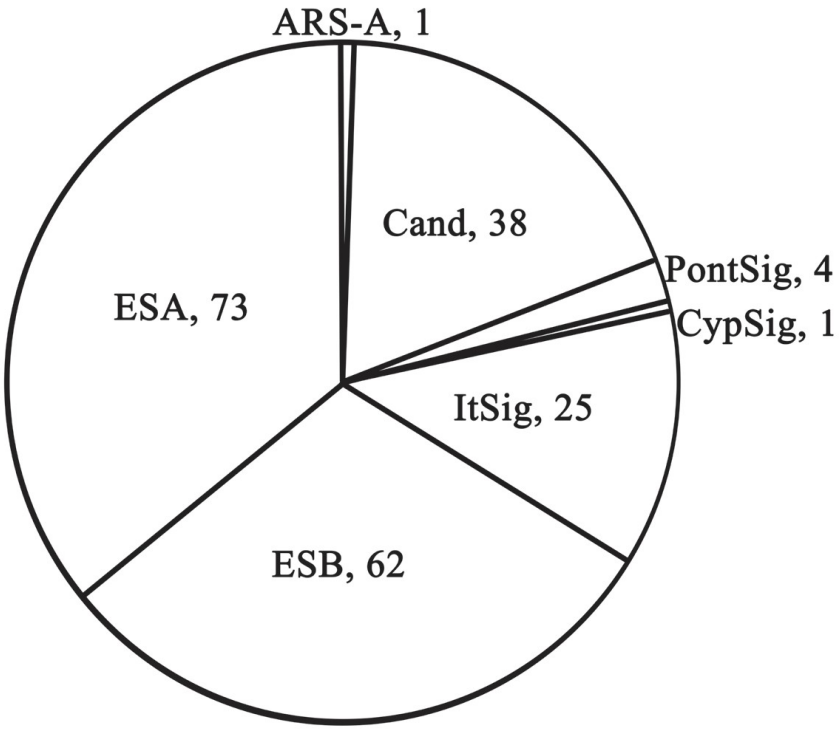


Figure 3.115: Roman Imported Finewares at Hierapytna (Gallimore 2015: Fig. 10.1).

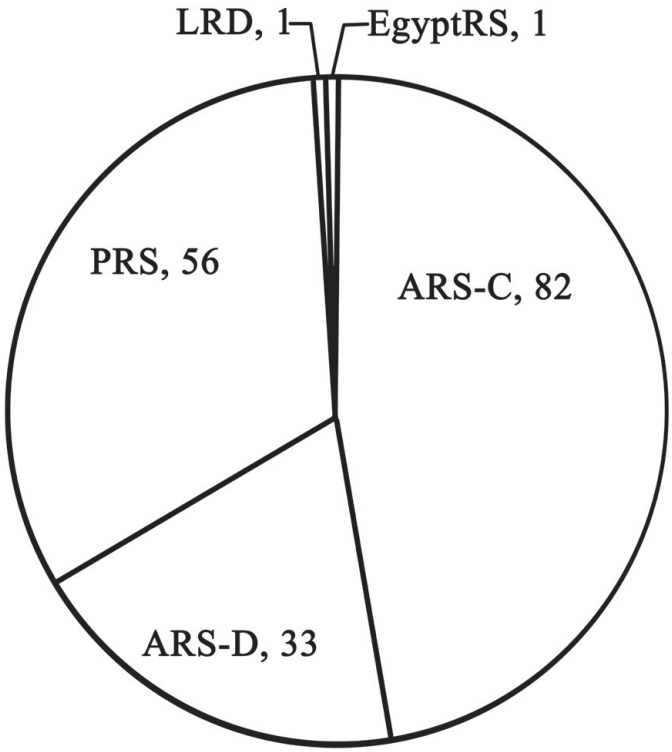


Figure 3.116: Late Roman imported finewares from Hierapytna (Gallimore 2015: 11.1).

Frequency of imported fine wares

Ware	*Date*	*Origin*	*No. of sherds recorded*	*(Berenice)*
Italian sig.	*c.* 1–125 A.D.	Arezzo, Pozzuoli and elsewhere	726(18%)	(1,935)18%
South Gaulish	*c.* 50–100 A.D.	South France	10	(12)
E Sig A	*c.* 75 B.C. – 100 A.D.	Syria	578(15%)	(1,494)14%
E Sig B	*c.* 15–150 A.D.	Tralles?	1,353(34%)	(354)3%
Çandarli	*c.* 74–250 A.D.	Çandarli	959(24%)	(257)2%
Cypriot sig.	*c.* 50 B.C. – 150 A.D.	Cyprus	62(2%)	(44)
Pontic sig.	*c.* 50–100 A.D.	Black Sea	34(1%)	(133)1%
Knidian relief ware	*c.* 1–200 A.D.	Knidos	5	(31)
Other Knidian		Knidos	21	
N. African RS	*c.* 80–400 A.D.	Tunisia	218(5%)	(6,186)56%
Late Roman C		Phocaean?	3	(557)5%
TOTAL			3, 969	(11,003)

Figure 3.117: Imported Finewares in Knossos, unexplored Mansion (Sackett and Branigan 1992: 164).

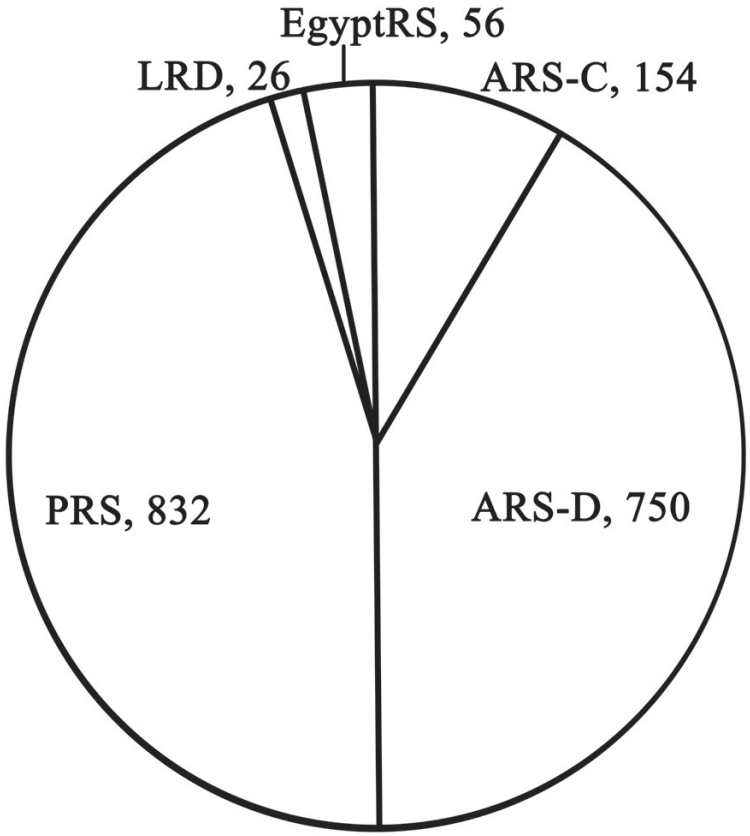


Figure 3.118: Late Roman imported finewares from Gortyn (Gallimore 2015: 11.3).

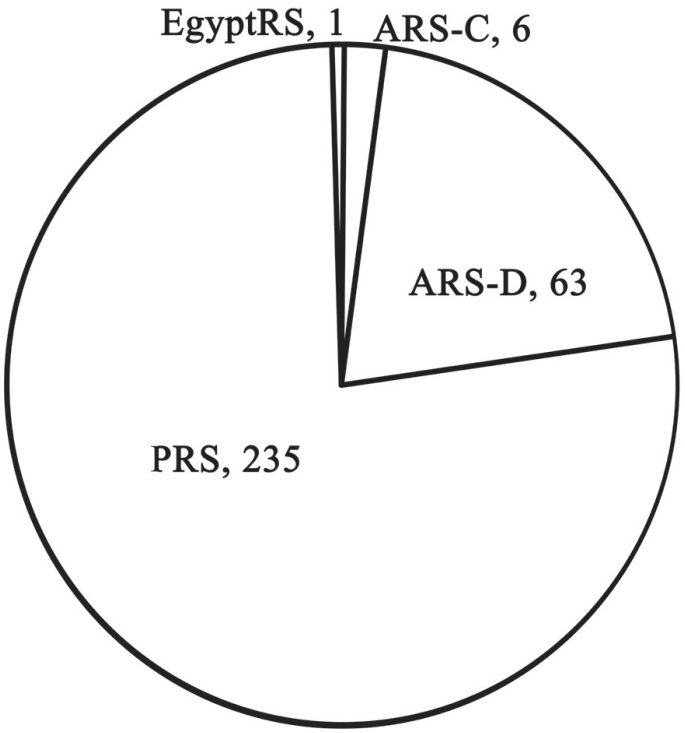


Figure 3.119: Late Roman imported finewares from Eleutherna (Gallimore 2015: 11.2).

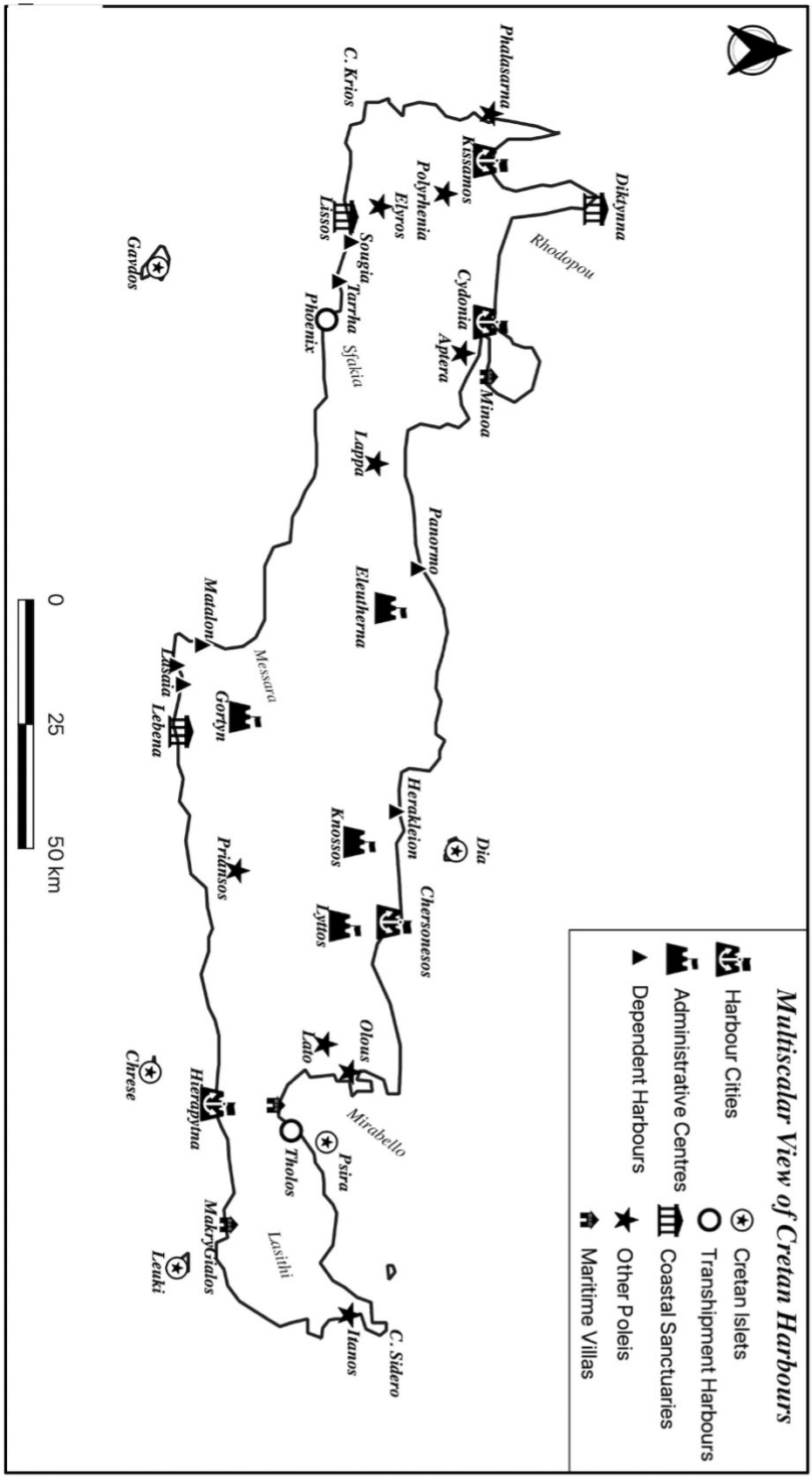


Figure 4.1: A Multiscalal view of Cretan harbours (Source: ArcGIS, produce by D. Karampas).



Figure 4.2: The decumanus maximus in Kissamos (Markoulaki et al. 2004: fig.5).



Figure 4.3: The island of Crete in Tabula Peutingeriana (Pazarli et al. 2007: Fig.9).

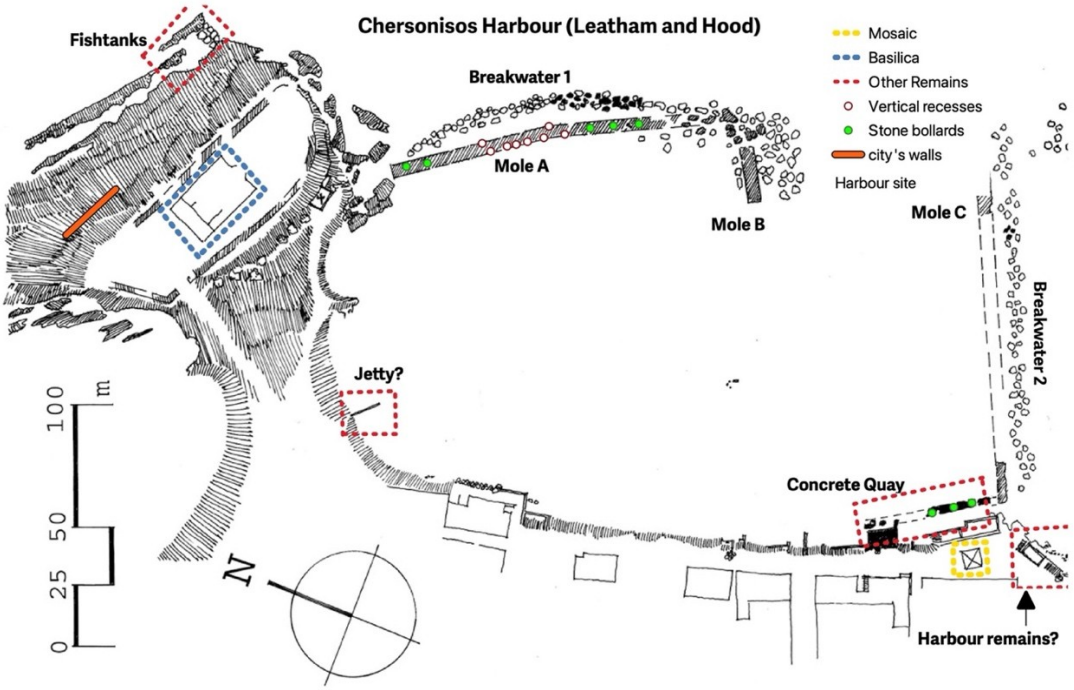


Figure 4.4: The Chersonesos harbour plan (drawings additions to the Leatham and Hood plan, 1958).



Figure 4.5: The ancient theatre in Chersonesos (Source: D. Karampas).

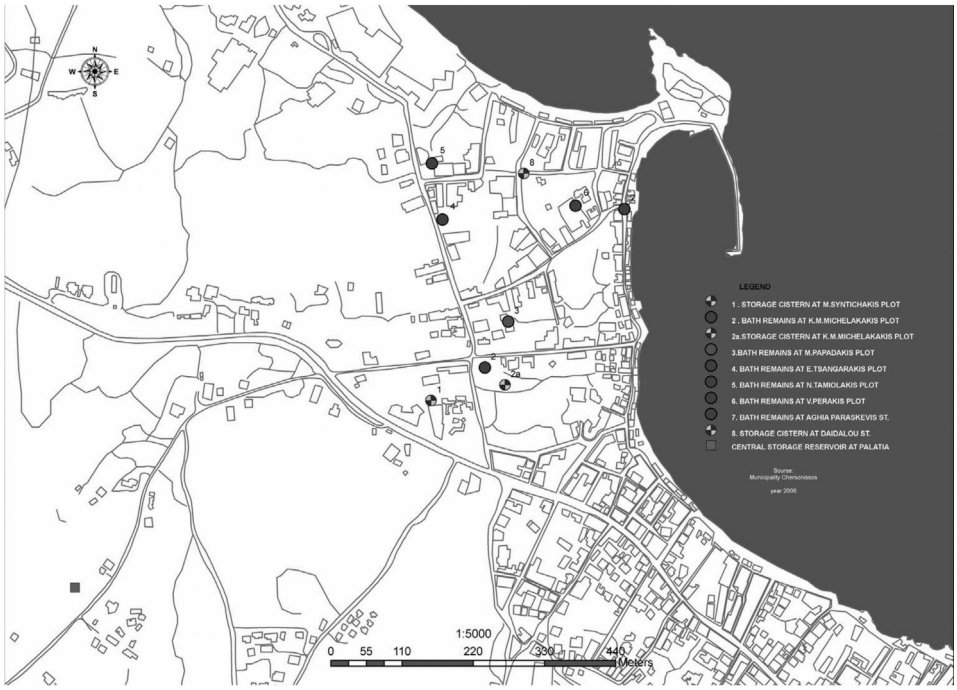


Figure 4.6: Excavated remains of Roman baths and water-supply features, Chersonesos (Grigoropoulos et al.: Fig.2).



Figure 4.7: The aqueduct at Lyttos (Source: D. Karampas).



Figure 4.8: The Ayia Paraskevi plot mosaic, Chersonesos (Papadaki, Galanaki 2012: Fig.1).



Figure 4.9: The concrete quay at the southern part of Chersonesos' harbour (Source: D. Karampas).



Figure 4.10: Stone Bollards for mooring in the concrete quay of Chersonesos (Source: D. Karampas).



Figure 4.11: Drone footage of Mole C (Source: D. Karampas).

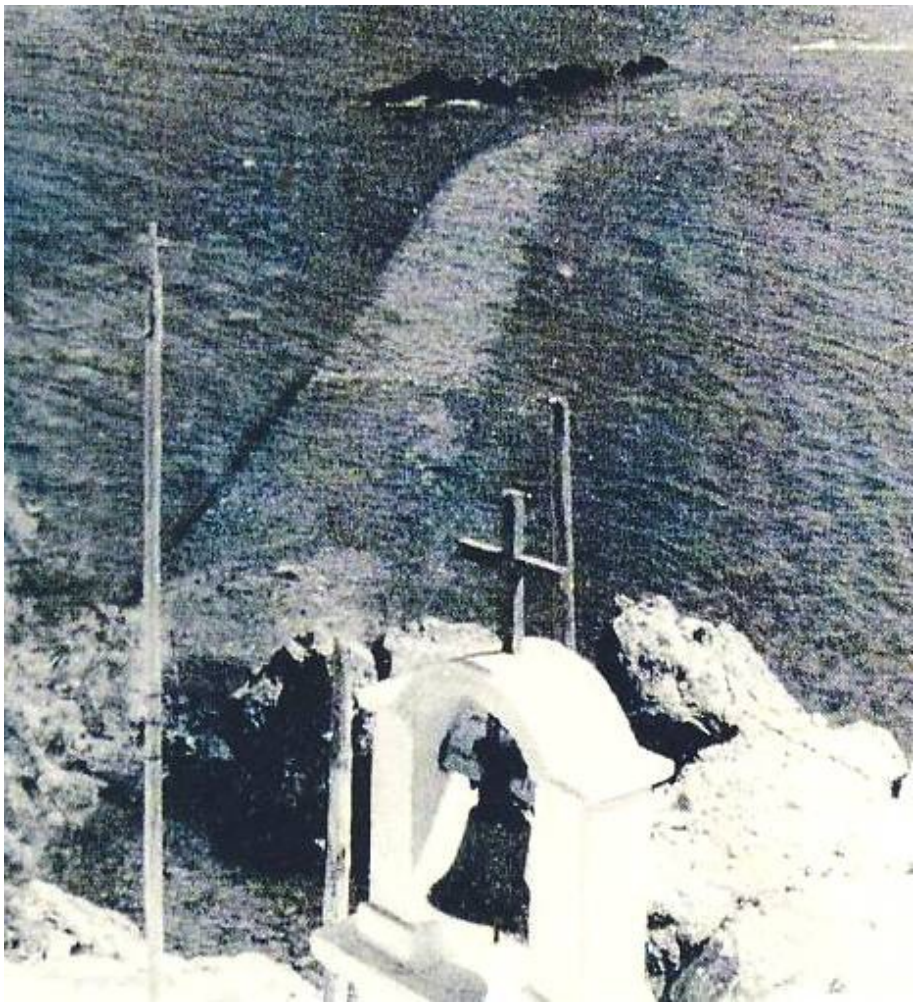


Figure 4.12: Mole A and B before the construction of the modern harbour, Chersonesos (Source: https://perastekosme.blogspot.com/2010/07/blog-post_18.html).

Figure 4.13: Topographic plan of Kissamos (Markoulaki et al. 2004, see Tavv. III, IV).



Figure 4.14: Drone footage of Mavros Molos, Kissamos (Source: D. Karampas).

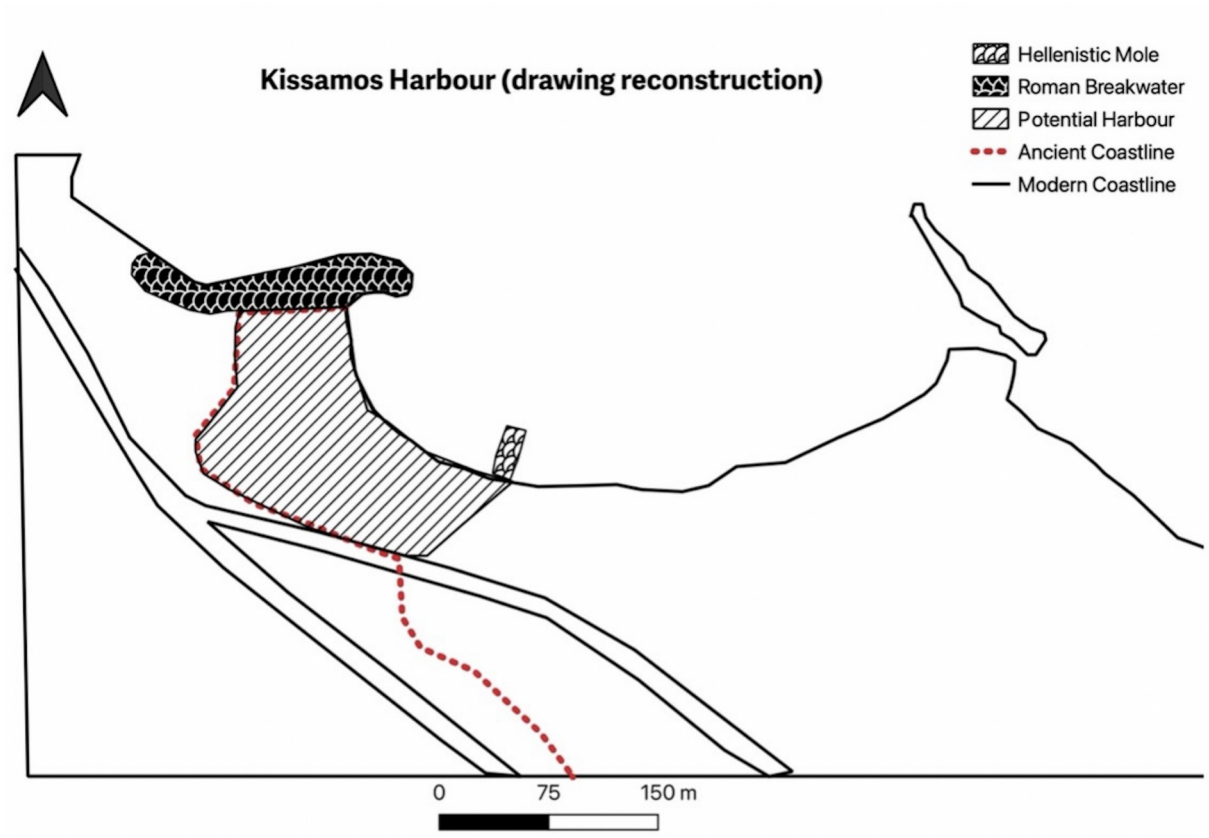


Figure 4.15: Drawing reconstruction of Kissamos Harbour (Source: QGIS, produce by D. Karampas).



Figure 4.16: Bath remains in Kissamos (Paterakis 2020: fig. 4).

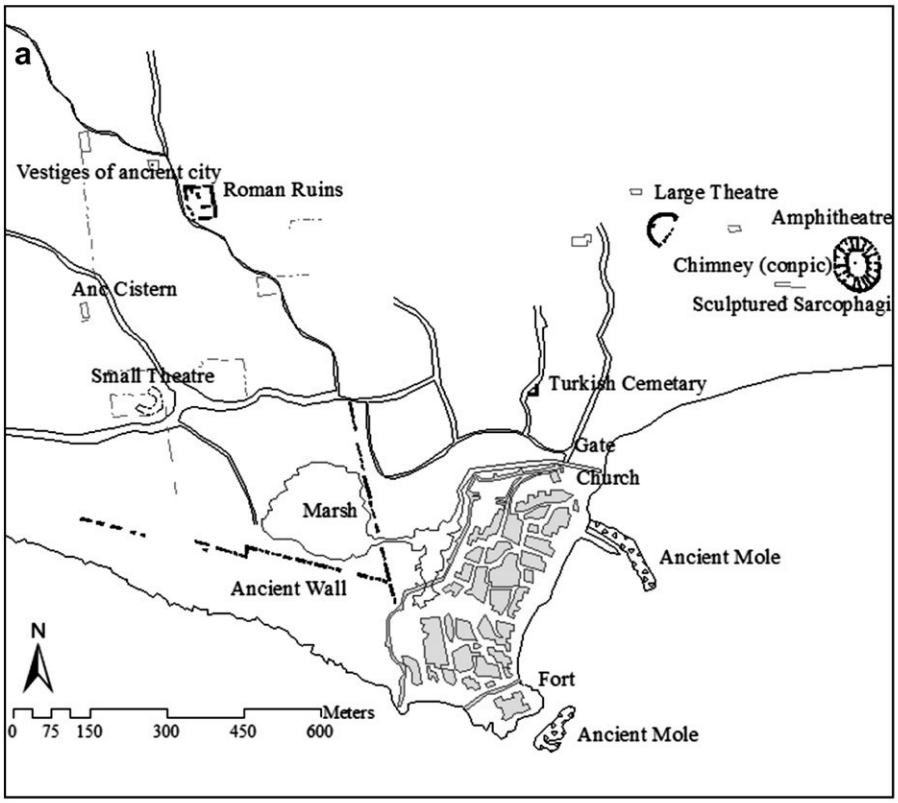




Figure 4.17, 4.17a: 1. Reproduction of Spratt's map (Papadopoulos et al. 2012: Fig. 2a). 2. Satellite image of the modern city of Hierapetra where the locations of the smaller (at west) and the larger (at north) theatre and the amphitheatre (at east) can be seen, based on the map of Spratt (Papadopoulos et al. 2012: Fig. 2b).

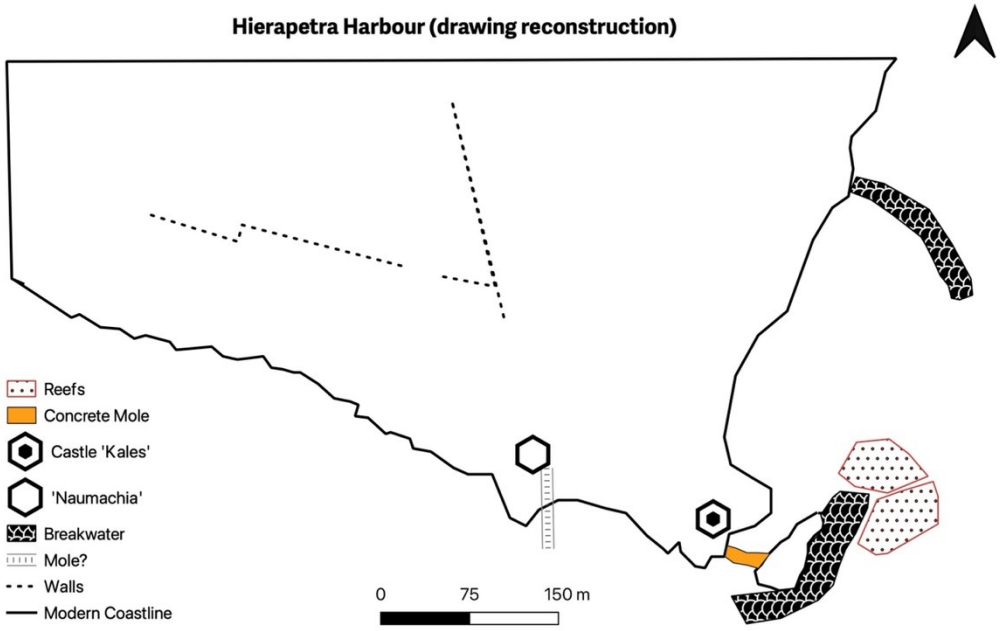


Figure 4.18: Drawing Reconstruction of Hierapytna Harbour (Source: QGIS, produce by D. Karampas).



Figure 4.19: The eastern breakwater, Hierapytna (Source: D. Karampas).



Figure 4.20: The theatre in Hierapytna (Sofianou 2020: fig. 2).

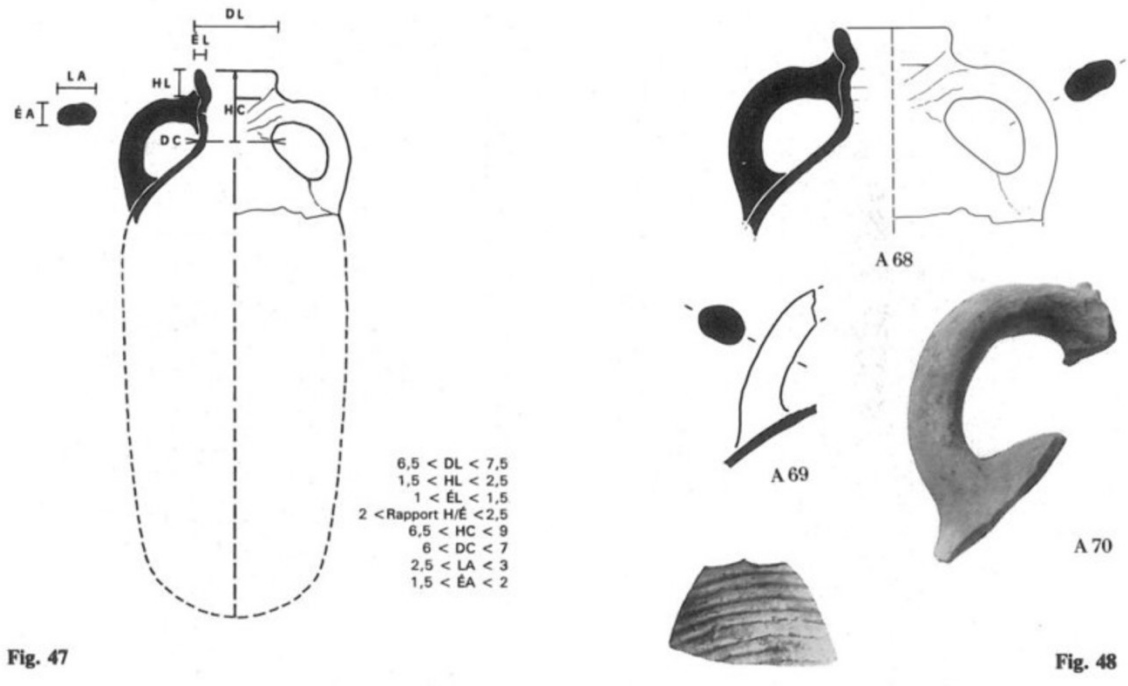


Figure 4.21: Cretan Amphora (AC1) from Chersonesos (Marangou 1996: Figs. 47-48).



Figure 4.22: Workshop in Pyrgos Hill, Kissamos (Paterakis 2004: Fig. 1).



Figure 4.23: Drone footage of Chersonesos harbour (Source: D. Karampas).



Figure 4.24: Drone footage of Matalalon Bay (Source: D. Karampas).



Figure 4.25: Curved Storages at the south part of Matalon (Source: D. Karampas).

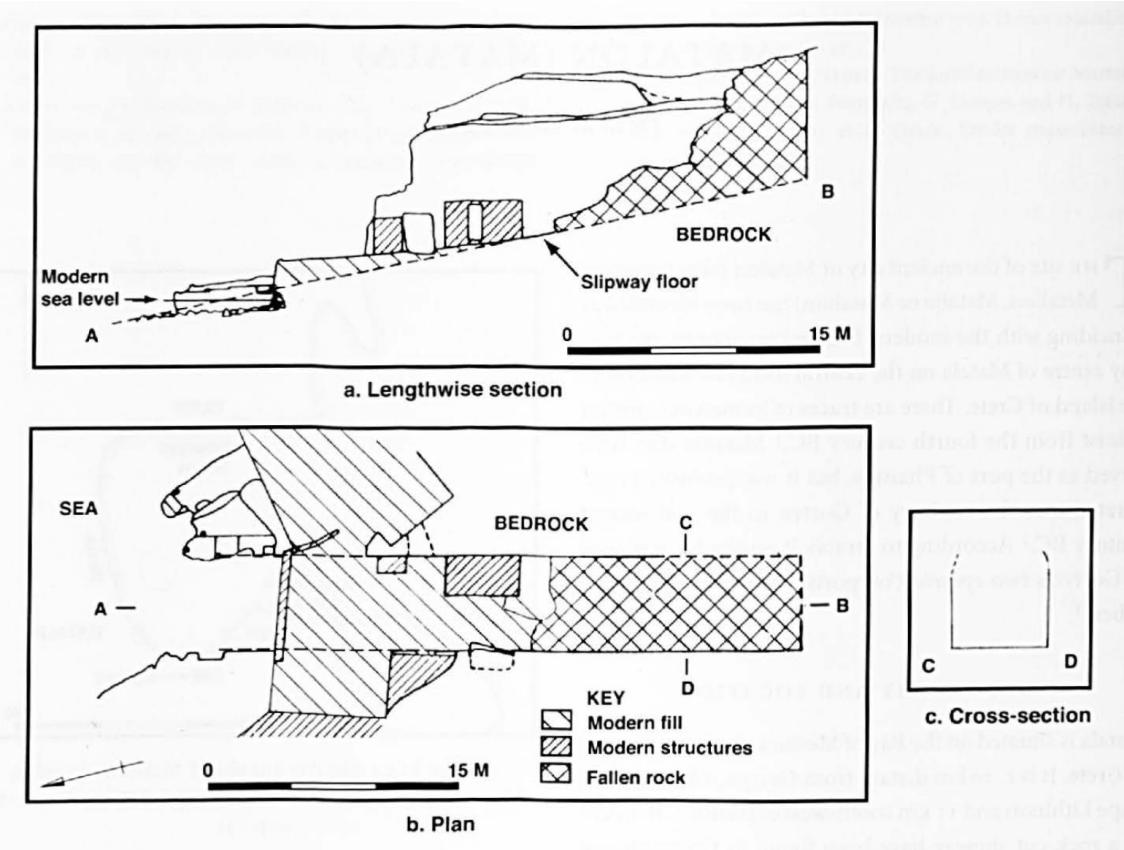


Figure 4.26: The Matalon Slipway (Blackman and Rankov 2013: Fig. 13.2).



Figure 4.27: Roman tombs at the North part of Matalon Bay (Source: D. Karampas).



Figure 4.28: Fishtanks at the south part of Matalon (Source: D. Karampas).



Figure 4.29: The breakwater and Traphos islet, Lasaia (Source: D. Karampas).



Figure 4.30: The channel between the breakwater and the Traphos islet, Lasaia (Source: D. Karampas).

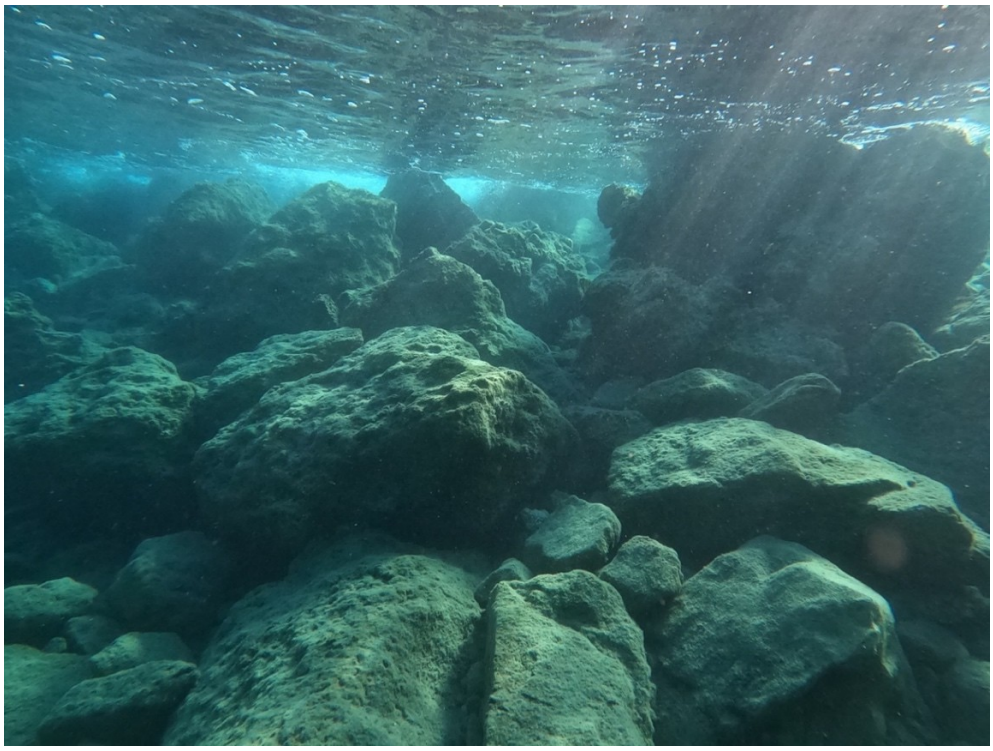


Figure 4.31: Underwater view of the Roman breakwater, Lasaia (Source: D. Karampas).



Figure 4.32: Storages by the coast (Source: D. Karampas).



Figure 4.33: Storage remains by the coast (Source: D. Karampas).

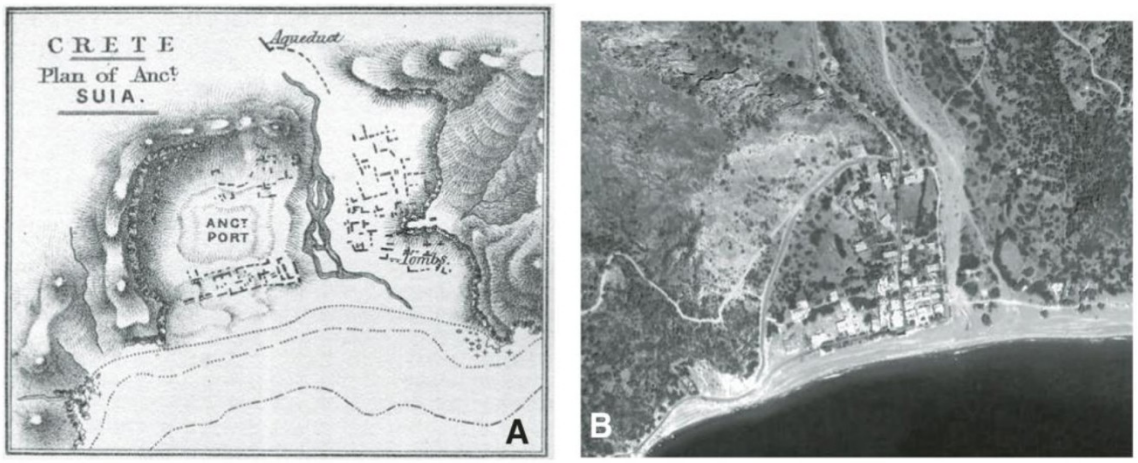


Figure 15. (A) Map of Syia from Spratt (1865). (B) Aerial view of modern Sougia.

Figure 4.34: Kamarianos river divided the Ancient Syia (Spratt 1865: Fig. 15).



Figure 4.35: Part of the aqueduct (Sougia) at the western part of the river (Source: D. Karampas).



Figure 4.36: Detail from the aqueduct at Sougia? (Source: D. Karampas).



Figure 4.37: The aqueduct of Elyros running down to Sougia (Source: D. Karampas).

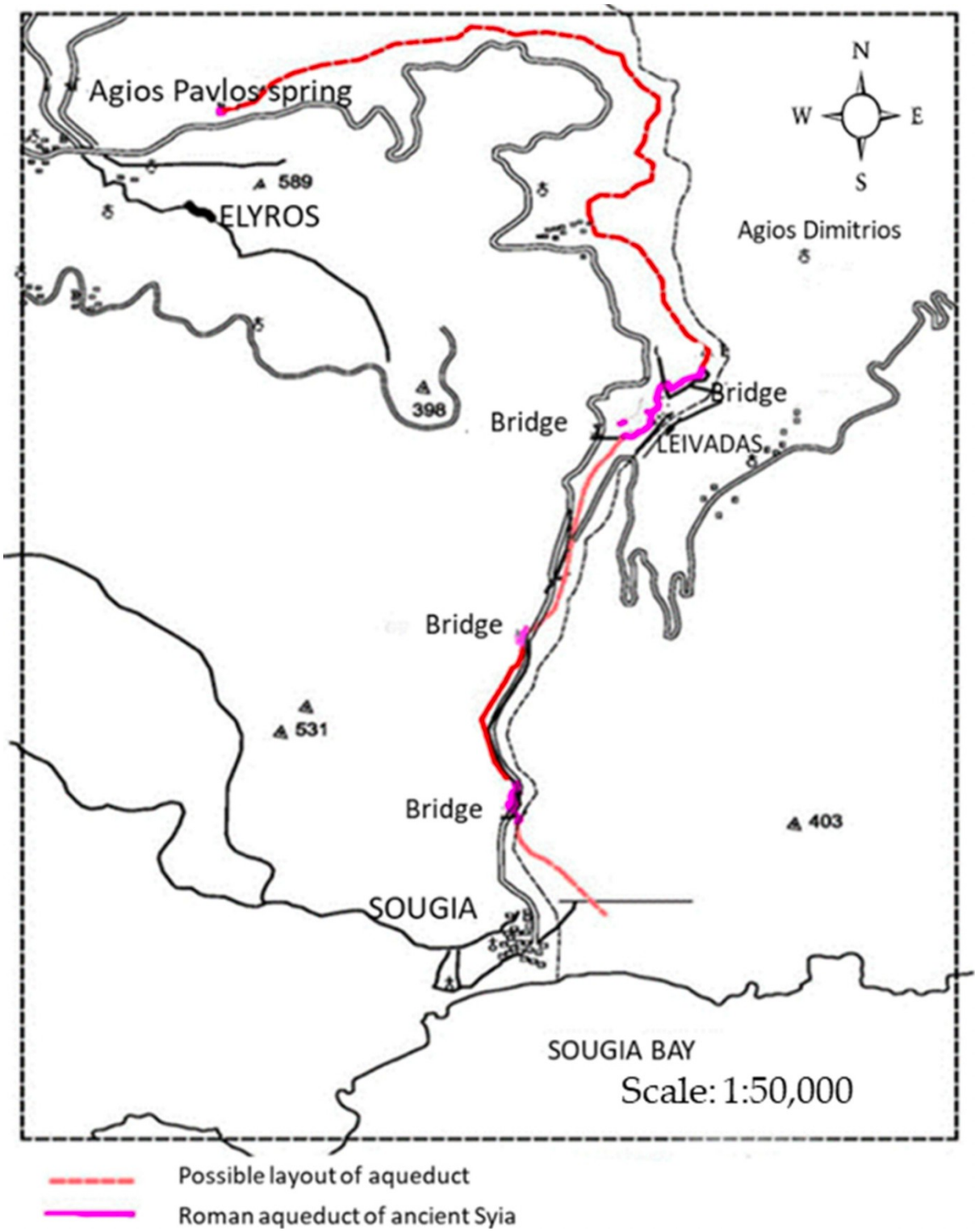


Figure 4.38: The itinerary of the Elyros aqueduct (Angelakis et al. 2021: Fig. 10a).

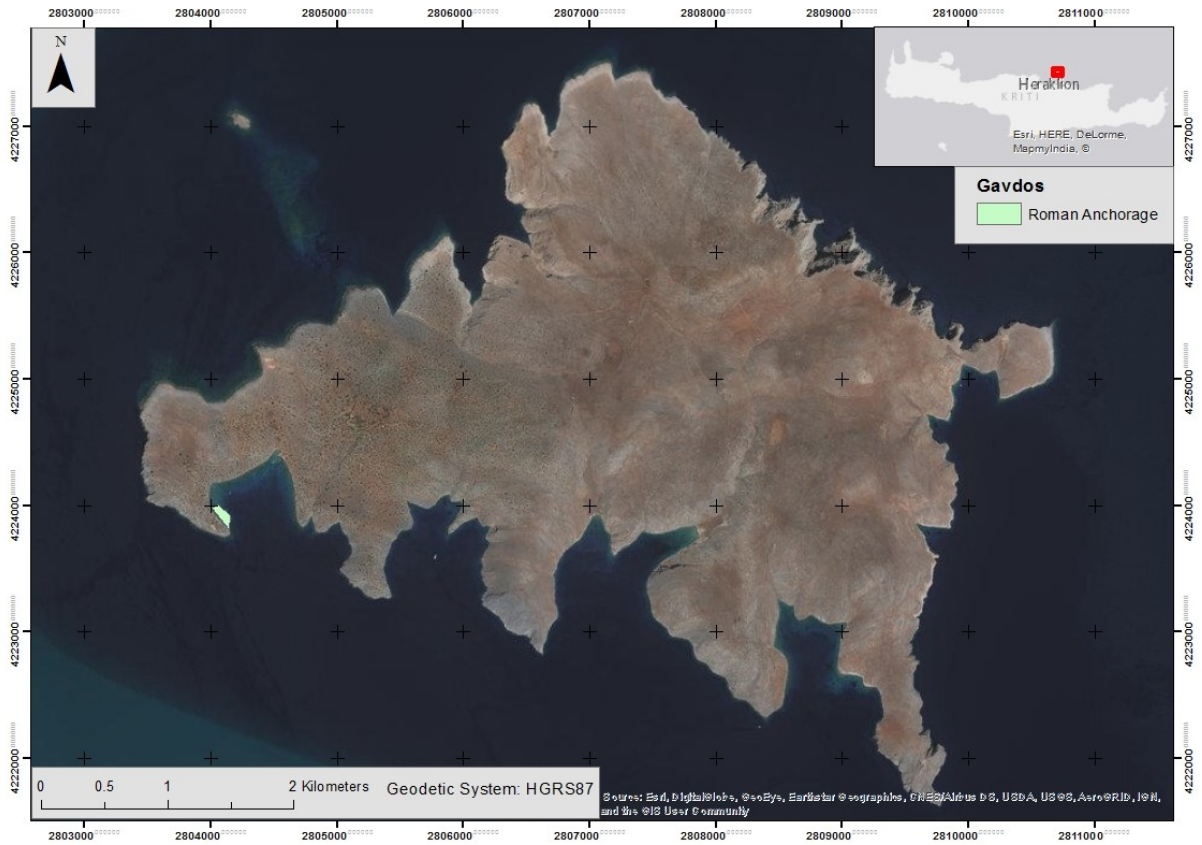


Figure 4.39: The islet of Dia (Source: ArcGIS, produce by D. Karampas).



Figure 4.40: The Ayios Georgios Gulf and the wooden jetty used from boats, Dia (Source: D. Karampas).



Figure 4.41: Scattered pottery during the underwater survey, Dia (Source: D. Karampas).



Figure 4.42: Drone footage from Ayios Georgios, the submerged watefront is visible at the southwest corner of the bay (Theodoulou 2022: 42).

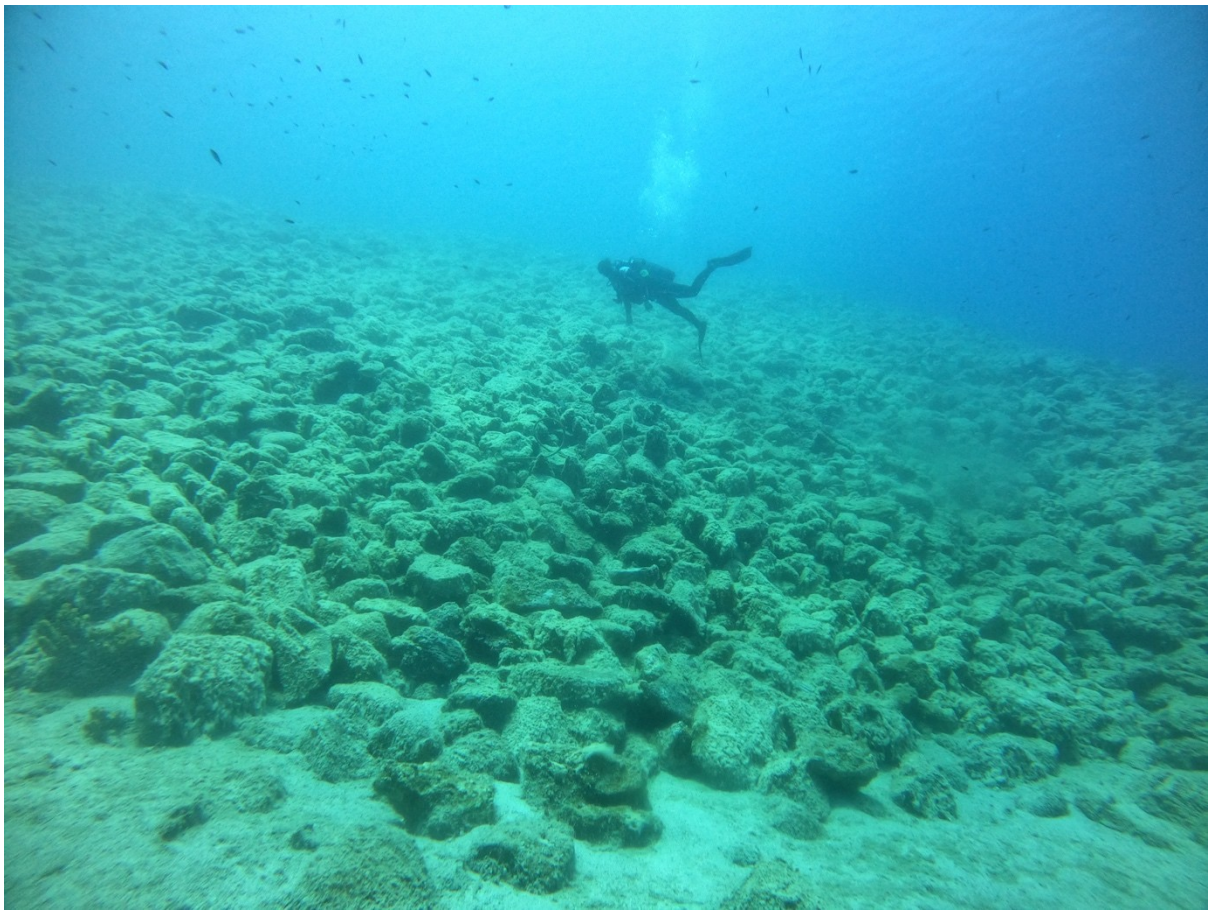


Figure 4.43: The submerged waterfront at Dia (Source: D. Karampas).



Figure 4.44: Slipway by the waterfront?, Dia (Source: D. Karampas).



Figure 4.45: Drone footage of Northwest Leuke. Marmaro islet is also visible (Source: D. Karampas).

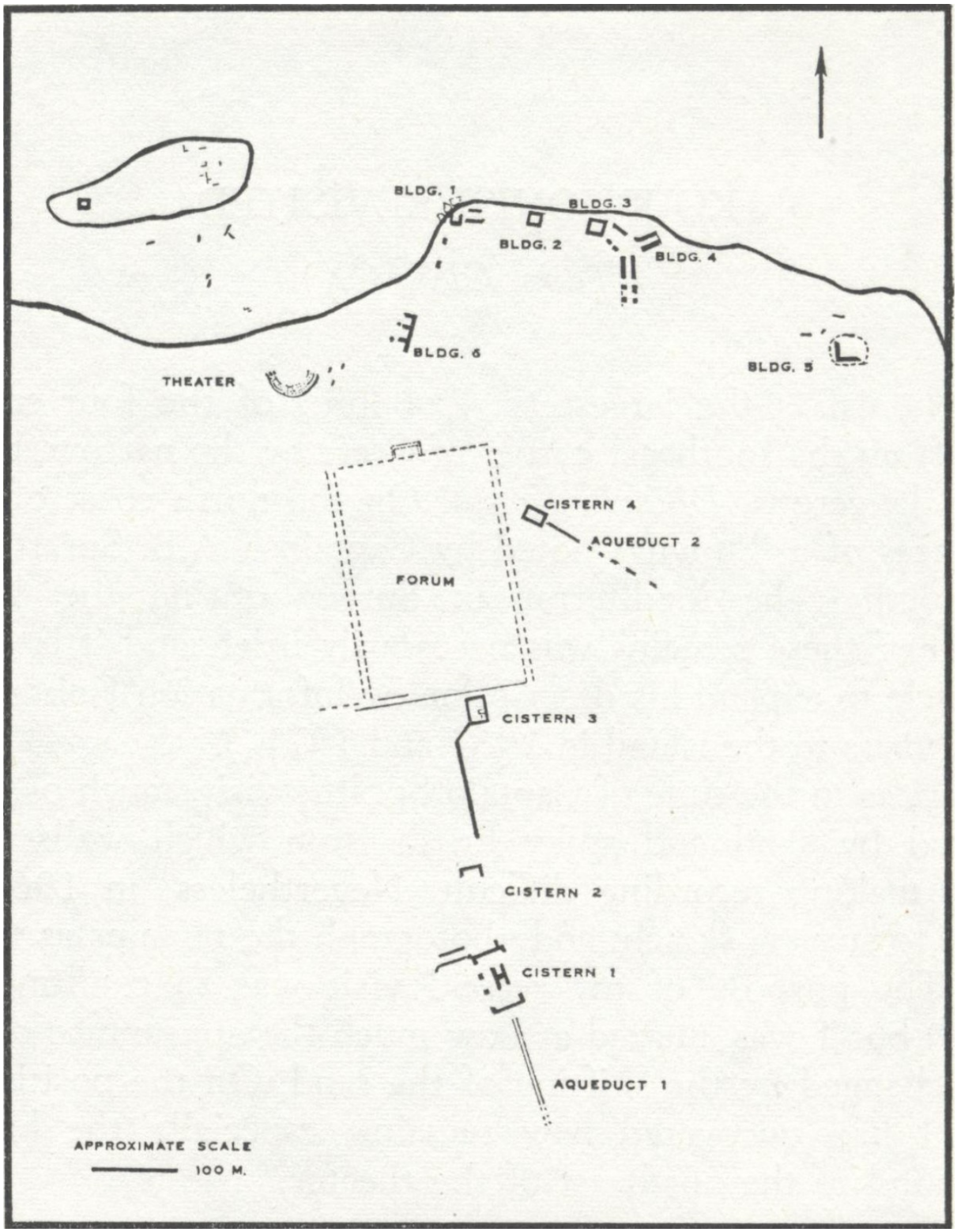


Figure 4.46: The Antiquities of Leuke (Leonard 1972: Fig. 1).



Figure 4.47: Plan of Leuke, including the water system tracks (Coutsinas et al. 2016: Fig.4).



Figure 4.48: The channel running the water system in Leuke.



Figure 4.49: The theatre and other remains in Leuke (Source: D. Karampas).

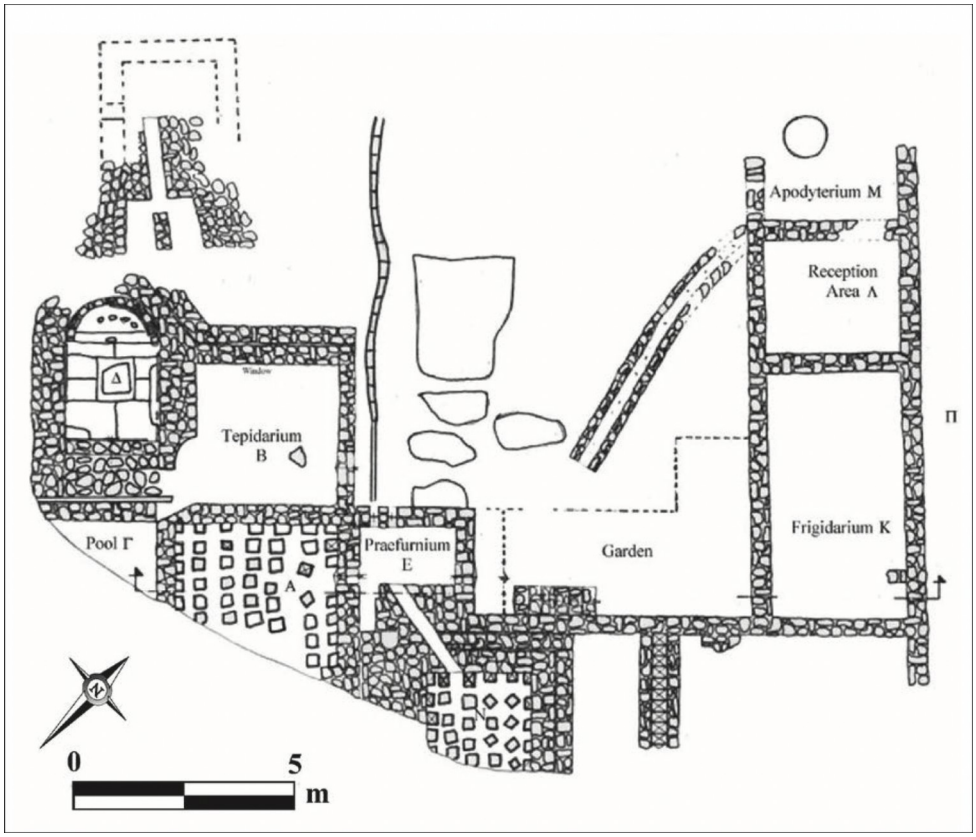


Figure 4.50: Plan of the bathhouse in Leuke (Coutsinas et al 2016: Fig.6).



Figure 4.51: View of bathhouse from the sea, Leuke. The erosion is visible at the left of the building while several parts of the construction lying underwater (Source: D. Karampas).



Figure 4.52: Bathhouse remains by the shoreline, Leuke (Source: D. Karampas).



Figure 4.53: Bathhouse remains lying underwater, Leuke (Source: D. Karampas).



Figure 4.54: The channel between Mochlos and Crete (Source: D. Karampas).



Figure 4.55: The wall remains upon Marmaro islet (Source: D. Karampas).

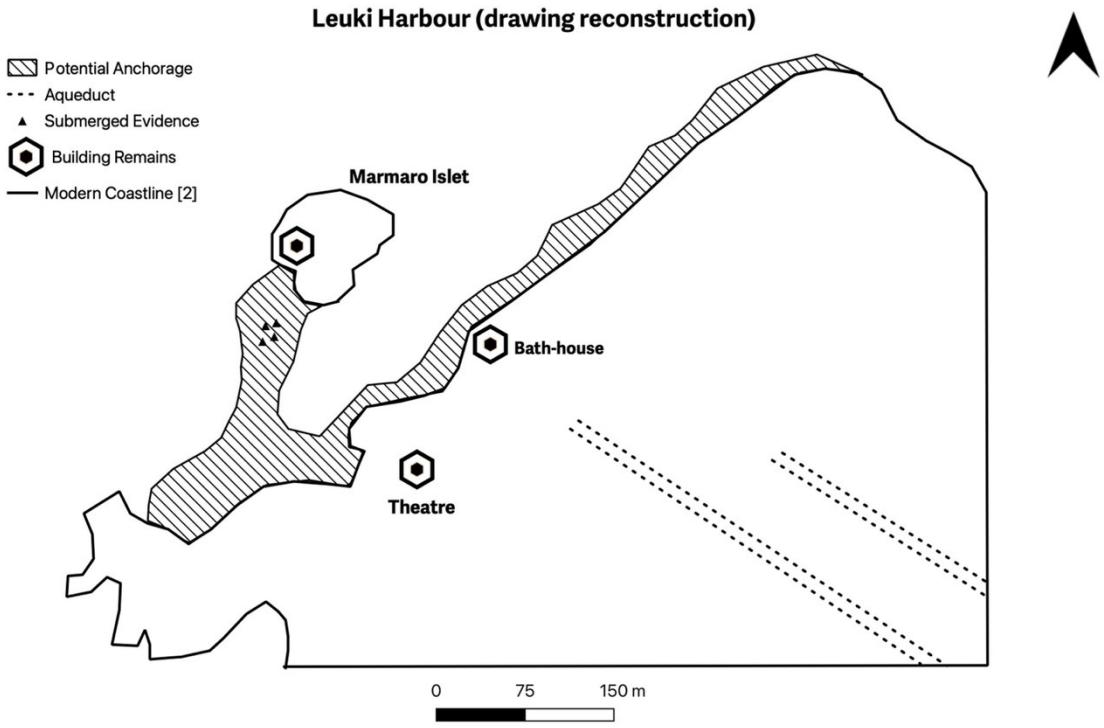


Figure 4.56: Drawing reconstruction of Leuke Harbour (Source: QGIS, produce by D. Karampas).



Figure 4.57: Porfyra shells lying all over the archaeological site at Leuke (Source: D. Karampas).

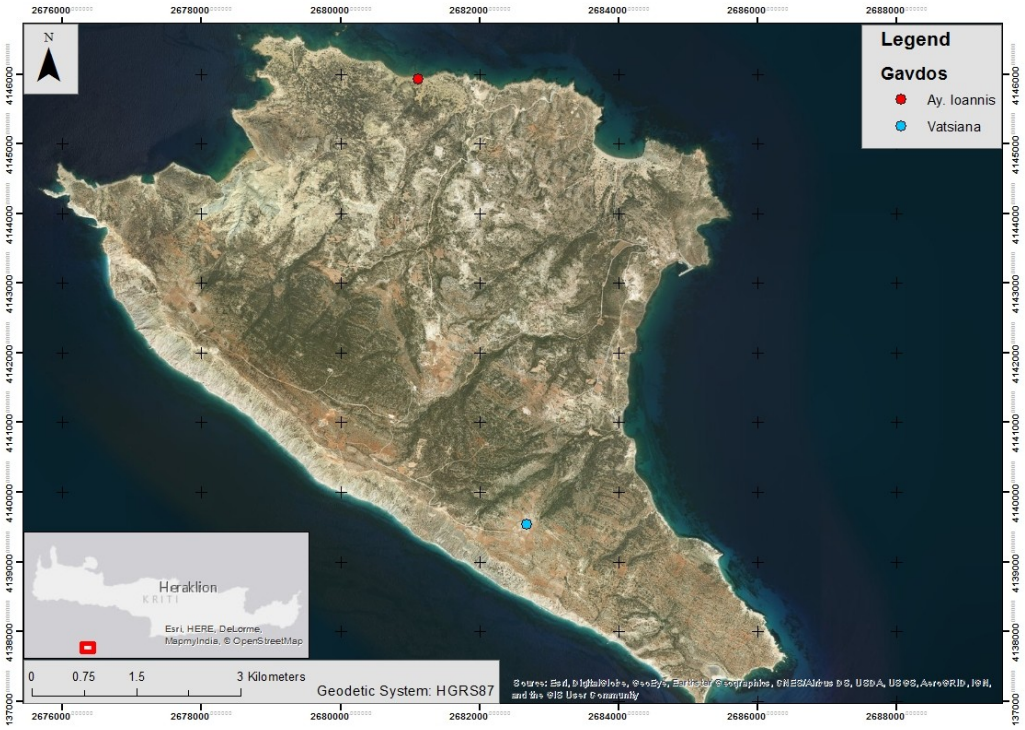


Figure 4.58: The islet of Kaudos, modern Gavdos (Source: D. Karampas).



Figure 4.59: Olive press attested in Kaudos (Tegou 2018: 24).

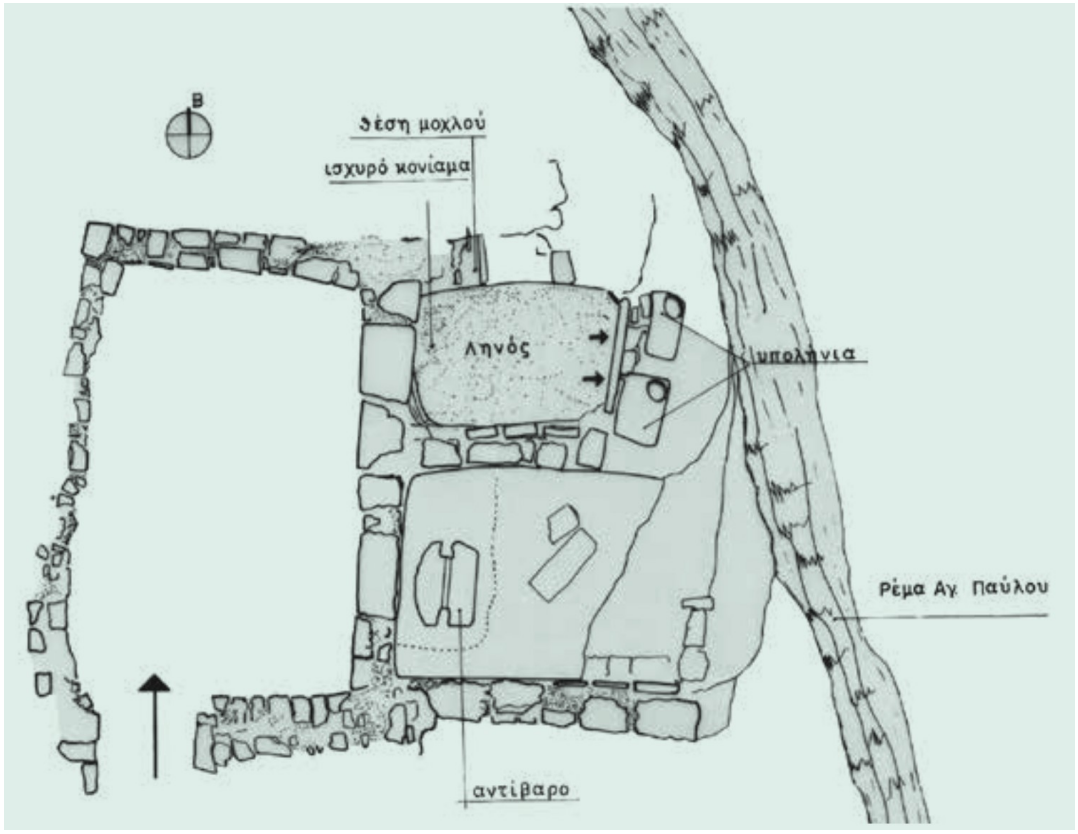


Figure 4.60: Winemaking installation of Roman times in Kaudos, region of Ayios Pavlos (Tegou 2018: 23).



Figure 4.61: Part of the Aqueduct covered with hydraulic mortar, Kaudos (Tegou 2018: 27).

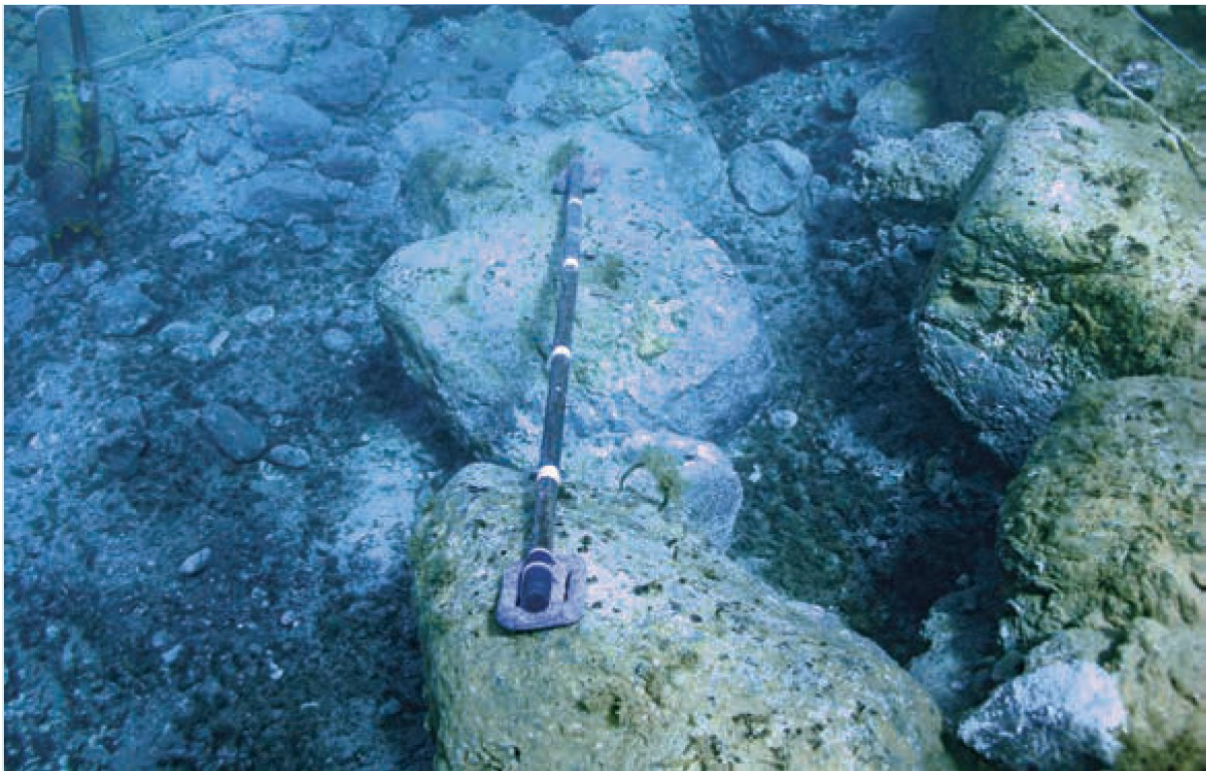


Figure 4.62: Part of the submerged waterfront in Kaudos (Tegou 2018).

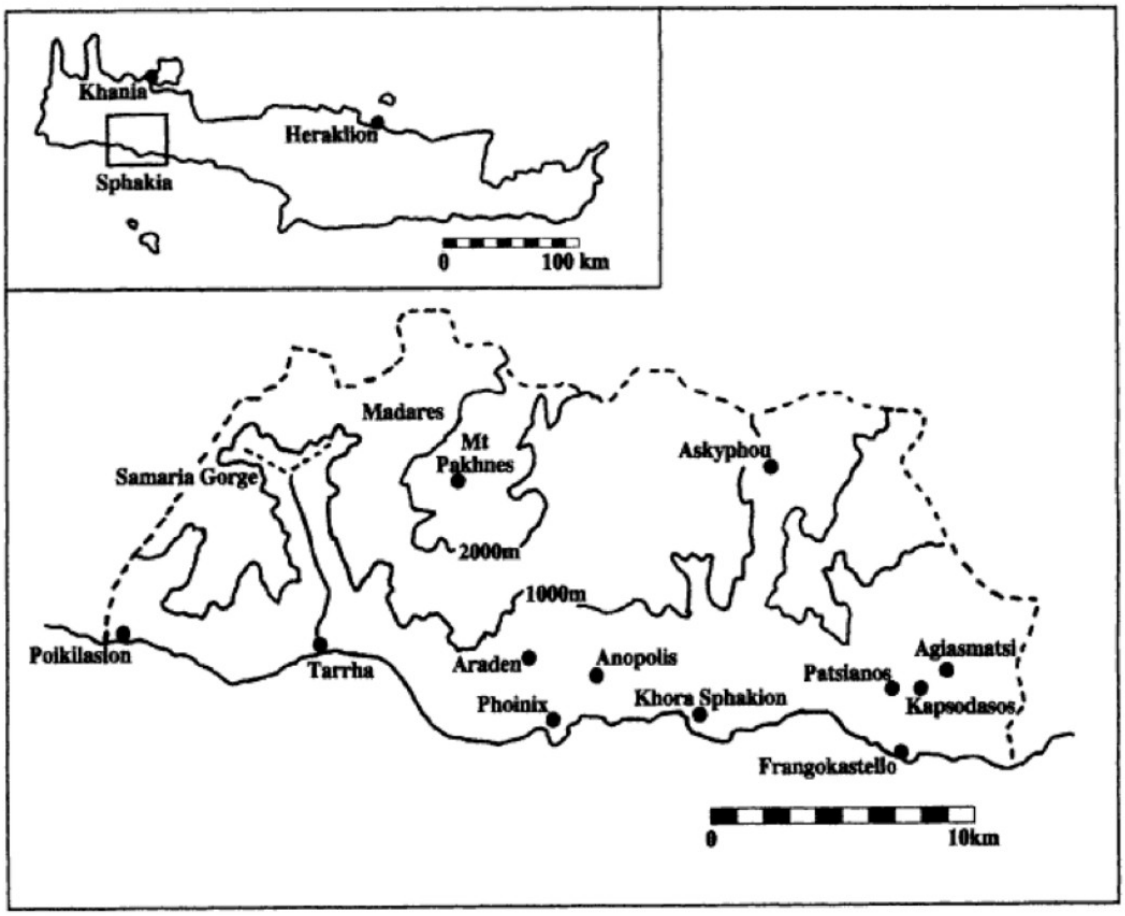


Figure 4.63: Important archaeological sites in the county of Sfakia (Francis, Price et al. 2000, Fig. 1).

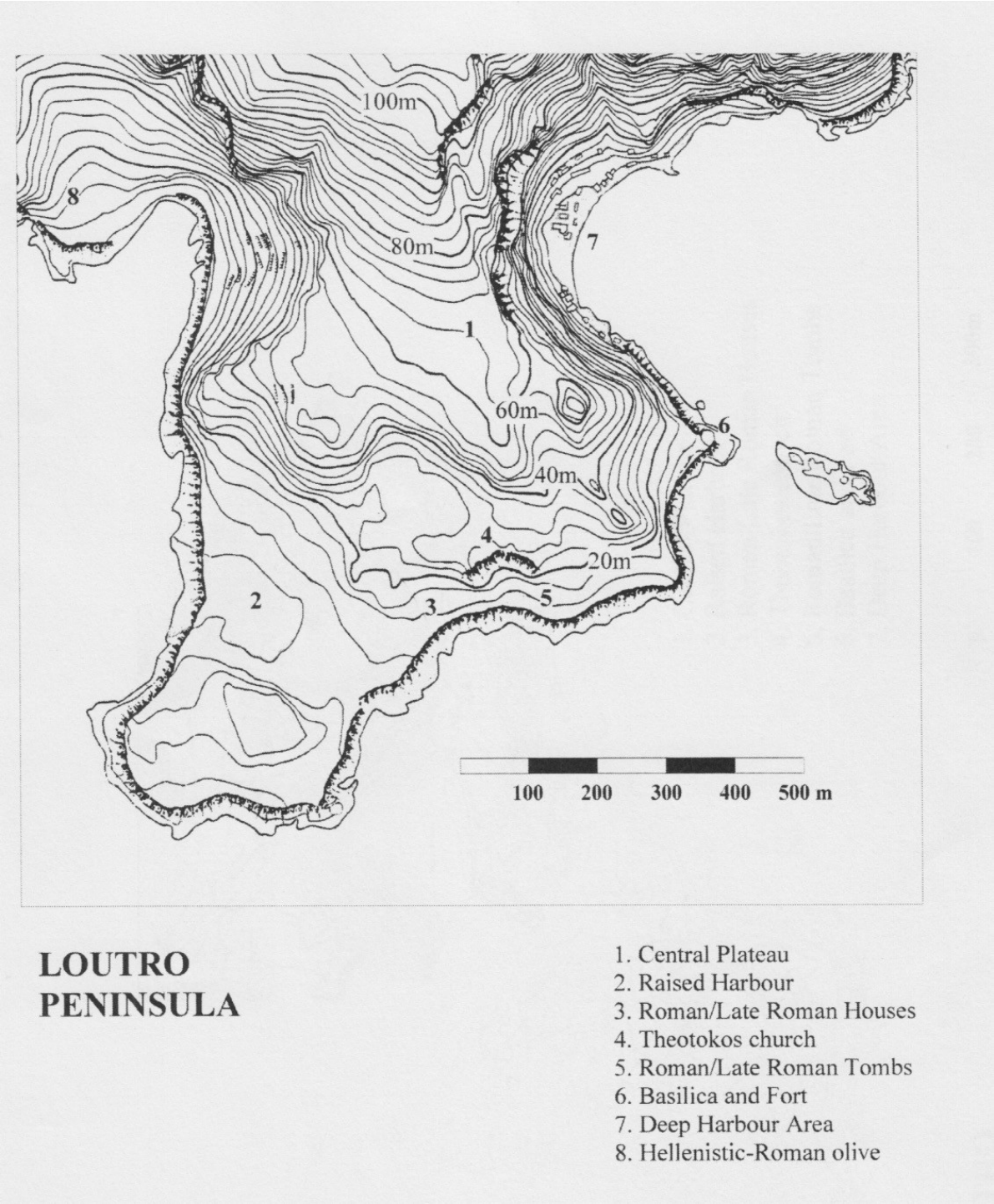


Figure 4.64: The site of Phoinix (Price, Higham et al. 2002: Fig. 3).

	Greek	Roman	Gk/Rm Undated	Total
No. Frags	28	536	91	655

Table 1. Phoinix-Loutro Pottery

Figure 4.65: Phoinix -Loutro number of pottery (Francis 2017. Table 1).

Ware Type	No. Frags
Eastern Sigillata A	9
Eastern Sigillata B	5
Cypriot Sigillata	5
Italian Sigillata	112
Italian Thin-Walled	4
Çandarlı	10
Knidian	2
Phocaean Red Slip	99
Imitation Knidian Red Slip	1
Cypriot Red Slip	2
African Red Slip	75
Imitation African Red Slip	3
African Red Slip Cookware	1
Asia Minor Cookware	1
Campanian Amphora	2
Imitation Koan Amphora	3
Cilician Amphora	1
Spanish Amphora	2
North African Amphora	15
Ostia VI Amphora	1
Late Roman 1 Amphora	10
Late Roman 2 Amphora	4

Table 2. Phoinix-Loutro: Roman Imported Pottery

Figure 4.66: Phoinix-Loutro: Roman Imported Pottery (Francis 2017. Table 2).

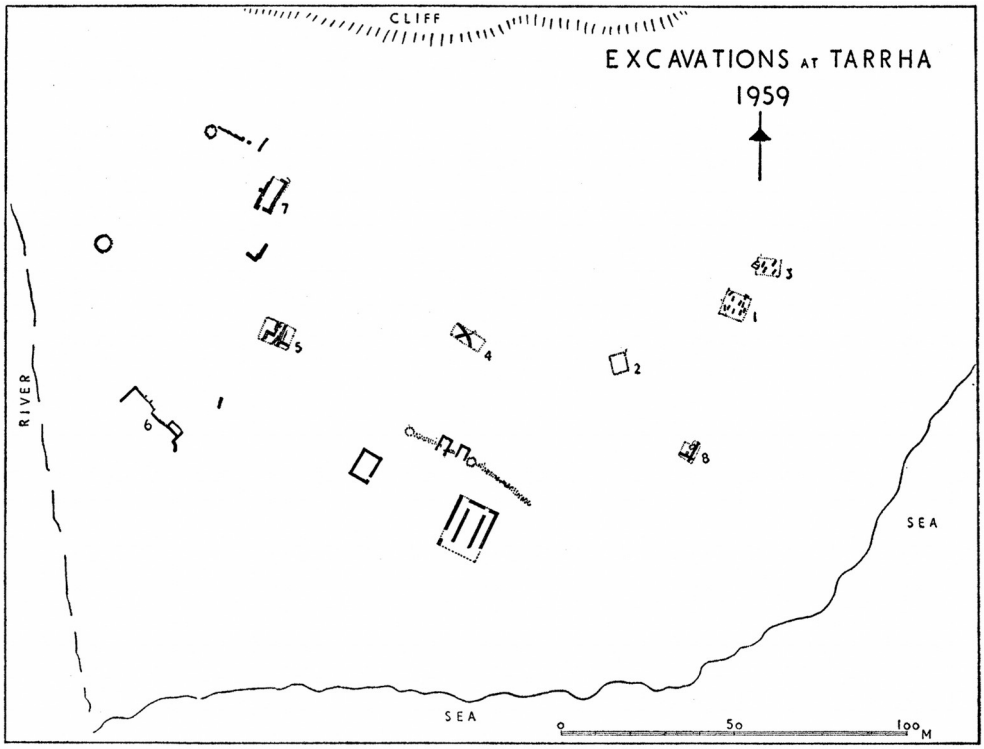


Figure 4.67: The archaeological site of Tarrha (Weinberg 1960: Fig.1).



a. Section of Fortification Wall, Trench 6

Figure 4.68: The fortification wall, Tarrha (Weinberg 1960: Plate 35).



Figure 4.69: Drone footage from Tholos (Source: D. Karampas).

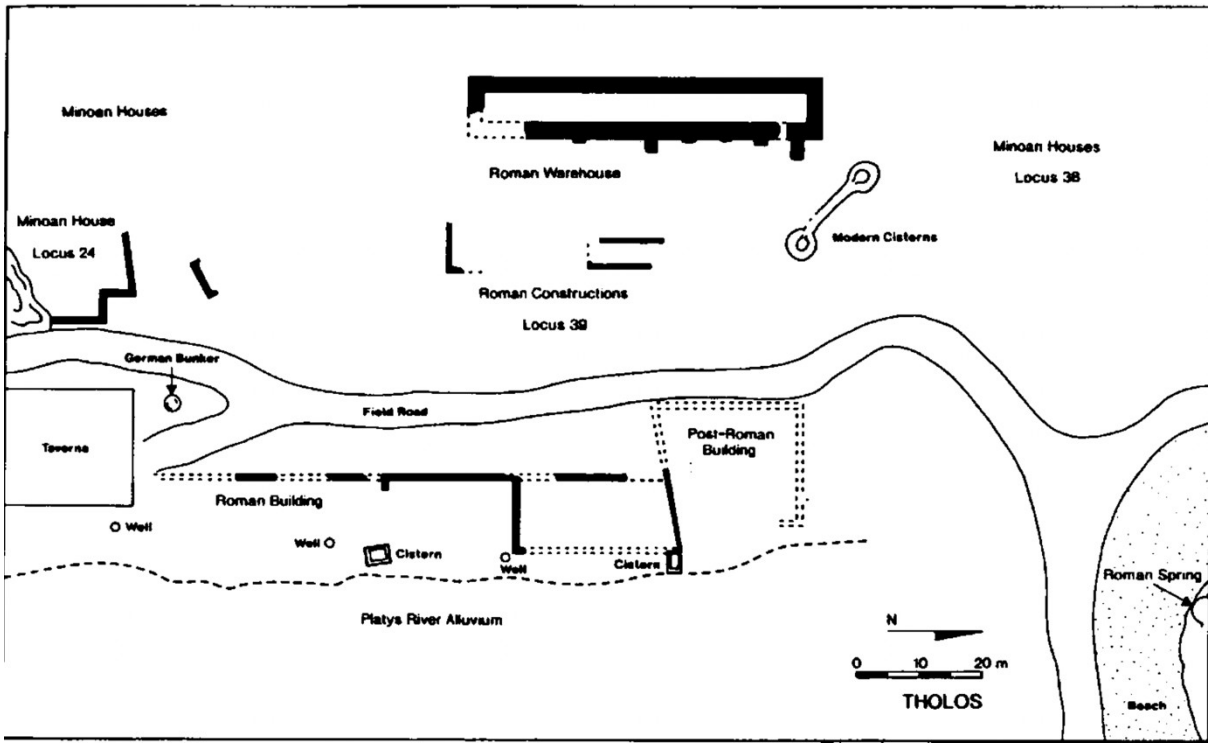


Figure 4.70: The archaeological site of Tholos (Haggis 1996b: Fig.25).



Figure 4.71: The massive warehouse at Tholos (Source: D. Karampas).

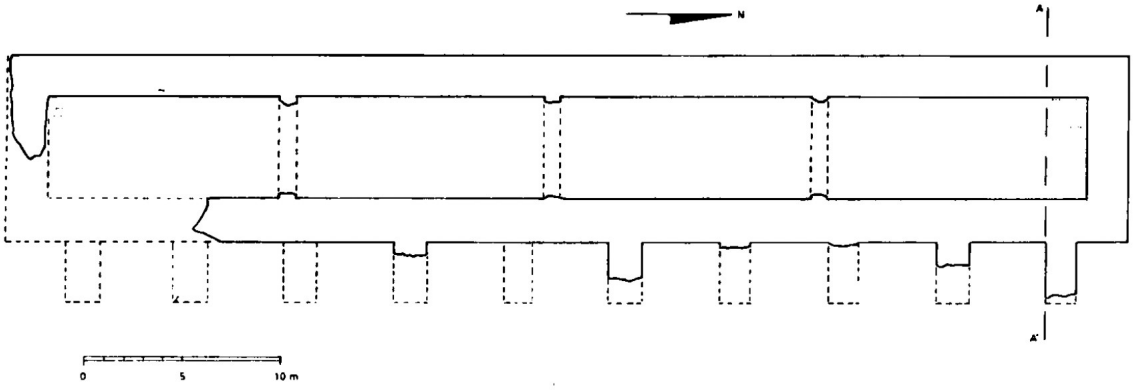


Figure 4.71a: Warehouse plan, Tholos (Haggis 1996b: Fig.9).



Figure 4.72: View from the northeast side of Mirabello Gulf and Pseira islet (Source: D. Karampas).



Figure 4.73: The entrance to Pseira (Source: D. Karampas).



Figure 4.74: Minoan remains in Pseira (Source: D. Karampas).

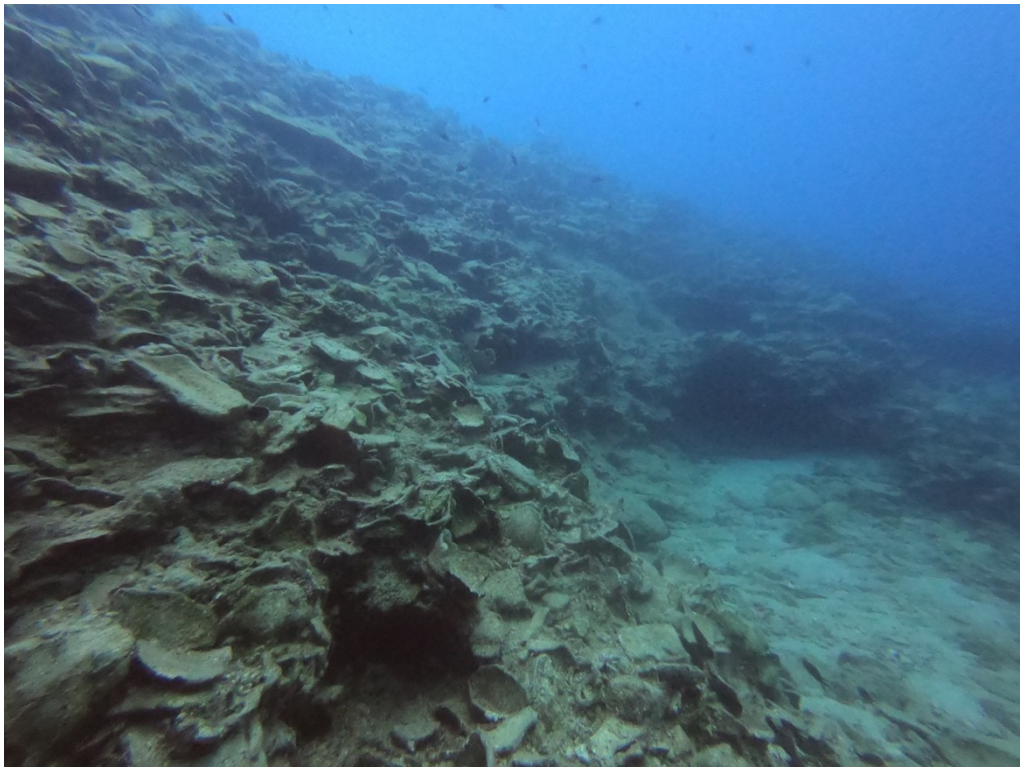


Figure 4.75: Massive pottery assemblages (Minoan) lying underwater in Pseira (Source: D. Karampas).

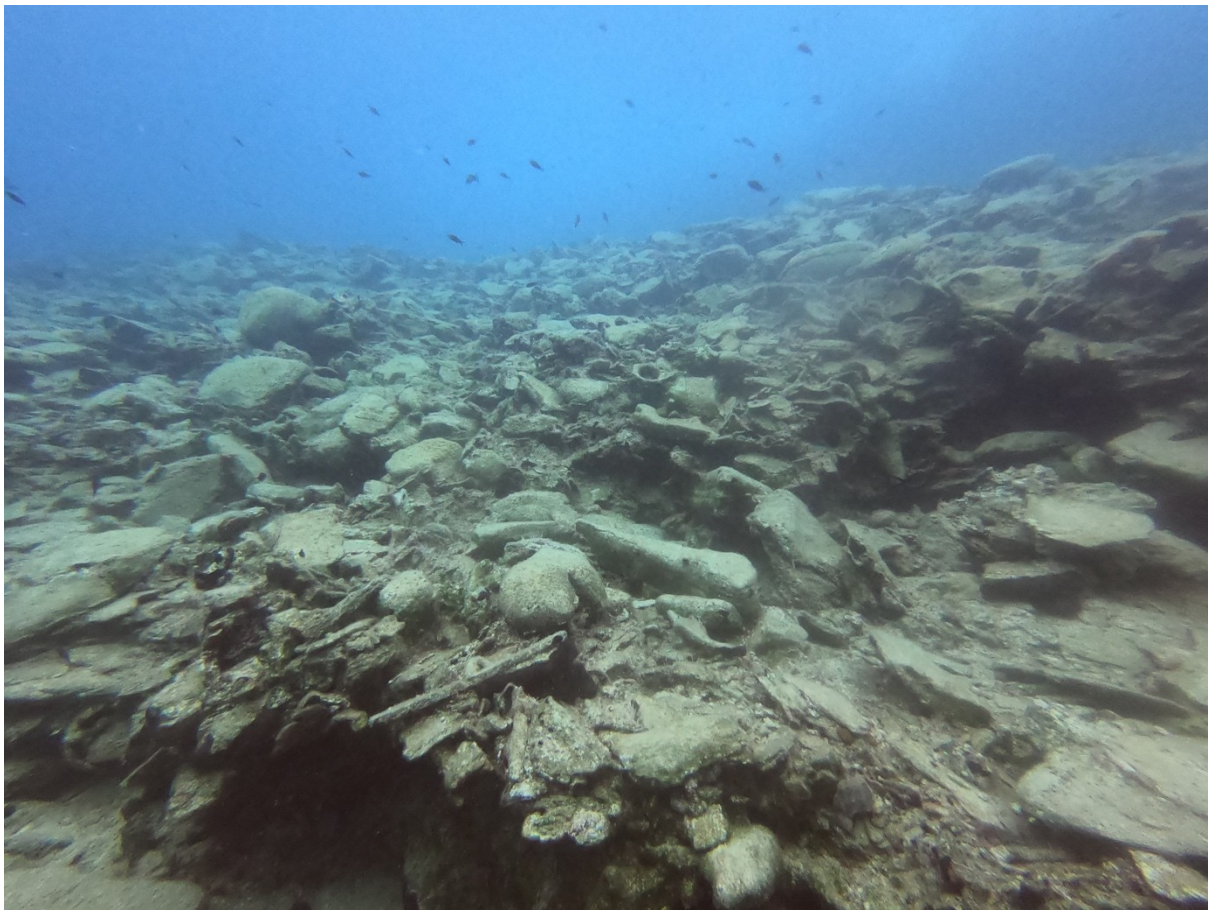


Figure 4.76: Further detail of the pottery assemblages, Pseira (Source: D. Karampas).

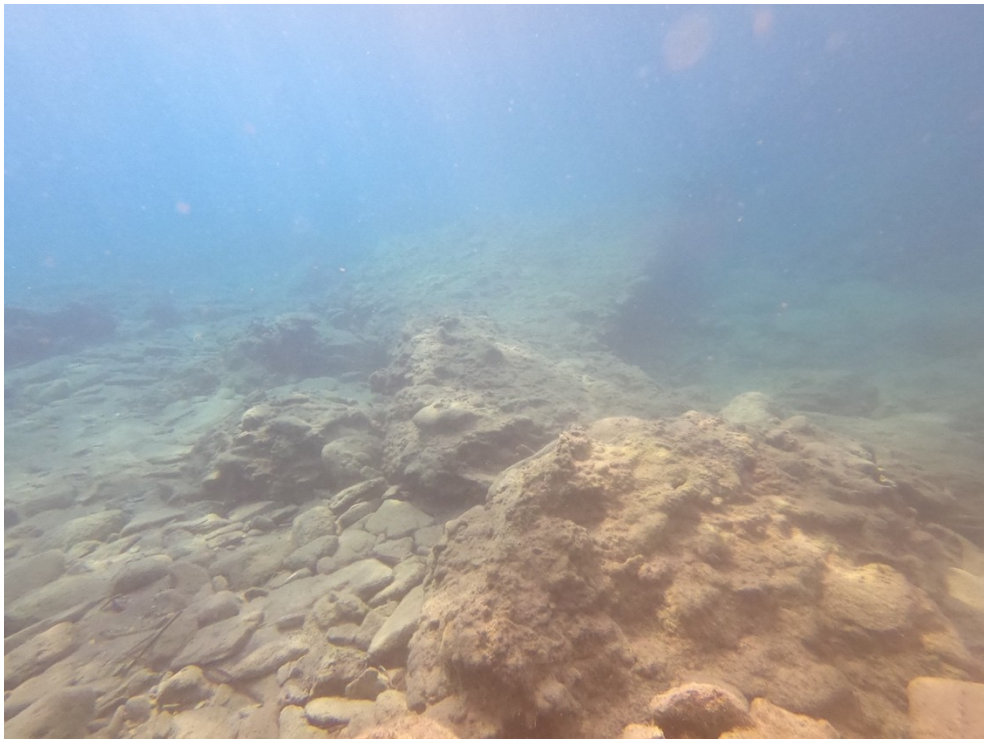


Figure 4.77: The natural reef, Pseira (Source: D. Karampas).

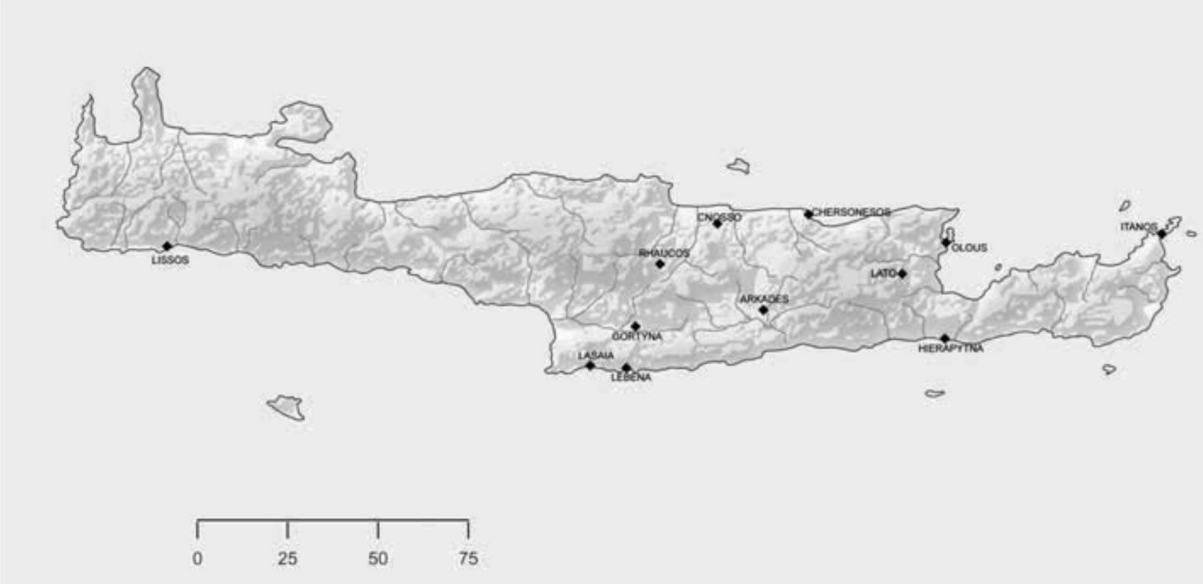


Figure 4.78: Religious sites of Asklepios in Crete (Melfi 2007: Tav. 10).



Figure 4.79: The entrance to Lissos (Source: D. Karampas).



Figure 4.80: The temple of Asklepios in Lissos, detail of the mosaic (Source: D. Karampas).

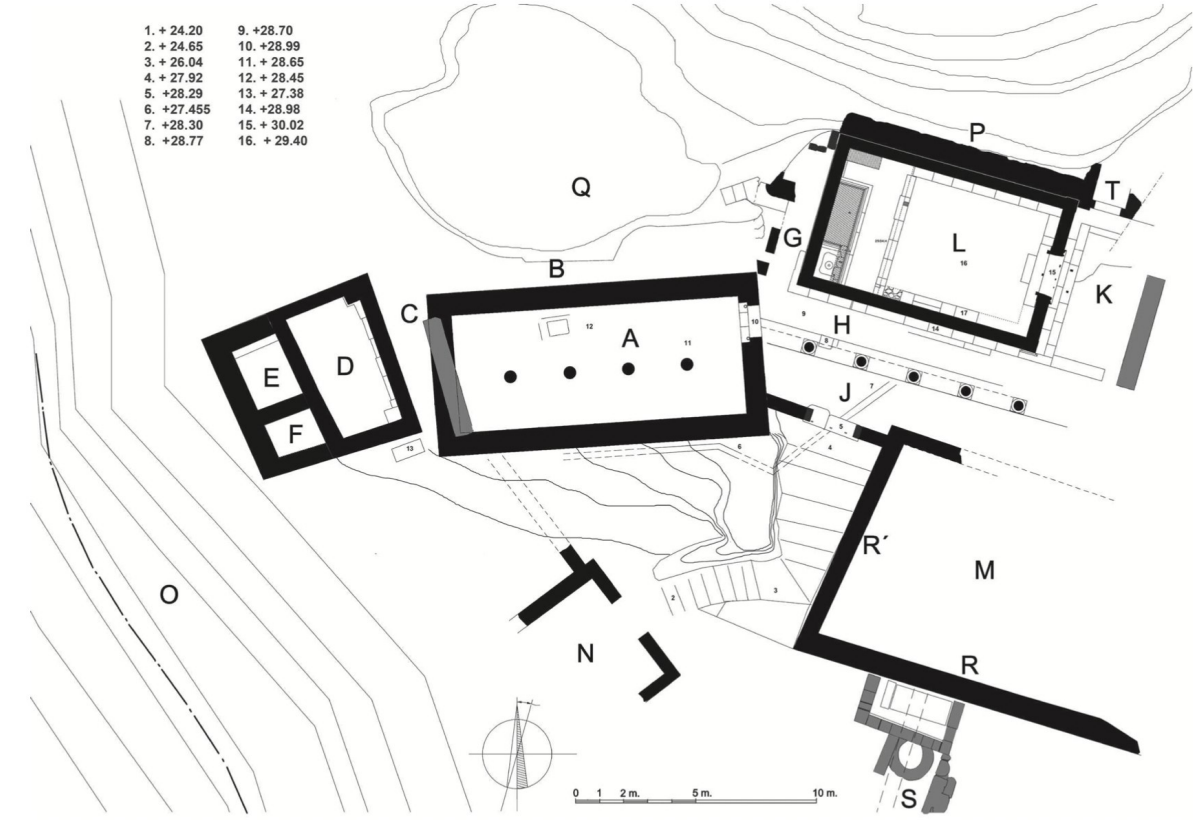


Figure 4.81: Topographic plan of the Asklepios sanctuary at Lissos (Kanelopoulos 2020: Fig. 1).



Figure 4.82: The Roman Theatre at Lissos (Source: D. Karampas).



Figure 4.83: Tombs at Lissos (Source: D. Karampas).



Figure 4.84: The uplifted waterfront at Lissos (Source: D. Karampas).

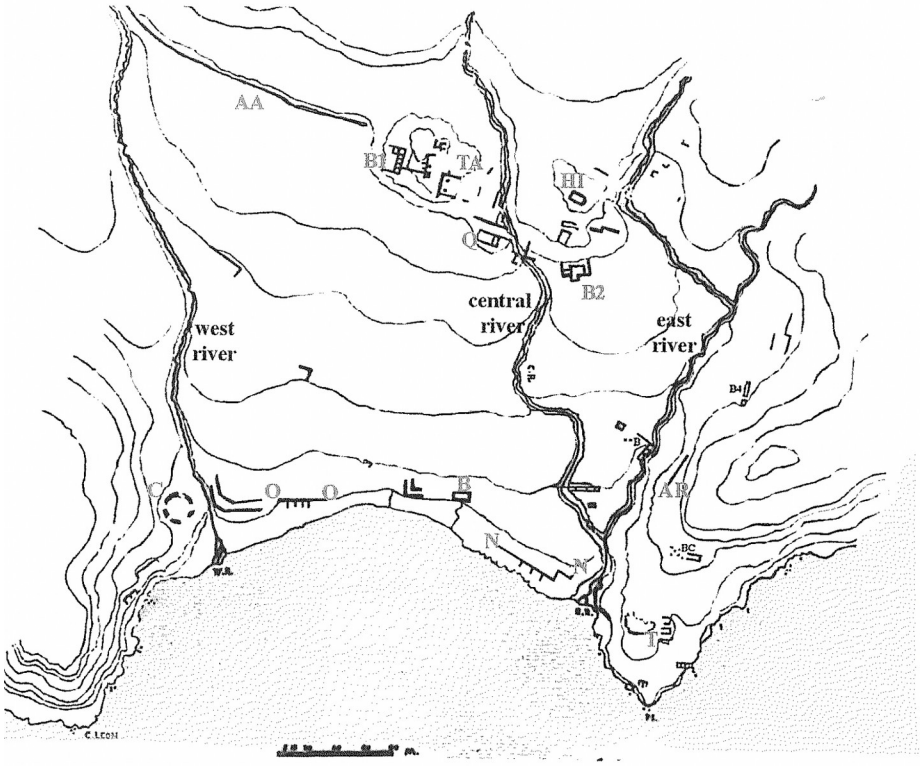


Figure 4.85: Taramelli's plan, Lebena (Melfi 2006: P.1).

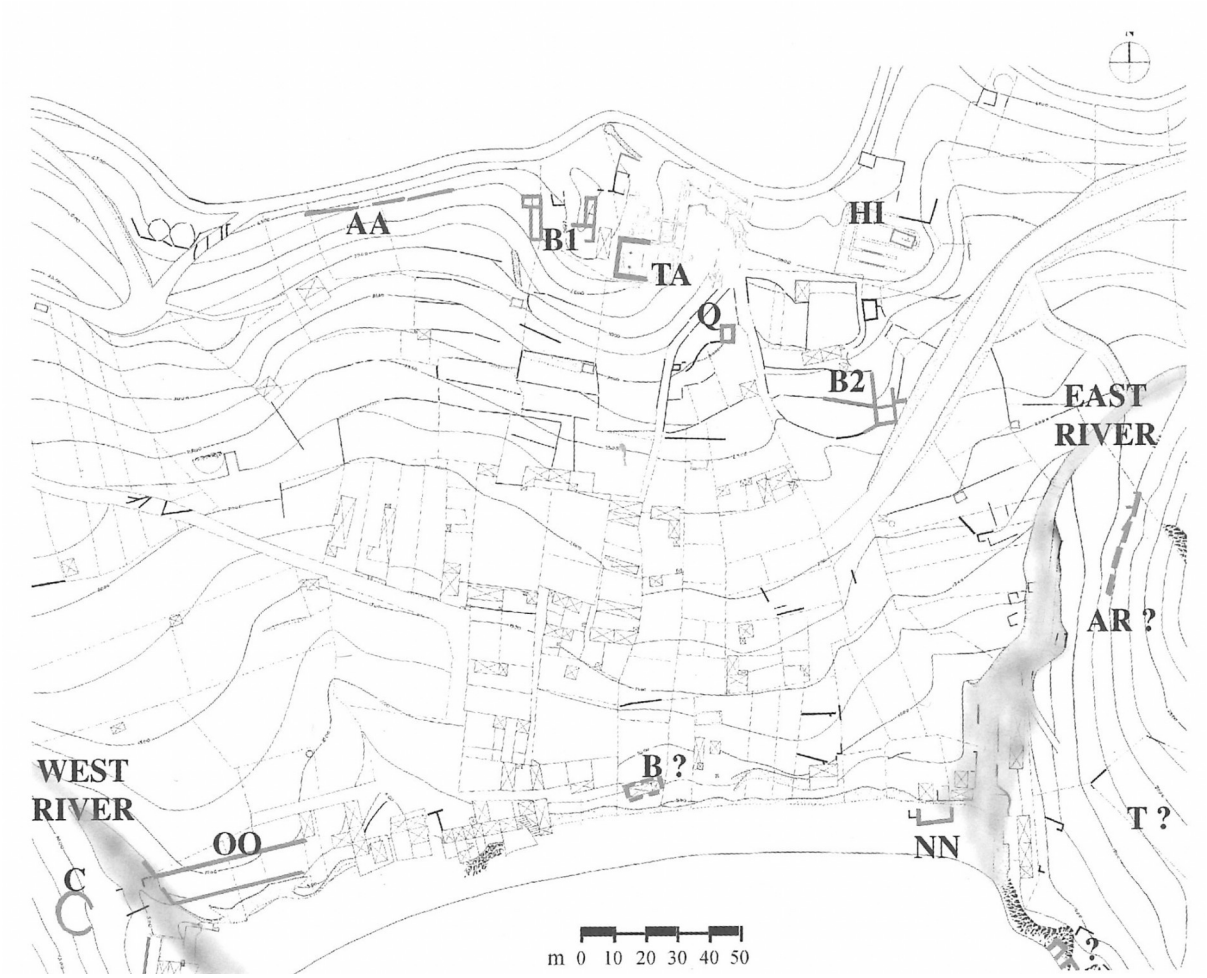


Figure 4.86: The latest topographic plan of Lebena (Melfi 2006: Plate 2).



Figure 4.87: The Asklepieion, Lebena (Source: D. Karampas).



Figure 4.88: The ‘Thisavros’, Lebena (Source: D. Karampas).



Figure 4.89: The nymphaeum, Lebena (Source: D. Karampas).



Figure 4.90: The aqueduct ‘AA’, Lebena (Melfi 2006: Fig.2, Archive SAIA, slide 15464).



Figure 4.91: The remains of building ‘NN’’, Lebena (Source: D. Karampas).



Figure 4.92: The remains of Building ‘NN’, Lebena (Source: D. Karampas).



Figure 4.93: Diktynna temple at Menies beach (Source: D. Karampas).



Figure 4.94: Steps leading to the temple (?), Diktynna (Source: D. Karampas).



Figure 4.95: Various remains across the site, Diktynna (Source: D. Karampas).



Figure 4.96: The Roman cistern at the south of the Diktynna temple (Source: D. Karampas).



Figure 4.97: The potential pilgrim houses at Diktynna (Source: D. Karampas).

Chapter 5

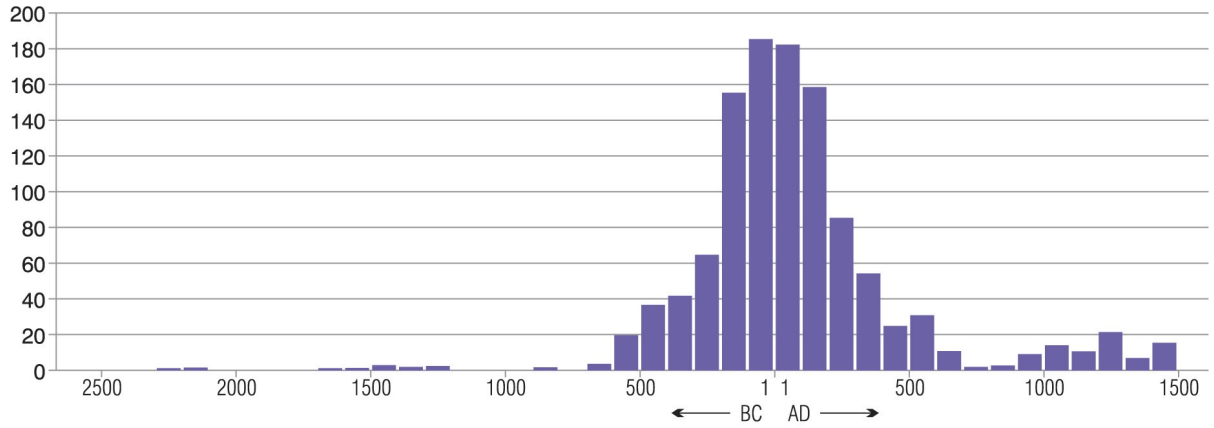


Figure 5.1. Mediterranean shipwrecks by century (Wilson 2011: Fig. 2.1, after Parker 1992: Fig.3).

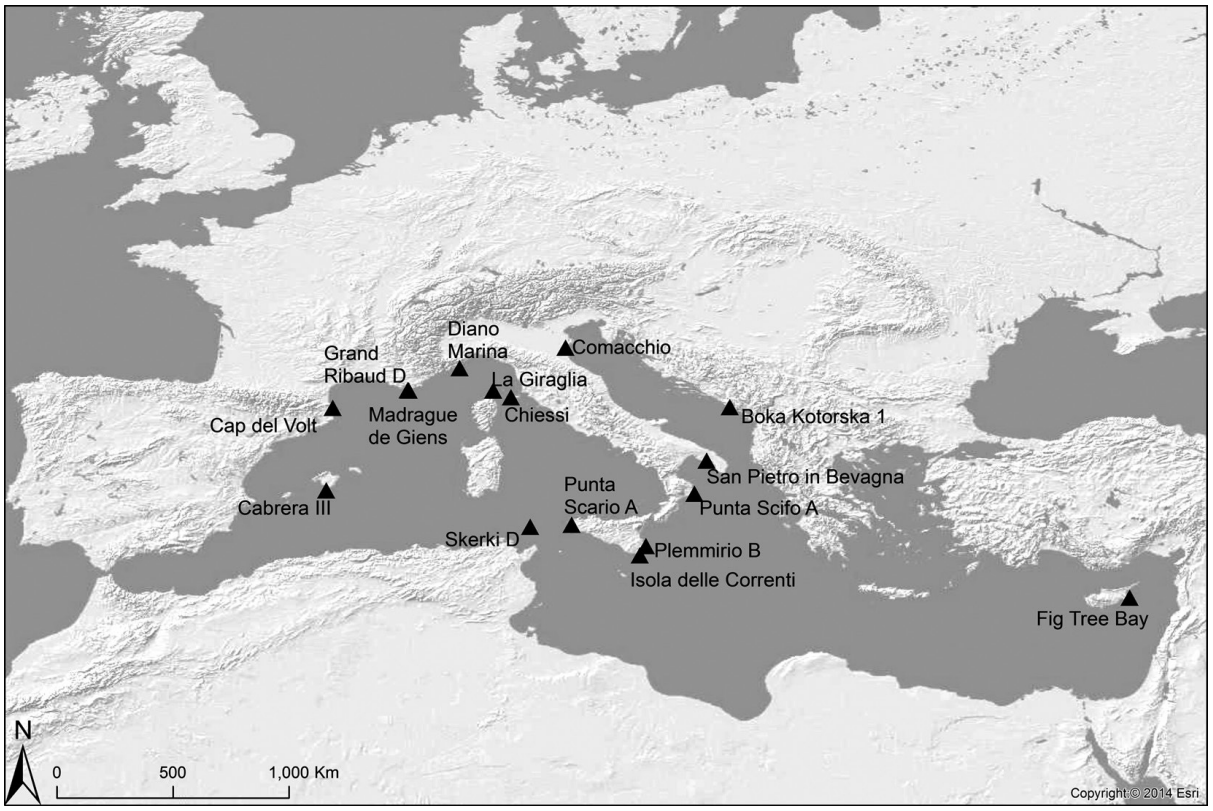


Figure 5.2. Shipwrecks discussed in Rice's model (Rice 2016: Fig.1).

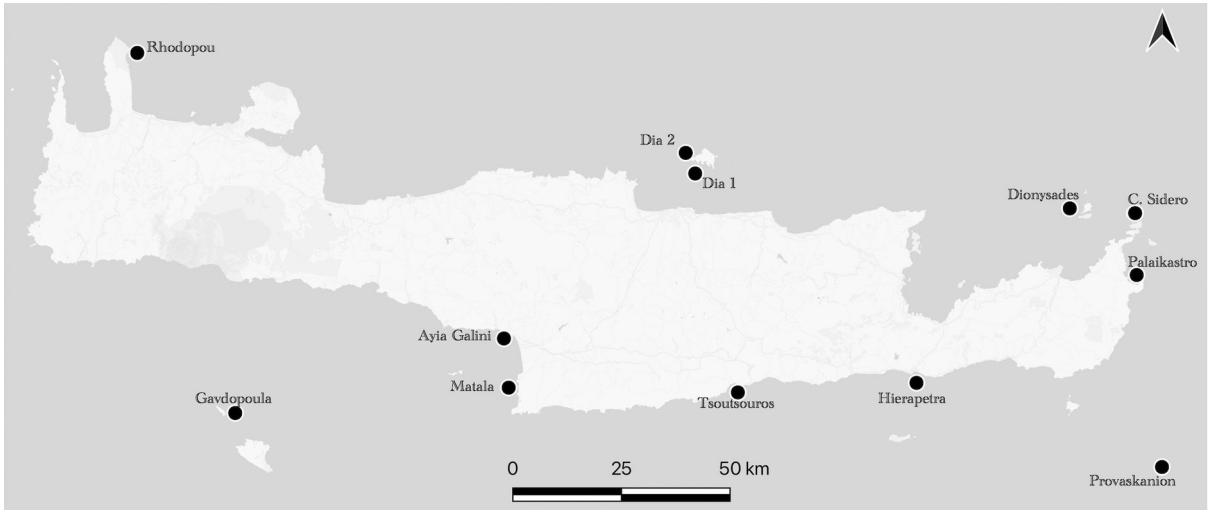


Figure 5.3. Roman shipwrecks around Crete (Source: ArcGIS, produce by D. Karampas).

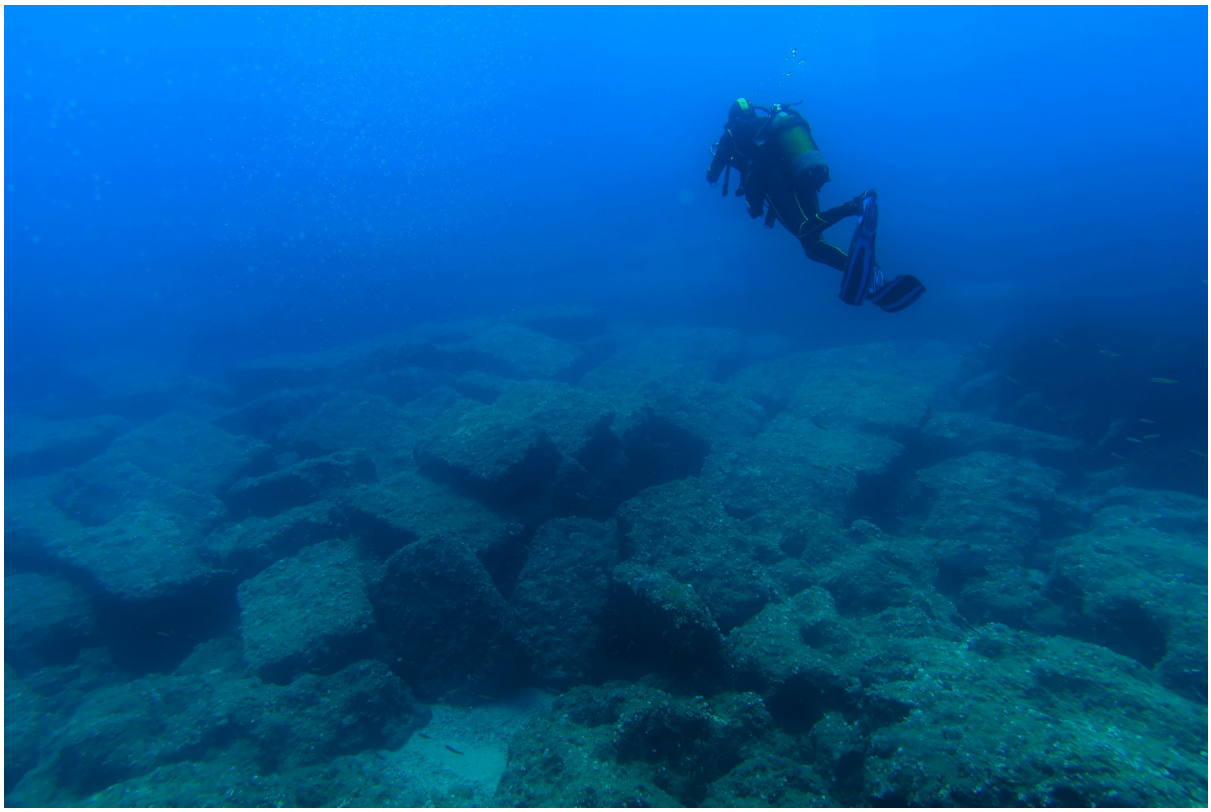


Figure 5.4. The stone cargo from Rhodopou shipwreck (Source: D. Karampas).



Figure 5.5: A close look at the stone blocks, Rhodopou Shipwreck (Source: D. Karampas).



Figure 5.6: The Tsoutsouros shipwreck (Source: D. Karampas).



Figure 5.7: The Dia 1 Shipwreck (Source: D. Karampas).



Figure 5.8: Rhodian and other amphorae from Dia 1 shipwreck (Source: D. Karampas).



Figure 5.9: Rhodian amphora from the Matalon shipwreck (Crile and Davaras 1963: Fig. 2).



Figure 5.10: Spanish Amphora cargo discovered outside Palaikastro (Karampas, Theodoulou 2023: Fig. 6).



Figure 5.11: Cretan amphora AC2 from Dionysades Shipwreck (Preka-Alexandri, Theodoulou et al. 2012: Fig. 2)



Figure 5.12: Tripolitanian I type amphora from Dionysades Shipwreck (Preka-Alexandri, Theodoulou et al. 2012: Fig. 3).



Figure 5.13: Cretan amphora AC4 from the Dia II shipwreck (Theodoulou, Foley et al. 2015: {Theodoulou, 2015 #188} Fig. 7)

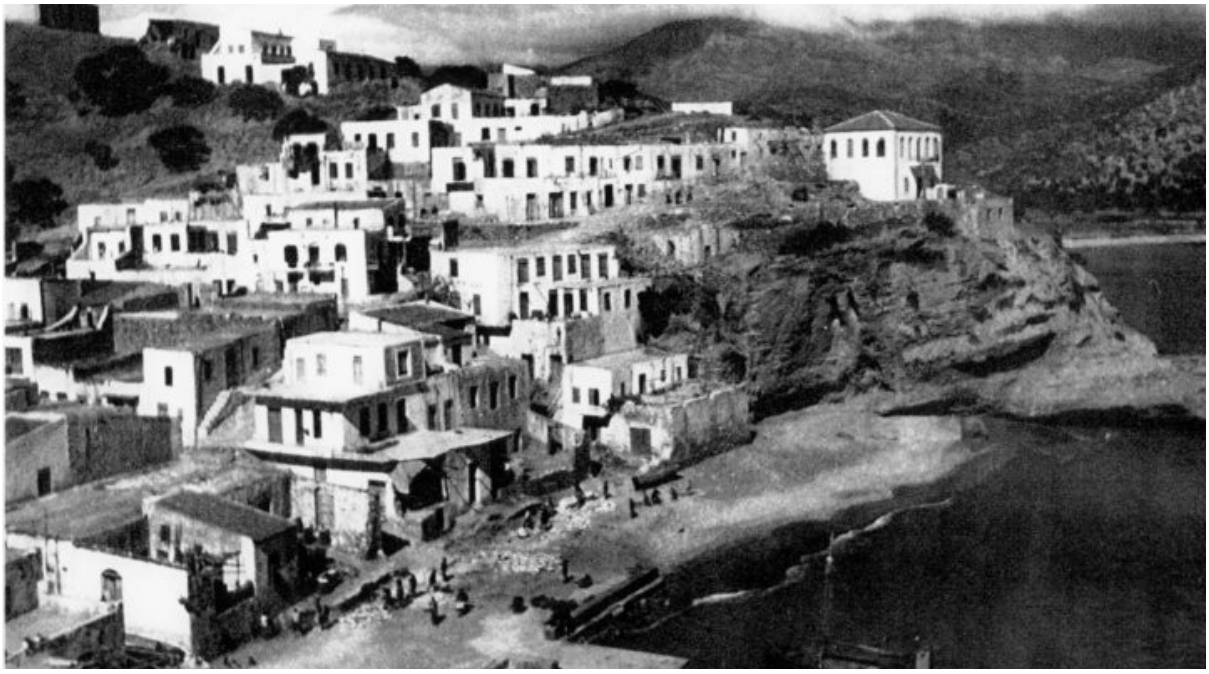


Figure 5.14: The seaside village of Ayia Galini (Source: D. Karampas Archive).



Figure 5.15. Bronze statuettes and a lamp (ship design) from Ayia Galini (Brokalakis 2016: Fig. 19).

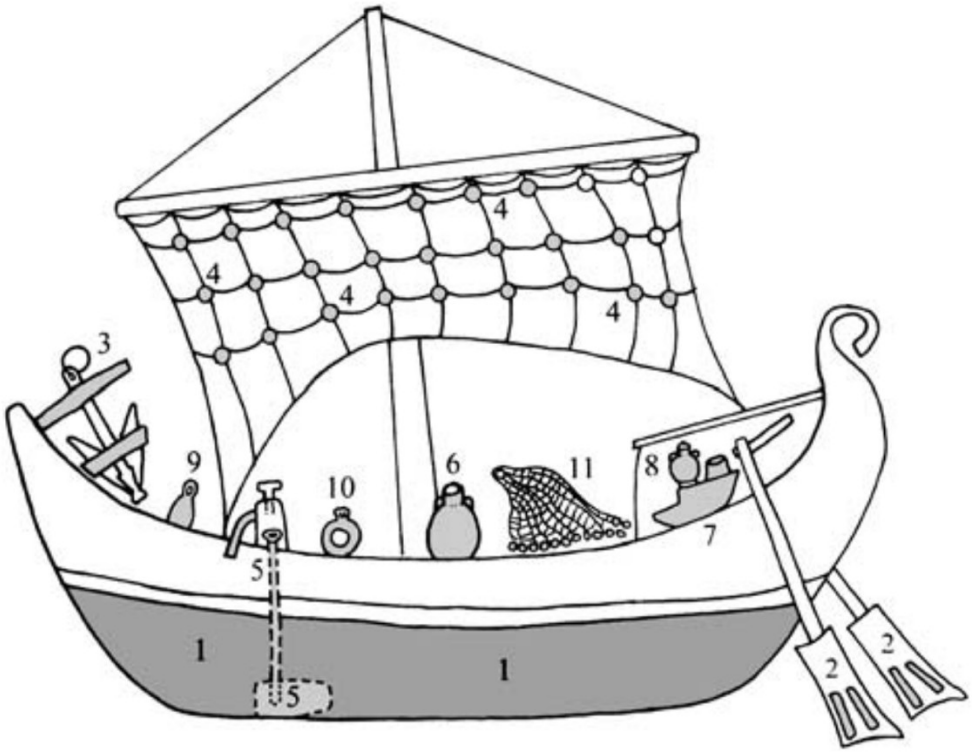


Figure 5.16. Lead artefacts upon a Roman ship (Rosen and Galili 2007: Fig. 2).

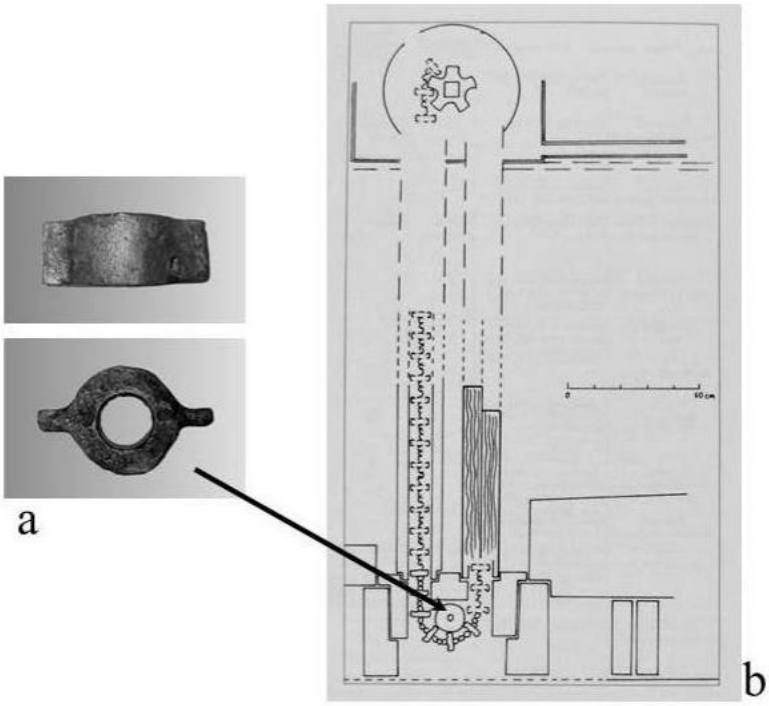


Figure 5.17. Flanged Ring from Ayia Galini (Brokalakis 2016: Fig.16).



Figure 5.18. Phalera from Ayia Galini (Brokalakis 2016: Fig. 9).



Figure 5.19. The ‘provaskanion’ from an unknown wrecked cargo or ship at SE of Crete (Theodoulou 2012: Fig. 1a).



Figure 5.20: A lamp from an unknown wrecked cargo or ship at SE of Crete (Theodoulou 2012: Fig. 2a).



Figure 5.21: Cretan amphorae from the Cape Sidero shipwreck (Theodoulou 2015b: Fig.1).

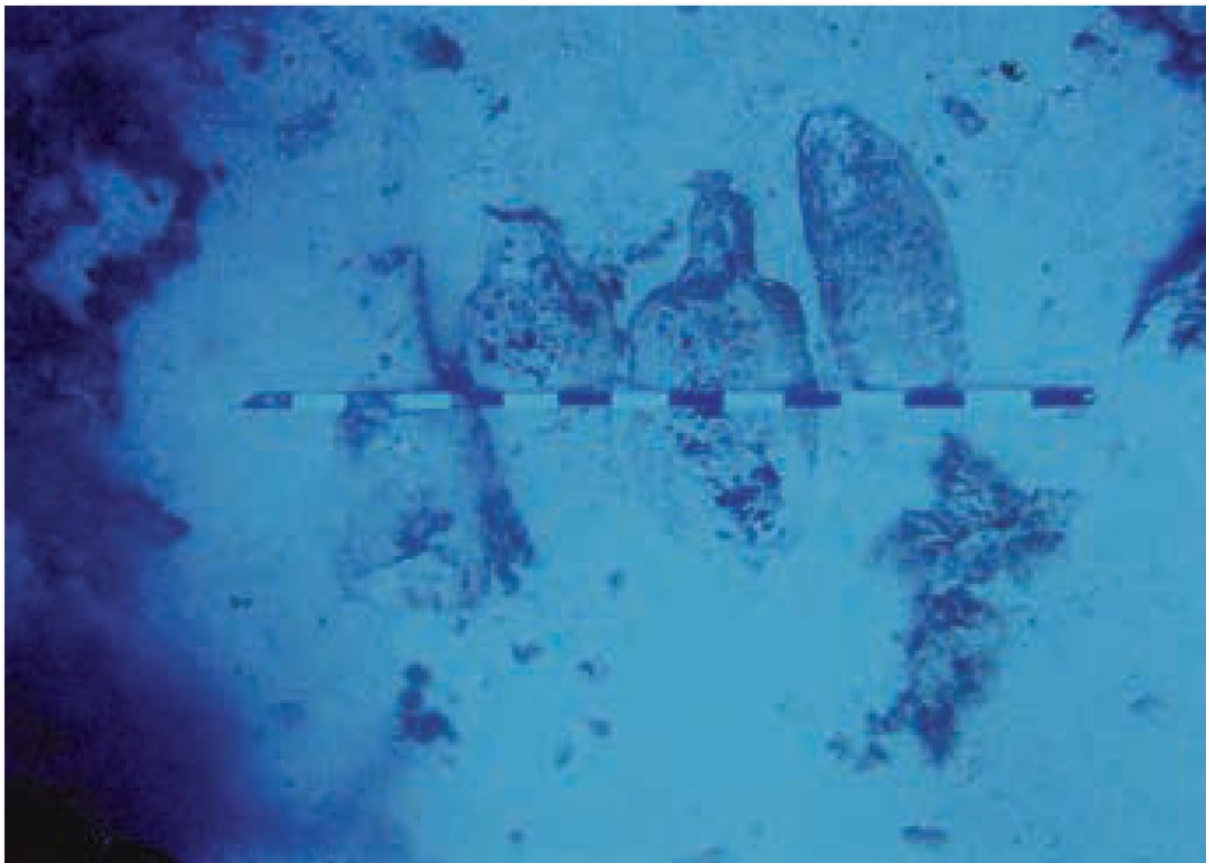


Figure 5.22: The Gavdopoula Shipwreck (Tegou 2018).

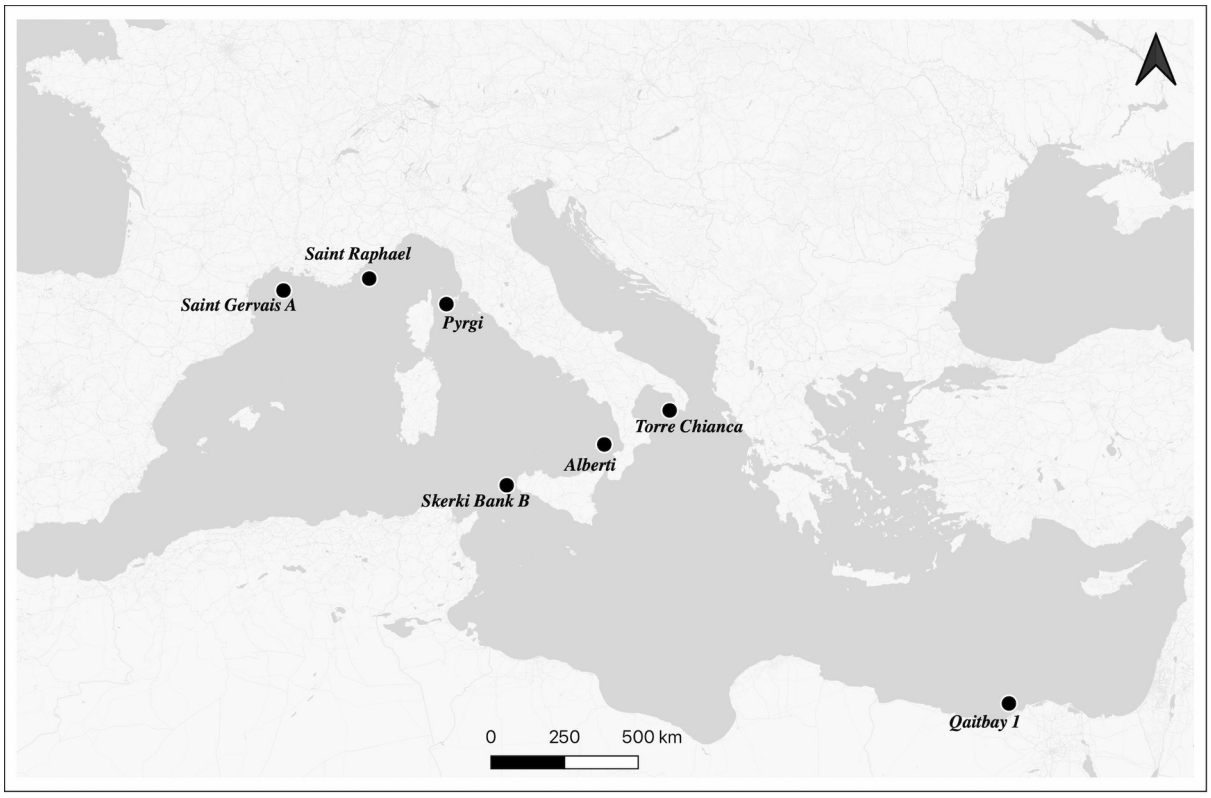


Figure 5.23: Roman shipwrecks carrying Cretan amphorae in the Mediterranean (Source: QGIS, produce by D. Karampas).

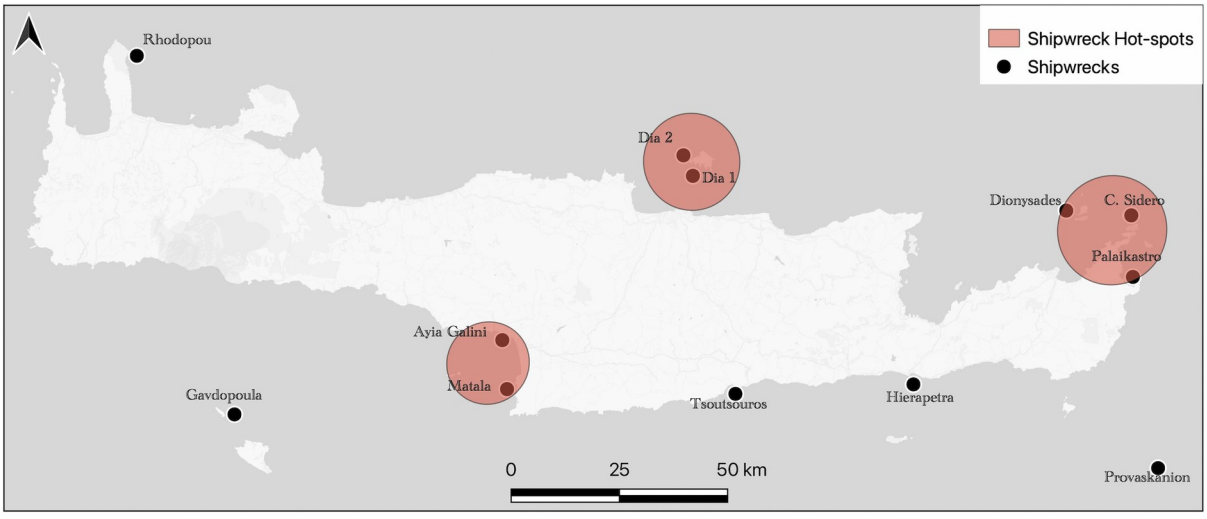


Figure 5.24. Shipwreck hotspots in Imperial Crete (Source: QGIS, produce by D. Karampas).

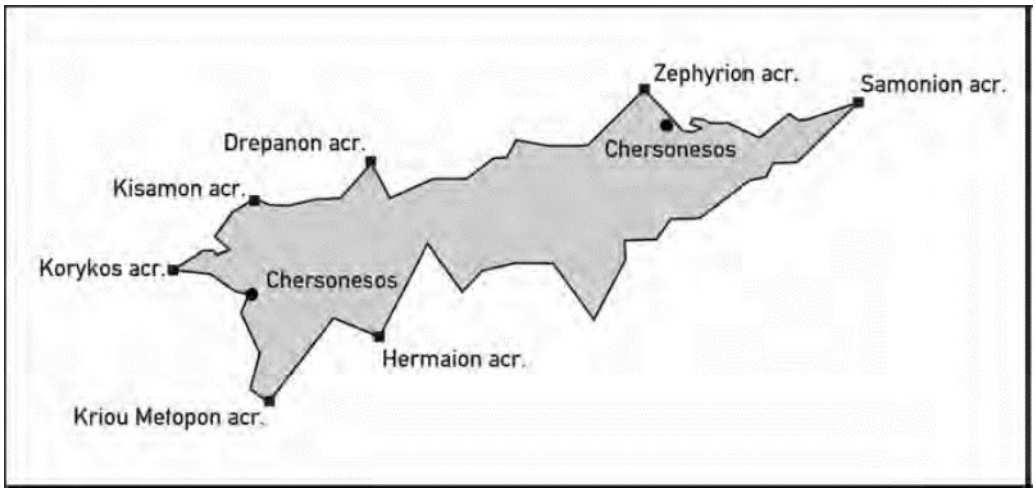


Figure 6.1: Map of Crete after Ptolemy, indicating the most important capes and harbours of the island (Arnaud 2014: Fig. 11).

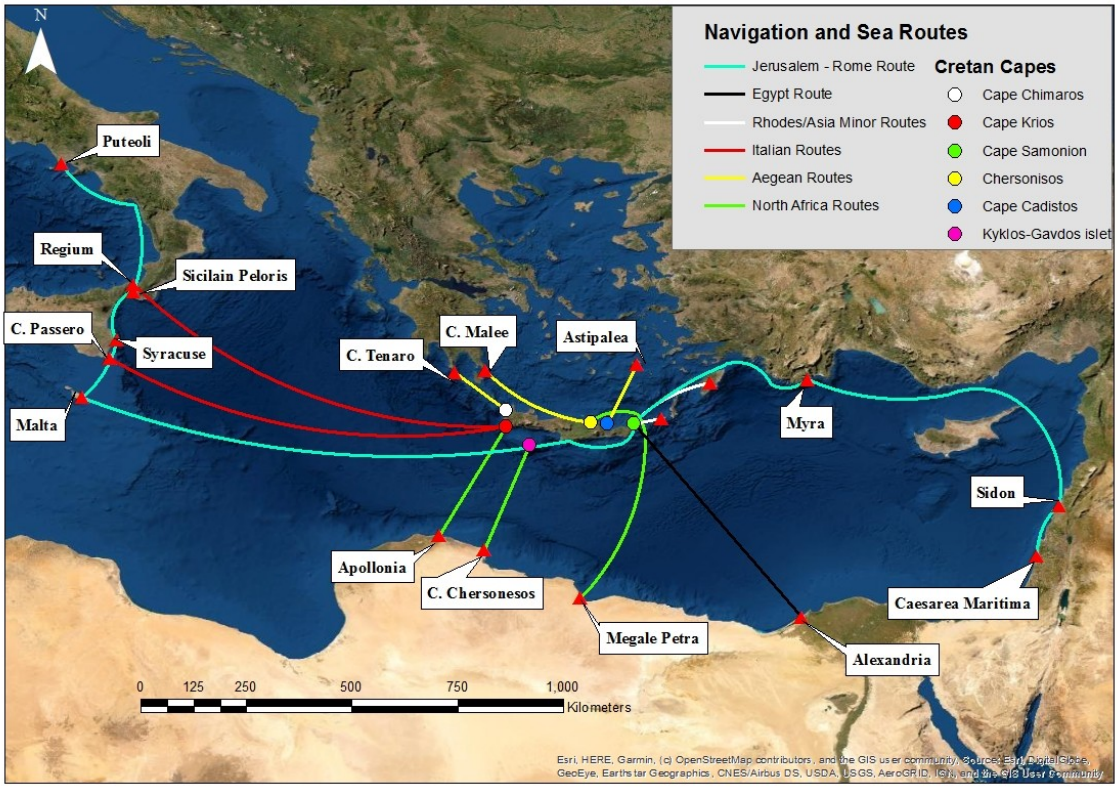


Figure 6.2: Sailing routes connecting Crete with the rest of the Mediterranean according to the ancient literature (Source: ArcGIS, produce by D. Karampas).

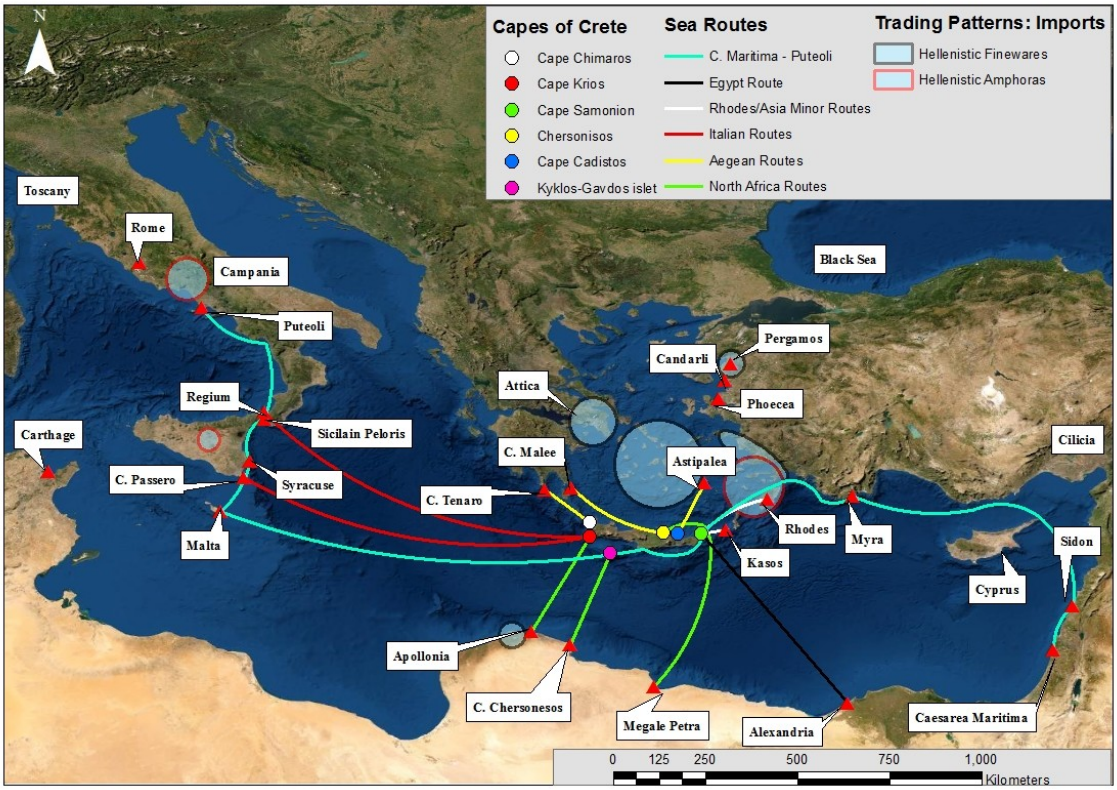


Figure 6.3: Trading patterns introduced in Crete during the Hellenistic Period: Finewares and Amphorae (Source: ArcGIS, produce by D. Karampas).

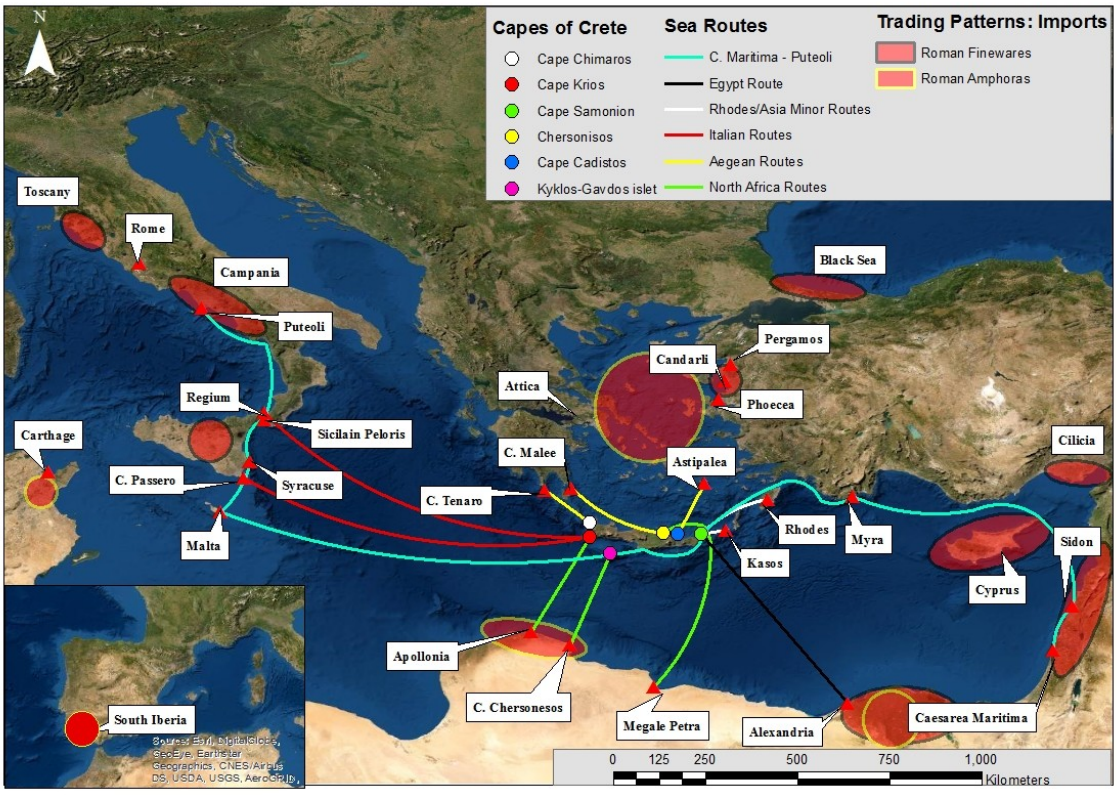


Figure 6.4: Trading patterns introduced in Crete during the Roman Period: Finewares and Amphorae (Source: ArcGIS, produce by D. Karampas).

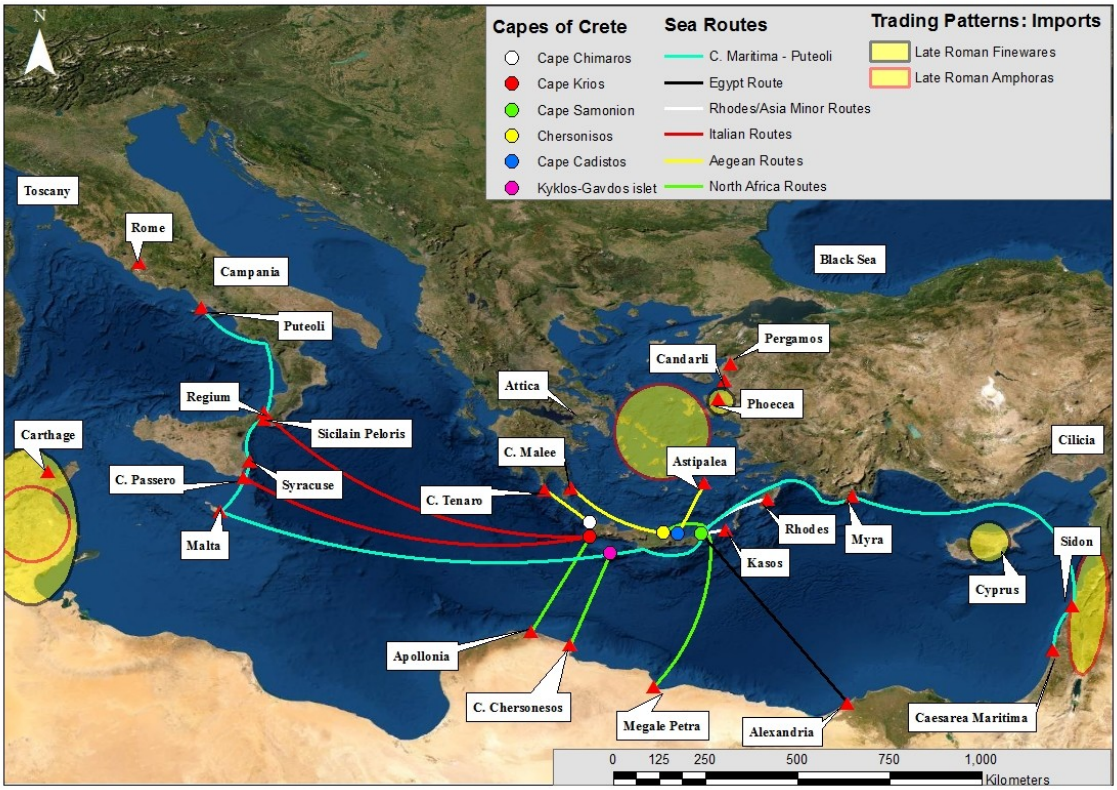


Figure 6.5: Trading patterns introduced in Crete during the Late Roman Period: Imported Finewares and Amphorae (Source: ArcGIS, produce by D. Karampas).

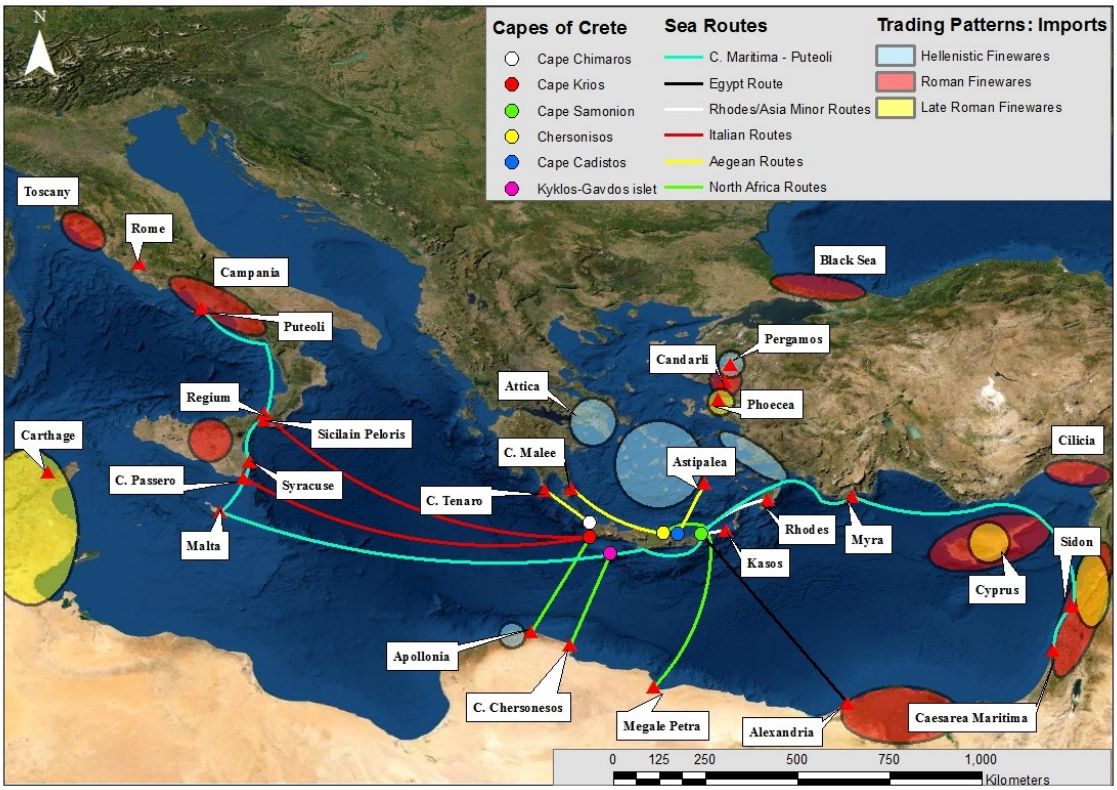


Figure 6.6: Trading patterns introduced in Crete during the Hellenistic, Roman, and Late Roman Period: Imported Finewares (Source: ArcGIS, produce by D. Karampas).

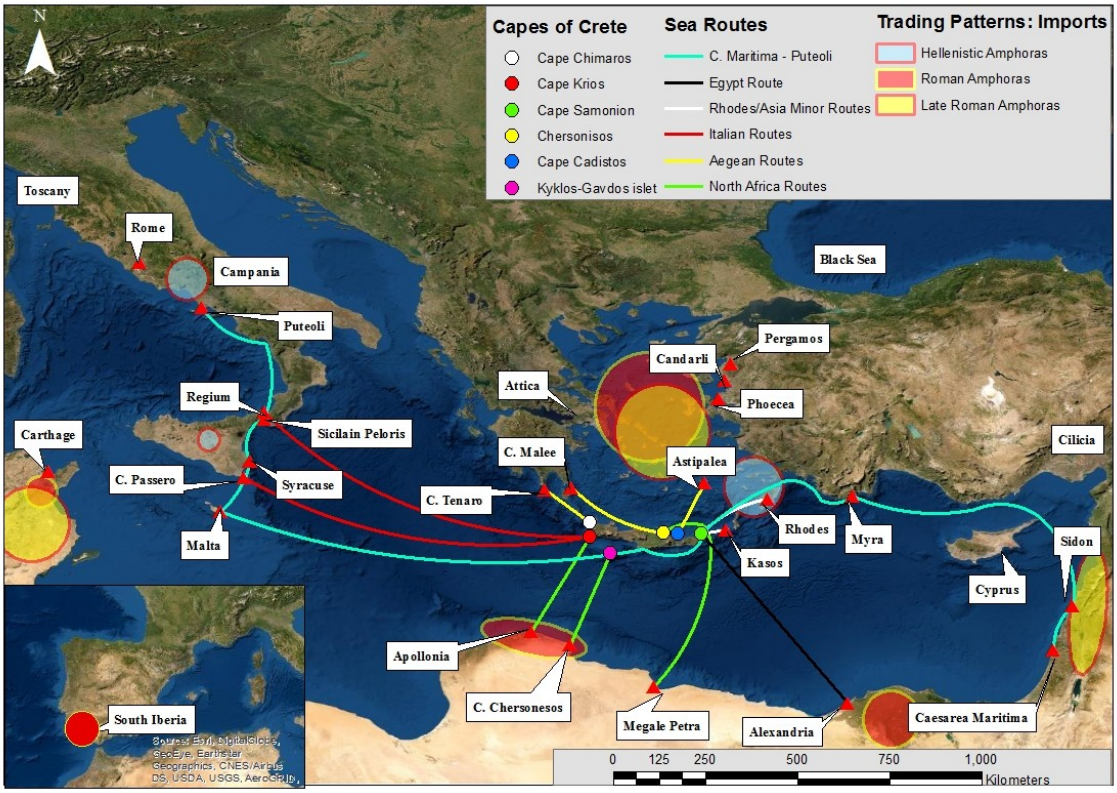


Figure 6.7: Trading patterns introduced in Crete during the Hellenistic, Roman, and Late Roman Period: Imported Amphorae (Source: ArcGIS, produce by D. Karampas).

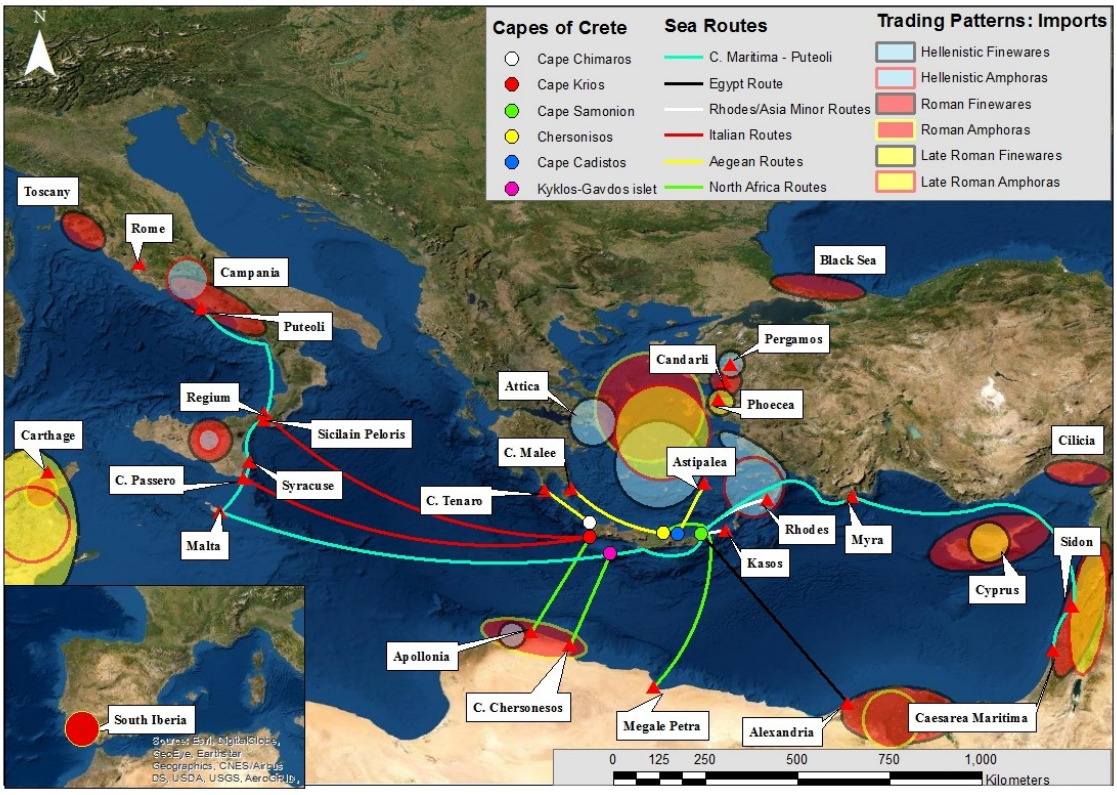


Figure 6.8: Trading patterns introduced in Crete during the Hellenistic, Roman, and Late Roman Period: Imported Finewares and Amphorae (Source: ArcGIS, produce by D. Karampas).



Figure 6.9: Amphora workshop in Chersonesos.

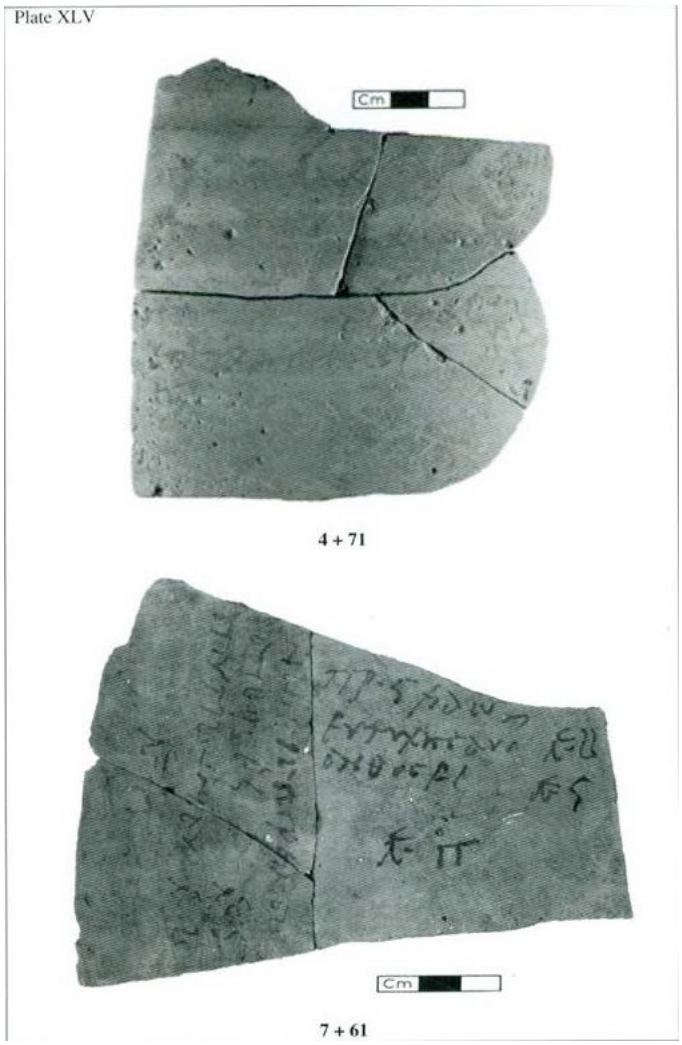


Figure 6.10: The ostraca from Chersonesos (Litinas 2008: Plate XLV).

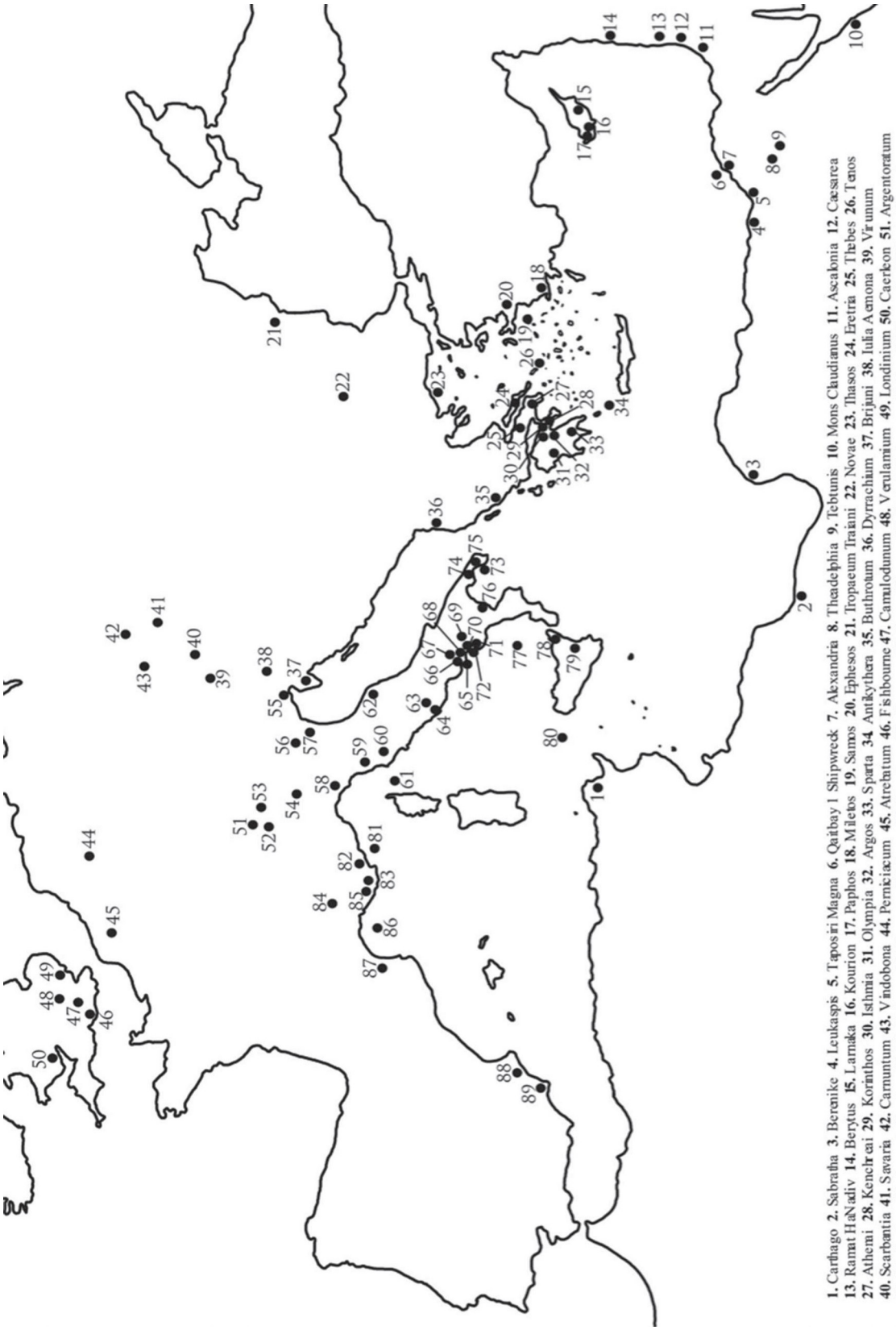


Figure 6.11: Distribution of Cretan amphorae, 1st–3rd centuries AD (Gallimore 2016: Fig. 12.1).

Tabella 33b – Consumi di vino a Roma (n° di anfore)

Area di produzione	Tipo	età neroniana		età flavia		età traianea		età antonina	
		N°	%	N°	%	N°	%	N°	%
Egitto	Dressel 2-4/Pompei 5	1	0,12	1	0,03	1	0,36		
area siro-palestinese	Schoene XV	3	0,38	12	0,46			2	0,74
area siro-palestinese	Kingsholm 117 ed affini	1	0,12	74	2,88			3	1,11
Asia	Agorà F 65-6	11	1,41	61	2,37	•2	0,72	13	4,85
area egeo – microasiatica	Dressel 25			2	0,07				
Perea rodia	*Camulodunum 184*	65	8,36	224	8,71	3	1,09	12	4,47
Creta	Dressel 2-5							1	0,37
Creta	Cretese 3	1	0,12	4	0,15			1	0,37
Creta	Cretese 4	44	5,66	148	5,76	26	9,48	9	3,35
Creta	Cretese 1	16	2,05	79	3,07	2	0,72	36	13,43
Creta	Cretese 2			74	2,88	10	3,64	7	2,61
Creta	non identificate			5	0,19				
Cilicia?	Schoene V			11	0,42				
Cnidos	Mau XXXVIIII	3	0,38	7	0,27	4	1,45	1	0,37
area egeo – microasiatica	Dressel 5 / Pompei 6	25	3,21	63	2,45	6	2,18	2	0,74
area egeo – microasiatica	Mau XLI	13	1,67	19	0,73			1	0,37
area egeo – microasiatica	Mau XXVII-VIII	1	0,12	2	0,07	1	0,36	1	0,37
area dell'Egeo orientale	Schoene XIII	2	0,25	5	0,19			1	0,37
Cilicia, Pieria?	Agorà M54 / Schoene XIII	1	0,12					5	1,86
Chios	Fiori, Joncheray 1975, tav. I, 7			1	0,03				
area egeo – microasiatica	Knossos 39					1	0,36		
Calabria, Sicilia?	Ostia II 522-3	70	9	76	2,95	6	2,18	8	2,98
non identificato	Ostia II 522-3			58	2,25				
Totale		777	100	2569	100	274	100	268	100

Figure 6.12: Number of Cretan amphorae discovered in Rome (Rizzo 2003: Table 33b).

Tableau 1: durées des voyages

Ligne	Provenance	Jour de départ - jour d'arrivée	Nombre de journées de navigation	Distance approximative (en milles marins)[48]	Vitesse moyenne (en noeuds)
15	Paltos	20-26(?)	7	460	2,7
5; 7	Aigeai	20-26(?)	7	600	3,5
17	Laodicée	18-26(?)	9	490	2,2
24	Anemourion	13-26(?)	14	700	2,1
9	Ostie	entre le 10 et le 19-26(?)	de 8 à 17	1.080	de 5,6 à 2,6
21	Sidè	7-26(?)	20	760	1,6
19	Gagai	6-26(?)	21	810	1,6
11	Lib(yssa?)	5-26(?)	22	730	1,4
	Liv(iopolis?)	5-26(?)	22	1.130	2,1
13	Diôryx(?)	26	1 ou 31	?	?
2	Attalion	[- -] - [- -]	?	410	?

Figure 6.13: The duration of the journey and the various stops according to P.Mich. inv. 5760a (Hailporn 2000: Table 1).

Fig. 1: les villes mentionnées par le *P.Bingen* 77



1. Ostie. - 2. Attalion. - (3. Libyssa). - (4. Liviopolis). - 5. Gagai. - 6. Aspendos. - 7. Sidè. - 8. Anemourion. - 9. Aigeai. - 10. Laodicée. - 11. Paltos. - (12. Alexandrie).

Figure 6.14: The journey towards Alexandria according to P.Mich. inv. 5760a (Hailporn 2000: Fig. 1).

Tableau 2: tonnages et cargaisons

Ligne	Tonnage	Estimation du volume disponible[49]	Cargaison[50]
	(artabes)	(m^3)	
3	?	?	[- -] + 41 ἡμικάδια d'huile
6	2.000	60 ou 80	700 (κεράμια) de vin[51]
8	?	?	[- - -] de vin
10	22.500	675 ou 900	lest
12	2.000	60 ou 80	lest
14	1.000	30 ou 40	[- -] ἡμικάδια
16	2.500	75 ou 100	500(?) (κεράμια)
18	2.000	60 ou 80	[- - -]
20	1.500	45 ou 60	300(?) (κεράμια) de vin + [- - -] de figues
22	7.000	210 ou 280	32 (troncs?) de pin + 216 ἡμικάδια d'huile
25	inconnu du scribe	-	2.500 (κεράμια) de vin

Figure 6.15: The estimated size and weight of the cargo (Hailporn 2000: Table 2).

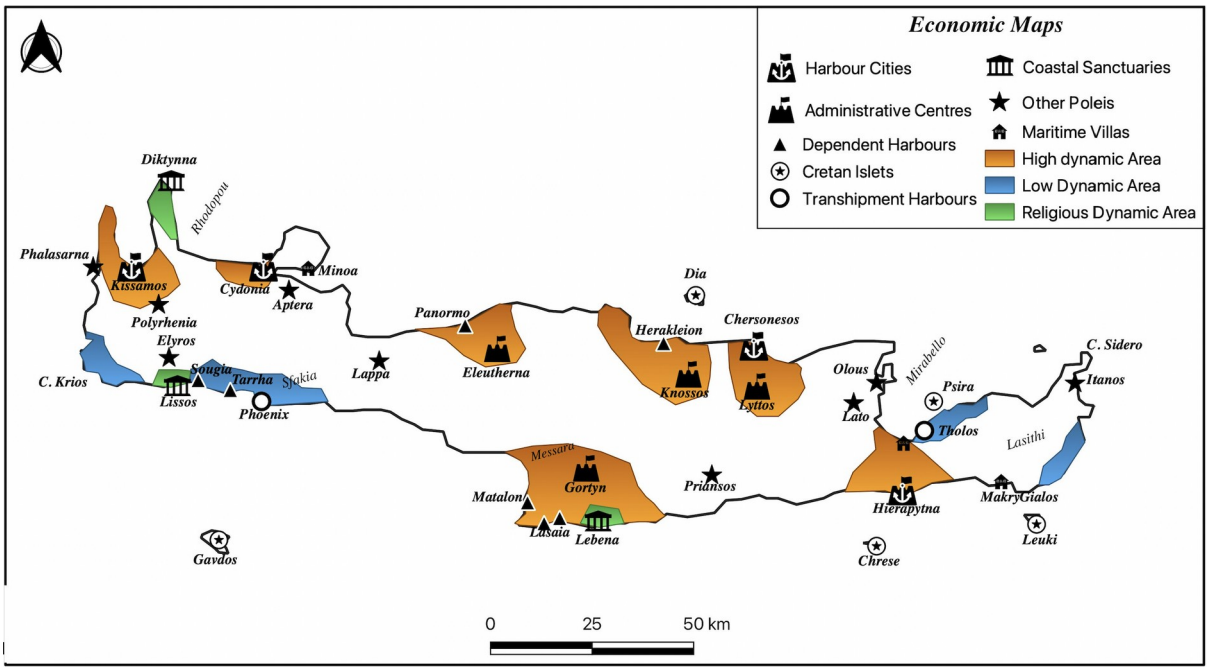


Figure 6.16: The 'economic maps' of Imperial Crete (Source: QGIS, produce by D. Karampas).



Figure 6.17: Ancient Cretan cities in Tabula Peutingeriana (Pazarli, Livieratos et al. 2007: Fig. 9).

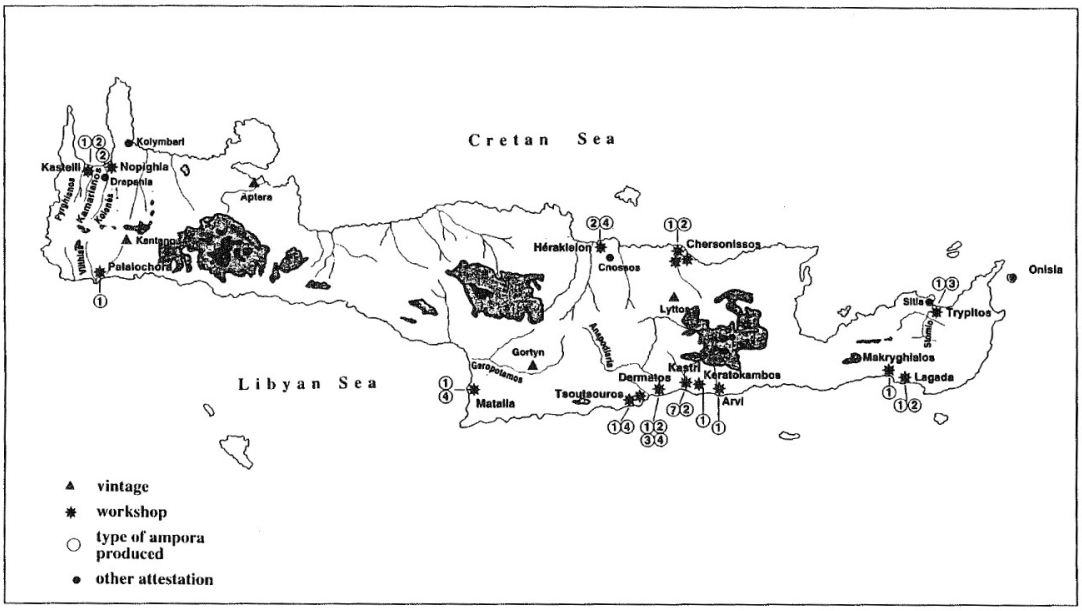


Figure 6.18: Amphora workshops in Imperial Crete (Marangou 1999: Fig. 2).

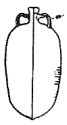
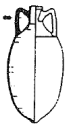
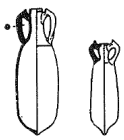
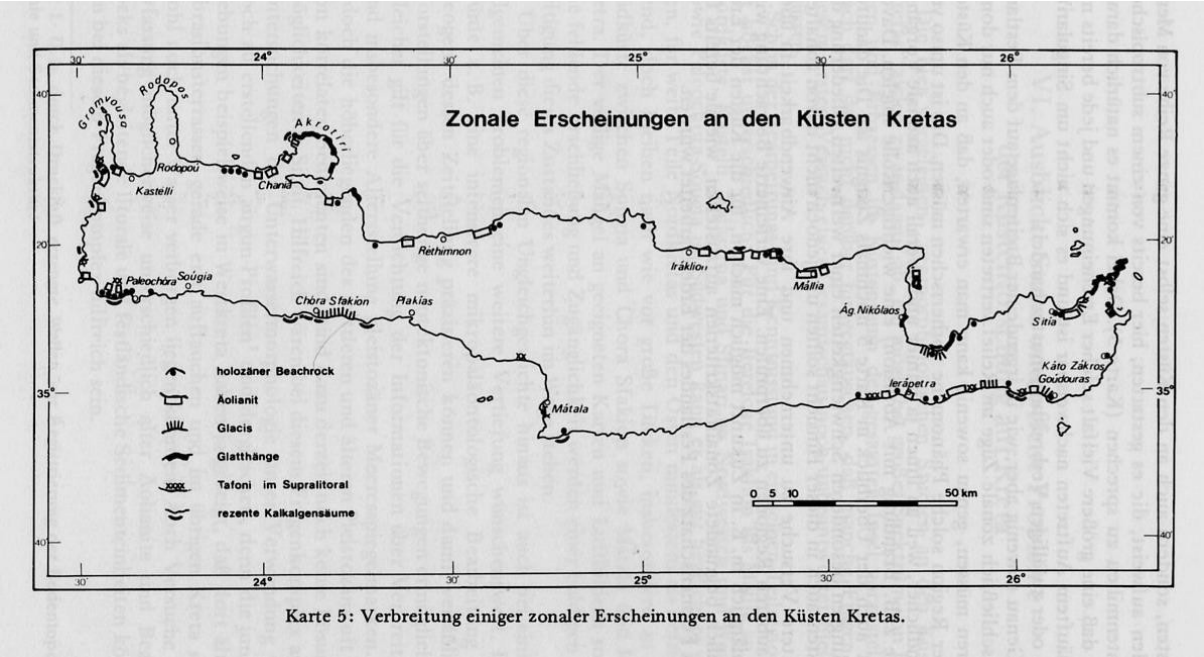
	variant a	variant b	variant c
AC7 Amphora			
AC1 Amphora			
AC2 Amphora			
AC3 Amphora and demi-amphora			
AC4 demi-amphora and quarter amphora			
AC6 demi-amphora			

Figure 6.19: Types of Cretan Amphora (Marangou 1999: Fig.3).



Karte 5: Verbreitung einiger zonaler Erscheinungen an den Küsten Kretas.

Figure 6.20: Types of quarries attested along Crete (Kellettat 1979: 97, map 5).



Figure 6.21: Istron Area, Vrionisi islet (Tziligkaki 2018: Fig.8).

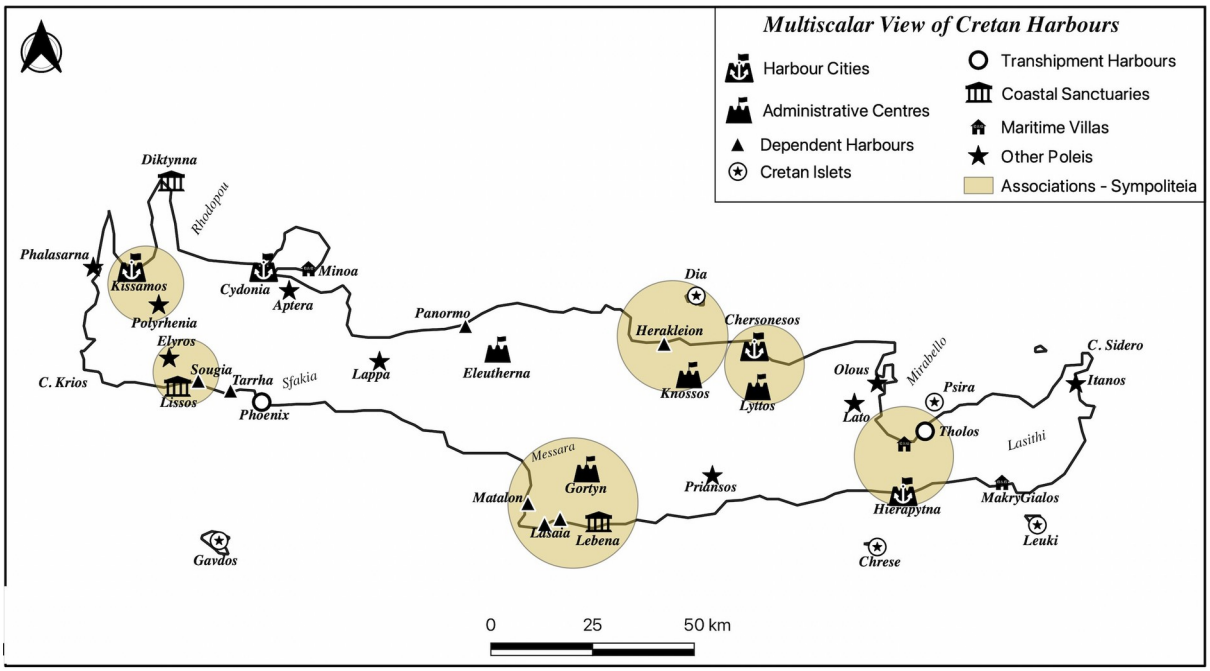


Figure 6.22: The various associations that existed upon Crete during the Imperial times (Source: QGIS, produce by D. Karampas).

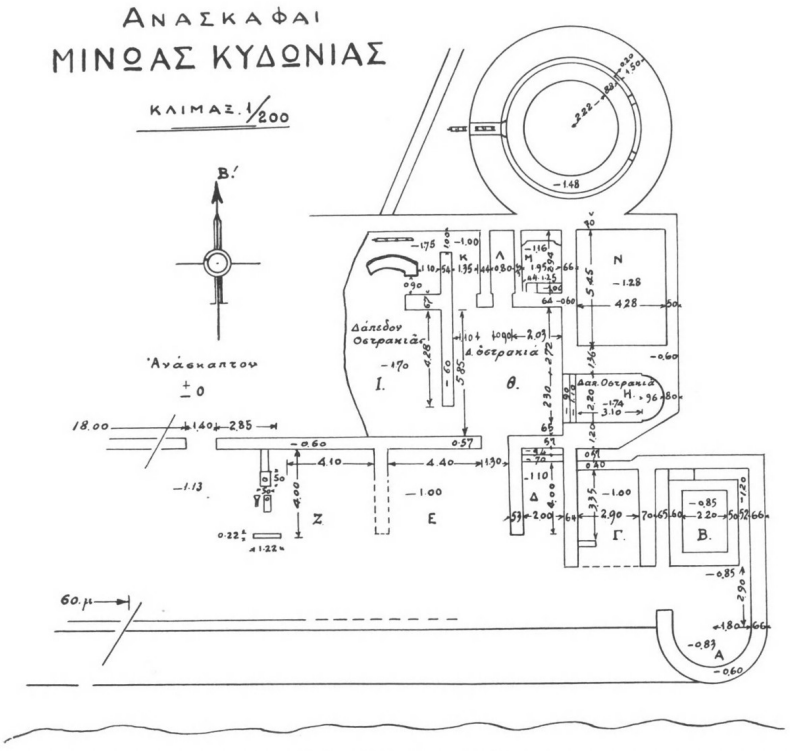


Figure 6.23: Plan of the villa at Minoa (Theophanides 1950-51: Fig. 7).

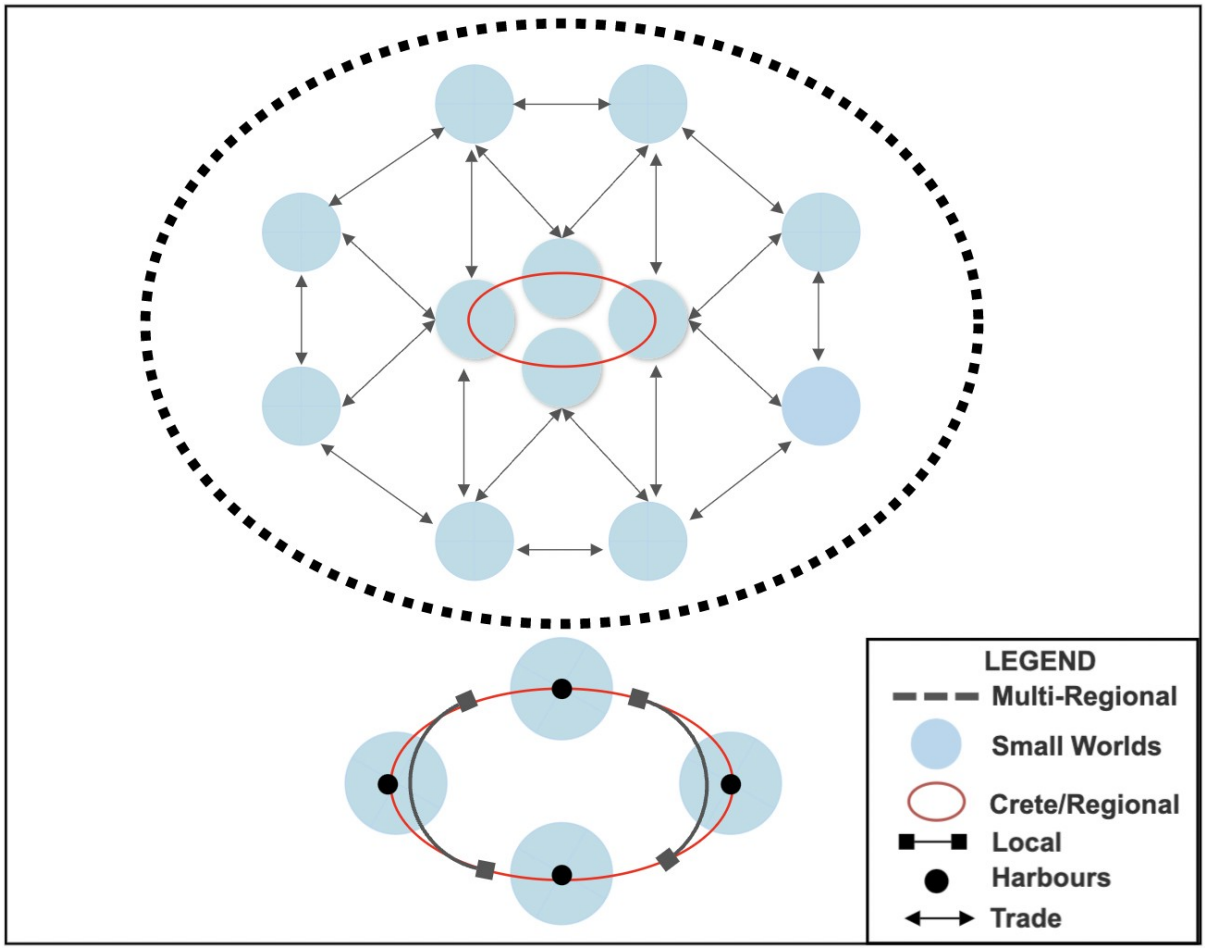


Figure 6.24: Drawing reconstruction of the networking model presented in this chapter (Source: D. Karampas).

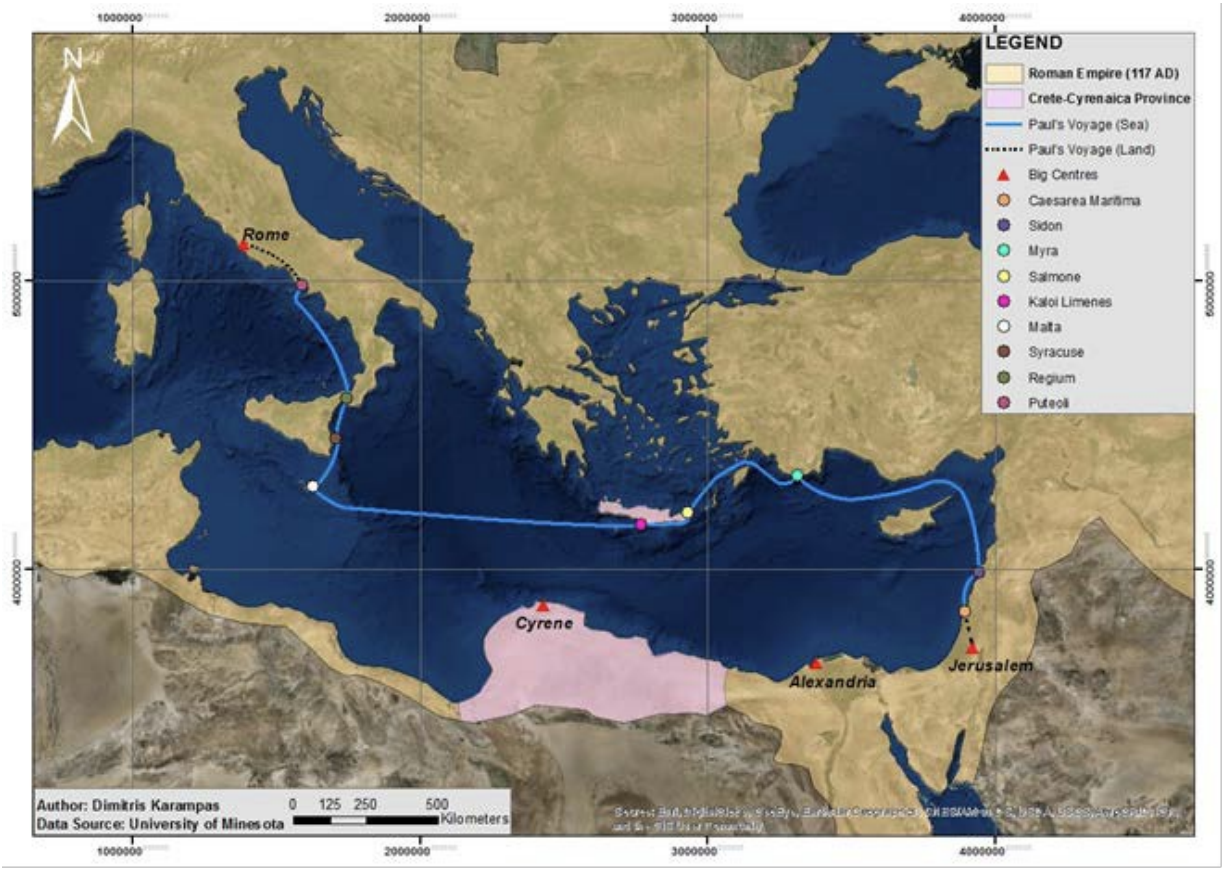


Figure 6.25: Paul's voyage to Rome via south Crete (Source: ArcGIS, produce by D. Karampas).