

Outside the Walls:
Cyrene's Suburban Zone between the Greek and Roman Eras

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by

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Abbreviations

AR DoA: The Archives of the Department of Antiquities in Cyrene

AR UniCh: The Archives of Chieti University

BAR British Archaeological Reports

CAS Cyrene Archaeological Survey

ICOMOS: International Council on Monuments and Sites

SEG: *Supplementum Epigraphicum Graecum*

WHS: The World Heritage Sites list

Abstract

This thesis highlights the nature of the suburbs of the ancient Greco-Roman cities of Cyrenaica by studying the suburban activity and functions of the various buildings and other structures outside the limits of the urban core. Furthermore, it examines and interprets the physical remains of ancient buildings or complexes in order to identify their economic, religious, political and social purposes, their relationships to one another and the surrounding environment, and their relationship with the urban core. The thesis also sheds light on the modern developments and other factors that threaten to destroy the archaeological sites located in these suburbs.

To achieve the study's aims, I carried out a combination of extensive and intensive archaeological, topographical and landscape surveys in the suburban zone of the ancient city of Cyrene. The purpose of these was to uncover evidence of a range of activities and to record as many of the ancient sites outside the city walls as possible, in particular any recently-discovered or uncovered sites. In addition, I assessed the density of pottery sherds and any other materials observed on the surface of selected areas of Cyrene's suburbs. This was done in order to create an overview of the different economic activities and monument types situated in the city's urban periphery.

This study thus adopted a mixed-methods approach, using both qualitative and quantitative data related to the location and general character of the sites located in Cyrene's suburban zone. My doctoral research revealed that various types of archaeological sites are scattered around ancient Cyrene and can be dated between the Classical Greek and late Roman eras. The research has shown the limitation of the current limits assigned to the UNESCO WHS of Cyrene based on major monuments and the area enclosed within Hellenistic walls. Site management and protection would be more effective if the extent and nature of the suburban archaeology are more fully engaged with.

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PART I

Chapter 1 - Background to the Study

1.1 Research Aims

Most of the recent historical and archaeological research on Greco-Roman cities has focused on the urban core and the architectural types of buildings situated in this area in terms of ancient urban planning. This has usually been done in order to identify the function and importance of the city and the local community. Consequently, there is a wealth of knowledge on the subject thanks to the considerable number of studies on Greek and Roman urbanisation (Osborne 1987, 9). However, the suburban zones of cities are neglected by scholars and archaeologists. In spite of the importance of the environs located immediately outside the walls of ancient cities, they are generally poorly documented and await systematic investigation. Work on such suburbs elsewhere suggests that they could be extensive and incorporate a range of activities and monument types.

The information obtained from ancient sources, such as Vitruvius and Pausanias, is relatively sparse and in general there are relatively few modern studies which deal with this subject. Though these contribute to some extent in drawing an overview of the outskirts of ancient Greek and Roman cities, much remains unclear, not least how Greek and Roman suburban landscapes may have differed. My own research will play an essential role in uncovering a general picture of the suburbs of the cities of the Cyrenaican Pentapolis, and also of cities in other provinces in the southern and eastern Mediterranean basin.

While there has been significant research into Cyrenaica and its cities, few previous studies have focused on the urban periphery, and most have failed to fully and accurately record details of the suburban zones. Improving our understanding of city suburbs may be a key in informing better our overall view of life in ancient cities. It is thus important to conduct deeper research on this subject, and my project aims to reintegrate this evidence into our picture of ancient Cyrenaican cities, with a particular focus on the suburbs of Cyrene. Identifying the location of different buildings, structures and activities outside the city walls, as well as their economic, social and political purposes, can help us understand how ancient cities functioned.

1.2 Research Questions

The main goal of this thesis is to investigate the different types of buildings and activities located in the suburban zones of the Greek to Roman Cyrenaican cities to increase our understanding of the character and significance of these areas and their relationship to the core site. Therefore, the thesis addresses the following fundamental questions:

- (I) Did the concept of the suburban zone differ between the Greek and Roman era? Did the Greeks who lived in the cities have a concept equivalent to the (Latin) *'suburbium'*? How does all this relate to Greek terms and concepts such as *'polis'* and *'chora'*?
- (II) What was the nature of sites and activity present in the suburbs of the ancient Cyrenaican cities? What is the demographic relationship between urban and suburban areas?
- (III) What was the reason for the establishment of such sites and activities outside the city walls? How did this change over the course of time?
- (IV) How can we trace suburban economic and social activities archaeologically?
- (V) How far from the urban limits of Cyrene did the suburban activities and structures extend before the rural landscape began?
- (VI) What was the economic relationship between urban and suburban areas in Cyrene in the Greek and Roman times? How did it change through time?
- (VII) Finally this thesis asks about current threats to these suburban spaces, especially in the context of Cyrene, where urbanisation and suburbanisation are expanding, but without attention given to the buried (and surface) archaeology.

1.3 Study Area

Cyrenaica is a fairly large territory located in the north-eastern part of modern Libya (Fig 1.1). It occupies an area of about 309,000 km², extends about 643,700 km E-W and 480,000 km N-S from the so-called Gulf of Sidra in the west of Libya to the great

Catabathmus (modern-day al-Salloum in the north-west of Egypt) in the east (Goddard 1884, 32). There are at least five principal cities in this region (Fig 1.2) which have massive and visible monuments, and which have all seen some level of archaeological investigation:

1. Cyrene - “modern Shahat or Grenna”
2. Apollonia - “modern Susa”
3. Ptolemais - “modern Tolmaita”
4. Taucheira - Arsinoe, “modern Tocrá”
5. Euesperides - Berenice, “modern Benghazi”



Fig 1.1: Location of Cyrenaica.

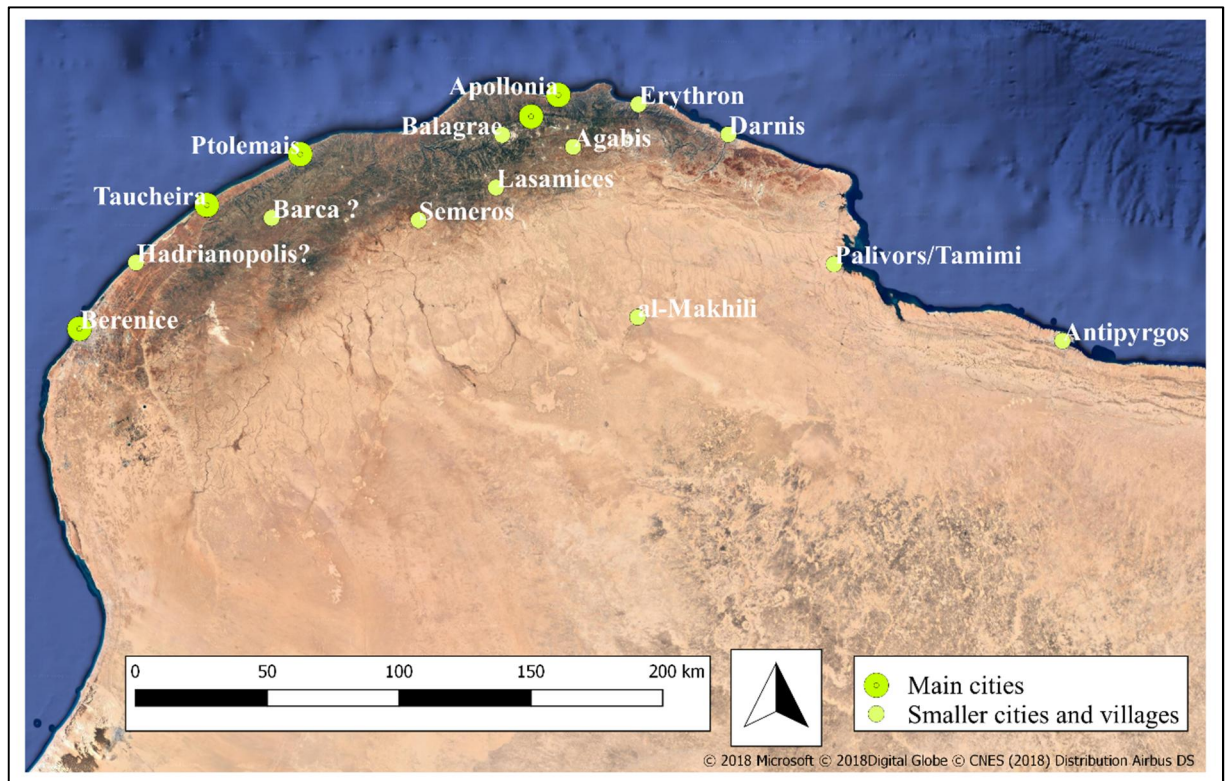


Fig 1.2: Location of the cities of Cyrenaica.

This doctoral study will concentrate primarily on the suburban zone of Cyrene between the Greek and late Roman eras. This is because Cyrene is the largest city in Cyrenaica, it was the regional capital during Greek and Roman times, and it includes a number of famous archaeological sites both within and outside its urban core. Moreover, Cyrene's location on the edge of a high escarpment means its urban core is still not fully defined, and further studies are needed to draw clear lines for its limits (with the exception of the Hellenistic walls remains present on some sides).

The extent of the ancient city to the north and northwest sides is limited, and located on steep cliffs of deep wadis filled with different types of tombs and cemeteries (Fig 1.3). Meanwhile the expansion of the city is wider on the other sides, which are situated on flat areas, especially the south, southeast, and southwest. More buildings, structures and activities of various types are found on these three sides, in addition to a considerable number of tombs.

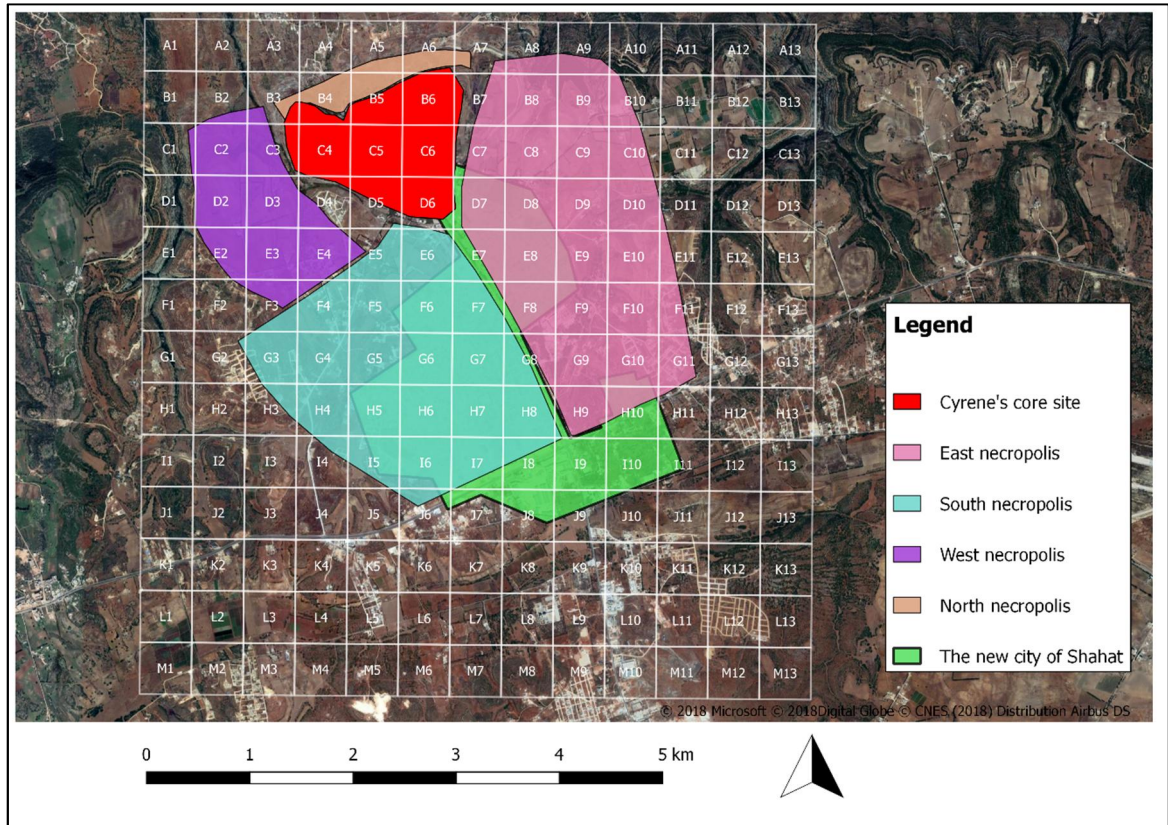


Fig 1.3: Location of the core site and main necropoleis of Cyrene.

Cyrene and Barke (modern al-Marj) are the only inland cities in Cyrenaica (the others are based on the coast), although Barke is unfortunately still archaeologically unknown and its position uncertain (Austin 2005, 1240-1). While Cyrene was the biggest city in the region, it developed in an irregular fashion. The original plan of the city apparently changed when new buildings were added between the Greek and Byzantine periods. This thesis thus focuses primarily on Cyrene's suburban zone as a case study, employing extensive field surveys to map and record the types of activities and structures present in its suburbs as fully as possible. However, I have also collected published data on the suburbs of the other cities in Cyrenaica so as to build up a general picture of the location and types of structures and activities situated in the suburbs.

1.4 Thesis Structure

This thesis contains two main parts organised into nine chapters supported by a gazetteer. Part One contains two chapters: Chapter One introduces the thesis and its main research aims, as well as the study's fundamental questions (Sections 1.1 and 1.2). This

introductory chapter presents the current state of the area of study. Chapter Two provides information on the geography and historical background of the region under review. It also defines the ancient Greek concepts of '*polis*' and '*chora*', as well as the Latin descriptive adjective '*suburbanus*' and the rarer noun '*suburbium*' (Sections 2.3 and 2.4). These definitions help us understand how the Greeks and Romans saw the ancient city and its suburban zone. Moreover, this chapter provides a general description of the urban core and the suburbs of the ancient city of Cyrene and the suburbs of the other four main cities of Cyrenaica (Apollonia, Ptolemais, Taucheira, and Euesperides/Berenice). This is followed by a literature review which includes most of the reports of early travellers to the city, in addition to many relevant past and contemporary studies (Section 2.7).

Chapter Three is devoted to the methodology of my research. It provides details on the two survey phases of my Cyrene Archaeological Survey (CAS) that were carried out in the study area (Section 3.5), and describes all steps taken in conducting the extensive and intensive field surveys. It covers the preliminary mapping, methods and strategies used for field material collection and site recording, in addition to personal reflections on the field survey.

Part Two of the thesis starts with Chapter Four, which investigates the cemeteries of Cyrene in terms of their topographical location, distribution and date, and provides context for burial customs (Sections 4.2 and 4.3). Section 4.4 discusses the types of tombs found in the city's four main necropoleis, while Section 4.5 provides detailed information on a number of recently-discovered tombs in several areas around Cyrene, especially the tombs located on the new site of the city of Shahat such as the tombs within the area of the Katiba, south-east of the city.

Sacred suburban sanctuaries are discussed in Chapter Five, which details their locations, the kinds of rites performed there and the gods they were dedicated to. Sections 5.2-5.5 of this chapter provide detailed descriptions of the different types of buildings situated within these sanctuaries, in addition to analysing their chronology based on previous studies or other archaeological evidence, such as the available epigraphy and the architectural styles used. Moreover, in Section 5.6, I briefly consider the suburban

churches and other possible Christian monuments in the urban periphery of Cyrene, providing an overview of their distribution and chronology.

Investigation of some of Cyrene's economic activities, like olive oil and wine production is provided in Chapter Six, which also discusses qsur (fortified farms) and farms located around Cyrene. I explain how olive oil and wine were produced (Sections 6.2.1 and 6.2.2), then provide examples of olive oil and wine production installations recorded around Cyrene (Section 6.2.3). In terms of qsur and farms which were usually associated with economic activity, Section 6.3 provides a detailed analysis of several qsur and fortified farms and their distribution around the city of Cyrene, including a number of recently-discovered remains. It provides sketch plans of all of these building for the first time

Chapter Seven deals with other kinds of economic sites, such as pottery manufacturing, metalworking and quarries. It discusses the pottery products manufactured locally in the Cyrenaican cities, especially the types of Cyrenaican amphorae and their fabric (Section 7.2). The chapter investigates kilns discovered within Cyrenaica, as well as their distribution and date (Section 7.3). This is followed by a discussion on the possible evidence of pottery production and metalworking in Cyrene (Section 7.4). This chapter reports on most of the findings of the intensive survey carried out around Cyrene, especially from the second phase of the survey. Section 7.4 examines the quarries and building materials found in Cyrenaica in general and in Cyrene in particular, considering their distribution around the Cyrenaican cities and estimating their chronology.

Chapter Eight is devoted to the region's urban infrastructure during the Greek and Roman eras, notably roads and water supply, then focuses on Cyrene's water supply system (Section 8.2). It analyses how water was collected, stored and then delivered to the different parts of the the Greek and Roman city, exploring the different types of water cisterns used at Cyrene and their locations. It also inspects the huge reservoir and the aqueducts found within and around Cyrene to understand how the city was supplied by water.

Section 8.3 investigates the ancient Greek and Roman roads in Cyrenaica, both major and minor, with a particular focus on the roads leading to Cyrene (Section 8.3.2). Some of the roads were recorded during my survey in terms of their location and extension. I investigate the road courses to settlements located in the hinterlands, and link these routes with Cyrene's roads to build an overall view of the whole area's road network. This chapter also questions the remains of the defensive walls of Cyrene (Section 8.4) and provides an overview on how the urban core of the city evolved through time.

The last chapter of my thesis, Chapter Nine, provides a conclusion and an overview of the wider debates on Cyrene's suburbs (Section 9.2). This is followed by a discussion on wider implications for studies of ancient cities (Section 9.3). Section 9.4 of this chapter investigates factors of deterioration of Cyrene's archaeology, while Section 9.5 discusses the future direction of this study and makes a number of suggestions and recommendations regarding further archaeological work in my specific study area.

The thesis ends with the Gazetteer, which catalogues, describes and illustrates the many sites visited and recorded during my field survey around Cyrene.

Chapter 2 - Urban and Suburban Studies in Greek and Roman Cyrenaica: Cyrene in Context

2.1 Geographical Background of Cyrenaica

In ancient geography Cyrenaica was a North African region located in the north-eastern part of modern Libya opposite Greece (Fig 1.1). The alternative name, *Pentapolis*, referred to the five principal cities which had multiple monuments: Cyrene, Apollonia, Ptolemais, Taucheira=Arsinoe and Euesperides=Berenice (Smith and Portcher 1864, 2). The region faces the Mediterranean to the north and west, and is bordered by Marmarica to the east and Syrtica to the west (Pliny V, 5; Hamilton 1856, IX, X). The southern borders of Cyrenaica were not accurately demarcated, but are understood to have ended at the desert margins (Chamoux 1953, 11).

According to Strabo (XVII 199, 205), the western end of Cyrenaica extended the citadel of *Εὐφροῦρα*, which lay to the west of the famous site of *Arae Philaenorum* on the coast of Sidra Gulf. The eastern border was at *Catabathmos* (modern-day al-Salloum in the north-west of Egypt). This strategic position within the Mediterranean basin was favourable, being due south of Greece at a distance of about 350 km, and midway between Egypt and Carthage (Gregory 1916, 321; Hamilton 1856, IX). In terms of agricultural potential and geographical location, the region thus had high economic potential.

Cyrenaica can be divided into three geographical regions (Fig 2.1) based on its natural features:

Coastal plain: This extends from the Sidra Gulf in the west to the Phaia Gulf (modern al-Bumba) in the east. The coastal plain is in general a narrow strip of land with some differences in breadth in certain areas; its maximum width is not more than 8 km in the area between Benghazi and Tobra (Moret 1936, 540; Treh 1971, 53-4). This coastal plain area is the lowest region above sea level in Cyrenaica.

Plateaus: The most striking geographical feature of Cyrenaica is the projecting plateau, which is called now the Jebel al-Akhdar (the Green Mountain). The plateau extends to a distance of about 250 km, from Tocrá in the west to Darnis (modern Darna) in the east. It consists of a mass of limestone rising up steeply from the Mediterranean, followed by a gentle descent towards sea-level again to the south with intersections of deep valleys and streams (Johnson 1973, 1-3).

The landscape of the Jebel al-Akhdar consists of three terraces of different heights (Kleinsmiede and Van Den Berg 1968, 115; Gimingham and Walton 1954, 507-17). The first is about 250 m above sea level, including al-Abiar village and the plain of Barke (modern al-Marj plain), which are considered to be the best agricultural areas in Cyrenaica due to the fertility of their red soil (Rezghana 1964, 8). The second terrace is between 450 to 600 m above sea level, and Cyrene is the most famous city located at this level (Moret 1936, 540-1). The terrace's height, however, diminishes gradually as it approaches the coastline. This area is also characterized by its fertile soil, as well as forests, and heavy rains especially in the winter. The third terrace represents the highest range in the Jebel al-Akhdar; its highest point is more than 850 m above sea level at the area called Sidi Mohamed Al-Hamri, which lies about 20 km to the south of Cyrene (Chamoux 1953, 15).

Libyan Sahara: As mentioned above, Cyrenaica's southern limits were undefined, but were bounded by the desert. This area of Cyrenaica contains some oases, notably those of Awjila, Jalu, and Jaghbub (Rezghana 1964, 11). Further south and south-west are the oases of Fazzan and al-Jufra, which seem to have thrived in antiquity as religious centres (Hyslop 1945, 12 ff).

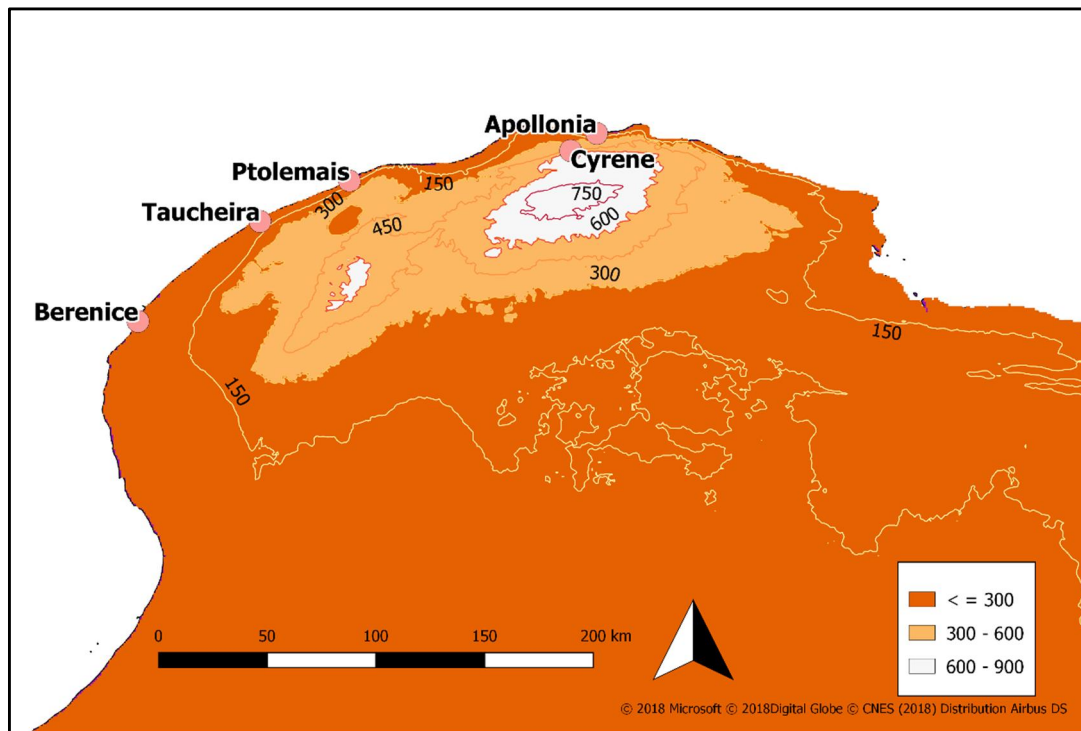


Fig 2.1: A map of the topography of Cyrenaica.

2.2 Brief History of Cyrenaica in the Greek and Roman Periods

Although the region of Cyrenaica was generally known as Pentapolis owing to the five principal cities located in the region (Cyrene, Apollonia, Ptolemais, Taucheira and Euesperides), the region became known for a limited period of time in the second century AD as Hexapolis, the union of the six cities, following the foundation of the city of Hadrianopolis (now Driana) (Noshi 1970, 56; Little 1971, 53–67) (see Fig 1.2). Barke (modern al-Marj) is another early Cyrenaican city, but unfortunately it remains still archaeologically unknown.

A number of minor settlements also existed, especially around Cyrene. Examples include Balagrae (now al-Bayda) and Lasamices (now Slonta) to the southwest of Cyrene, Safsaf to the south, Limnias (now Lemluda) and Magernes (now al-Abraq) to the southeast (Jones et al. 1998, 285-6). It should be noted that all these cities and the whole Cyrenaican region were directly influenced by the historical events which took place at Cyrene, as it was the earliest of the ancient Greek cities in the area and was the regional capital in the Greco-Roman era.

Cyrene was founded in 631 BC by Greek immigrants who had apparently fled a drought that afflicted the island of Thera in the Aegean Sea (Boardman 1966, 152-53; Boardman 1968, 90). Battus was the first king of Cyrene, and his family ruled the city until 440 BC. All seven kings who ruled after him were named either Battus or Arcesilaus (Herodotus IV, 159-167; Athram, 1988, 35). Cyrene's early history was volatile and characterized by murder and conflict among the ruling families. It enjoyed a period of relative calm and prosperity under King Battus IV (515-465 BC), although his successor Arcesilaus IV (465-440) was assassinated. The Battiadis royal era ended with the death of Arcesilaus IV, as did the independence of the cities of Cyrenaica. They were subsequently subject to the leadership of Cyrene, which was the stronghold and the seat of the kings of Cyrenaica. This led to constant conflict between the cities for control of Cyrenaica.

The fiercest competition was between Cyrene and Barke (Al-Athram, 1994, 117-118). There was a series of shifting alliances between the various cities, as suggested by coins inscribed with the names Cyrene and Euhesperides, and others inscribed with the names Teucheira, Barka, Teucheira, Euhesperides and Cyrene (Robinson, 1927, XIV-XV). While Barka became the most powerful city at the beginning of the fourth century BC, Cyrene took back sovereignty in the middle of the fourth century owing to its strong commercial relationship with the Greek world (Al-Athram 1994, 119).

After Alexander the Great ended Persian rule in Egypt in 332 BC and founded the city of Alexandria, he went westward to visit the famous Oracle of Zeus Ammon, receiving his favourite advice that he was "the son of Zeus". On his way to the oasis of Siwa in the Western Desert he met representatives of Cyrenaica who presented him with gifts and pledged loyalty to him (Kenrick, 2013, 4). After the death of Alexander the Great in Babylon in 323 BC, Cyrenaica came under the control of the Macedonian general Ptolemy I and his dynasty based in Egypt. The area remained under Ptolemaic rule (Al-Mayar 1978, 13) until the Roman period began in Cyrenaica following Ptolemais Apion (116 BC–96 BC), who ruled the region for twenty years and pledged to bequeath his kingdom to Rome should he die without an heir (Goodchild 1970, 22; Jones 1971a, 358; Al-Mayar 1978, 19-21).

Only in 96 BC did the Romans only take possession of Cyrenaica (Jones 1971a, 358), and in 74 BC they decided to make Cyrenaica an official province of Rome (Romanelli 1943, 27). The Roman government combined Cyrenaica and Crete into a single province after Rome occupied Crete in 67 BC. By this time the region of Cyrenaica was known as the ‘Pentapolis’ (the union of the five cities). However, the initial period of integration between Cyrenaica and Crete did not last long. The assassination of Julius Caesar in 44 BC led the Roman Senate to grant the governorships of Cyrenaica to Cassius and Crete to Brutus (Rowe 1956, 3).

There is little information about the period from the end of the Augustan era to the beginning of Trajan's rule (AD 98–117). The only information available with regards to the identity of certain disloyal governors who were accused by 29 people of the region of bribery and of being usurpers. During this period, those who were unhappy showed their concerns by resolving their problems and restoring the land using illegal methods. They also made some internal reforms, such as expanding and improving the road system (Al-Mayar 1978, 51).

The most important event in Cyrenaica in the early second century AD was the outbreak of the Jewish revolt in AD 115. Trajan was able to overcome this rebellion, but only after it had caused widespread destruction. Following the reconstruction of the city, principally under Emperor Hadrian (AD 118-138) (Fraser 1950, 83), Cyrene again entered a period of prosperity. Coins and a considerable number of inscriptions in Cyrenaica refer to the significant attention Hadrian paid to repairing what the revolt had destroyed. For instance, his coins were inscribed with the words “Restitutor Libyaea” – “Libya's reformer” (SEG 1923 54), and he was also named “Founder and feeder” – “κτιστής και τροφιος” (Applebaum 1950, 87; Fraser et al. 1950, 88). Moreover, Hadrian established a new city between Tocra and Berenice named Hadrianopolis (Applebaum 1950, 89; Jones and Little, 1971, 53). All these honorific inscriptions prove the great efforts and resources that he put towards reconstructing many buildings and rehabilitating the region.

In AD 262 Cyrene was hit by an earthquake, but reconstruction happened very quickly under Claudius II (268–270) (Goodchild 1968a, 42; al-Barghouthi 1971, 385). However, in AD 365, another earthquake destroyed much of the city, which had not yet embraced Christianity. A grand rebuilding programme took place, although former places of pagan worship were desecrated, including the great Temple of Zeus (Goodchild 1968a, 43; Di Vita 1995, 971-6).

2.3 Overview of Cyrenaica's Cities

2.3.1 Apollonia

2.3.1.1 Introduction and history of research

By the Hellenistic period, Cyrene had its own port city of Apollonia (Laronde 1996, 4). There is every reason to suppose that Apollonia functioned in this capacity from a very early time because of the precipitous face of the mountain's lower stage, which presents a nearly vertical drop of 290 m (White 1966, 260; Pedley 1976, 12). The descent from Cyrene to the sea cannot be made directly; instead, it is necessary to travel an oblique route to the northeast and then follow the sloping bed of a stream-cut valley to the coast. Apollonia, which was settled on the nearest strip of coast feasible for a harbour, is a full 20 km away from Cyrene.

The two sites were connected in antiquity by a road, first constructed in Greek times and later modified by the Romans (Goodchild 1968c, 163); the modern asphalt road follows essentially the same route. Apollonia lies at the edge of the sea on a long, narrow eminence of limestone, whose maximum height is less than 24.50 m. The ancient city site covers c. 22 ha, and was oriented from east to west along c. 1200 m of the shoreline. Between the site and the mountain is the coastal plain, roughly 2 km wide, and the city today is nowhere more than 200 m wide from north to south.

The history of excavations in the city of Apollonia is similar to that of Cyrene, with the earliest investigations and excavations taking place intermittently from the 1920s up to the Second World War (Pedley 1976, 27). Some of its major buildings were excavated and fully recorded in the 1950s and 1960s by British and American (University of Michigan) teams (White 1966, 259). A Cambridge University team undertook the first detailed survey of the ancient harbour in the mid-1950s (Flemming 1971, 95 ff), and this has now been updated by the French mission which has carried out a number of excavations across the site and is presently engaged in an excavation on the Acropolis (Pedley 1976, 26).

2.3.1.2 A brief description of Apollonia's major structures of the core and suburban zones

Most of the surviving monuments on the site of Apollonia are of later Roman and Byzantine date (Laronde 1985; Goodchild 1981) (Fig 2.2). Approximately a third to a half of ancient Apollonia is now under water due to bradyseism. Recent underwater explorations make it clear that the port was originally equipped with an inner and outer harbour (Pizzinato and Beltrame 2012; Laronde 1996; Lauer 1963; Flemming 1961). While the inner harbour was formed by a massive mole running from the centre of the city out to the central island, the outer harbour, which was used for ocean-going vessels, was protected by a mole running northwards from the eastern extremity of the city and linked with the eastern offshore island. The existing coastal zone within the walls and adjacent to the port has been little studied and is likely to contain substantial evidence for warehousing, mercantile buildings and trade.

The city wall, originally of Hellenistic date, perhaps built by 250 BC, and over 1.2 km long with at least 19 towers (one every 60 m) extends north and east into the sea (White 1976, 36-7, 90-2). The Hellenistic city walls are well preserved throughout their landward course, but enormous quantities of fallen stone make it difficult to detect the gateways and towers that form part of the curtain. There may have been three principal gates, to the west, east and south. The west gate may have been built more for decoration than defence with interrelated towers of different size flanking a gate position closed by a wooden door opening onto an open court behind the gateway (Anon 2009, 14-5).

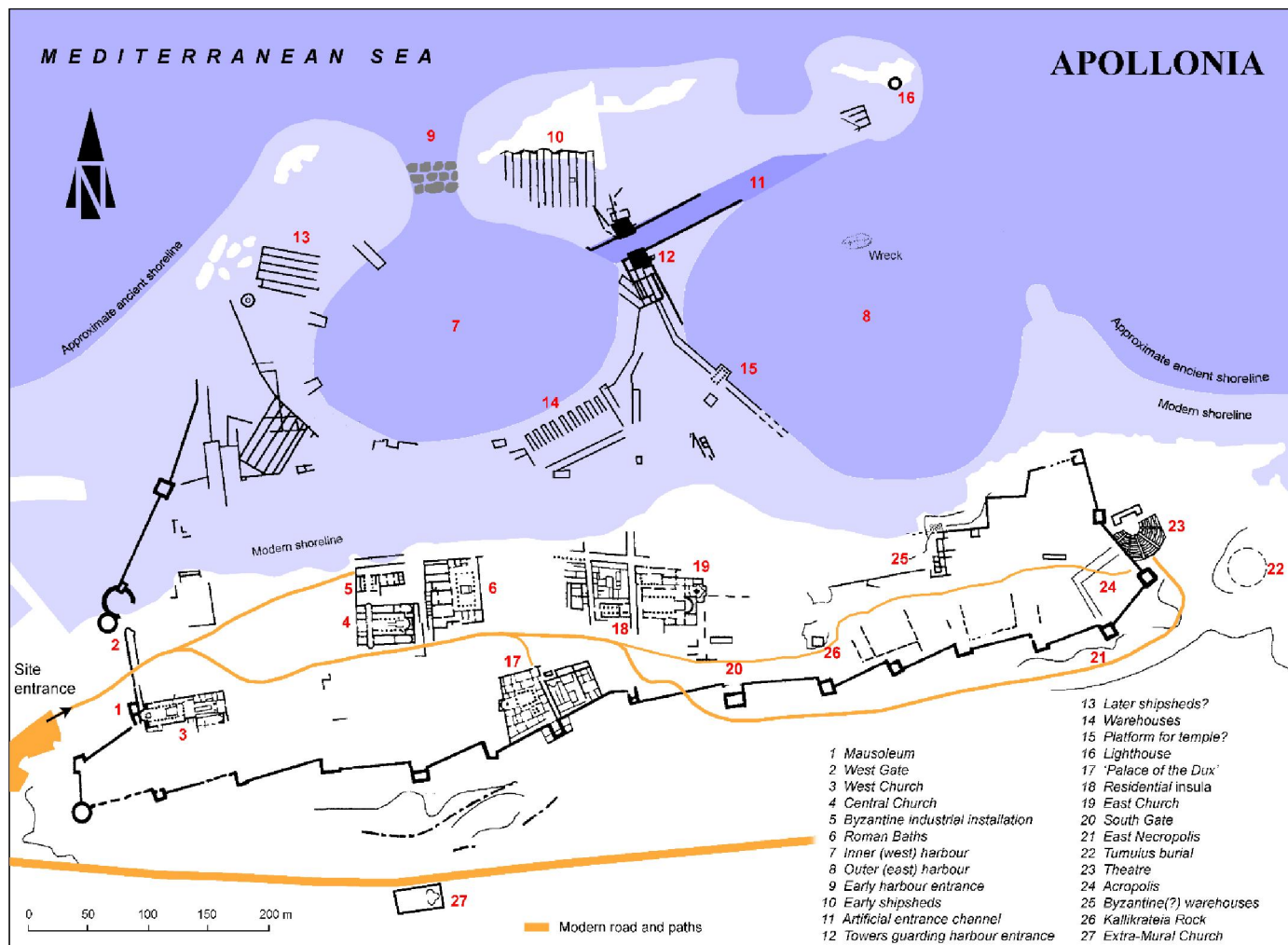


Fig 2.2: Plan of the site of Apollonia (Kenrick 2013, 256).

Outside the walls are extensive quarries, many of which contain tombs. Most are concentrated within a kilometre of the city walls (White 1976, 38). To the northwest of the ancient site of Apollonia are the remains of a substantial burial monument with a number of chambers cut into the bedrock (Laronde 1985, 95). In addition to the quarries and tombs, there are several buildings located outside the city walls (Pedley 1967, 141-47). For example, the Hellenistic theatre, which was redesigned and embellished in the era of Domitian (Roman Emperor from AD 81 to 96), is positioned on the east side close to the walls (no. 23 on Fig 2.2).

About 100 m to the south of the walls lies an extramural church (no. 27). To the west of the city walls at a distance of about one kilometre, the remains of a levelled platform belonging to an ancient temple are visible between the Moslem cemetery and the sea. This Doric temple was oriented east-west. Its date is not precisely known, but it was most probably constructed in the Hellenistic period or even earlier.

The city was also flanked by a series of forts (see Fig 2.3). Two were placed near the sea on raised ground, strategically flanking either side of the city. A third existed on the site of an Italian signal fort immediately west of the road from Cyrene to Apollonia, at the crest of the first escarpment, and a fourth was built at the head of the Wadi Bu Feri. The western fort (Alwat Beia) lies 3.5 km from the west gate of Apollonia, 200 m from the sea (White 1966, 264; White and Wright 1998, 3). To the east is another small mound (Alwat al Maaser) that boasts a small settlement with visible tanks and walls. The east fort lies 1.25 km east of Apollonia, close to a possible small harbour and beach (the outlet of a shallow wadi) (White 1976, 90).

The forts and the lighthouse on the east island of the port formed essential outer defences and would all have been in close communication by signal. This chain of extramural forts that linked Cyrene to its port was designed to work as an early warning system, primarily against sea invasion, and as a means of temporarily denying the enemy access to the main roads leading into Apollonia (White and Wright 1998, 12). The wadis behind Apollonia also have great potential for remains, including prehistoric caves. Though over-built by the old and recent houses of Marsa Susa, the city suburbs are filled with the remains of quarries, cemeteries and outlying buildings.

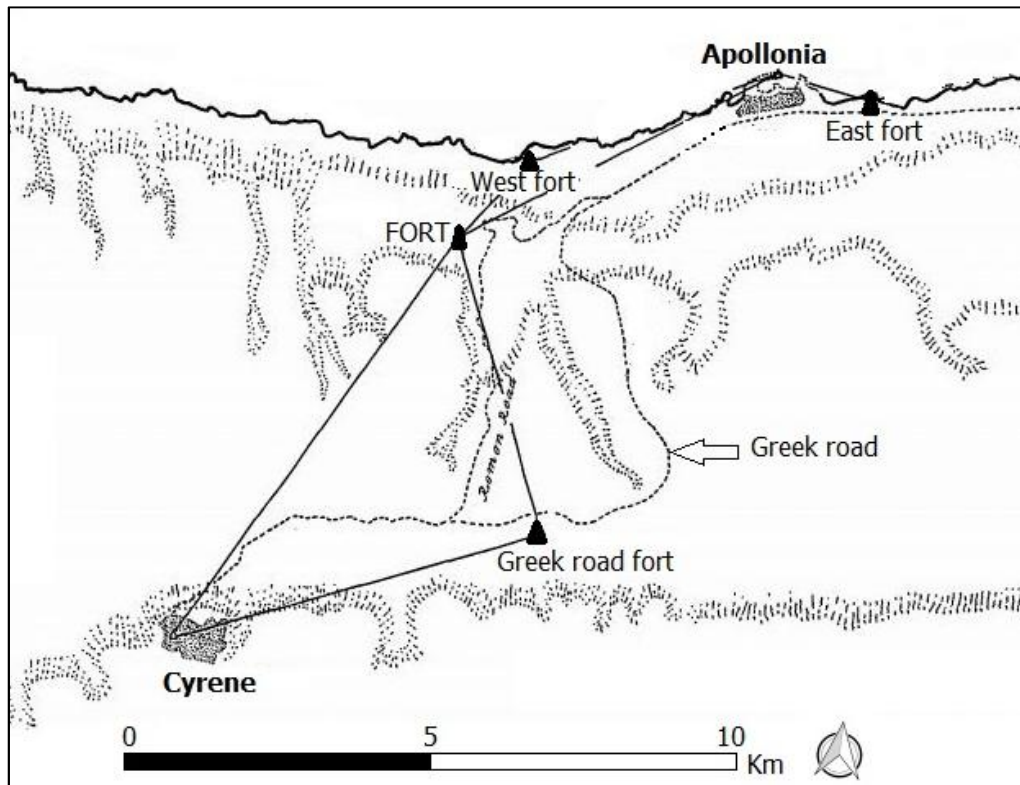


Fig 2.3: Map shows the locations of the extramural forts at Apollonia (Adapted from White and Wright 1998, 4).

2.3.2 Ptolemais

2.3.2.1 Introduction and history of research

Ptolemais was situated 100 km to the west of Cyrene on a narrow fertile plain cut off on the landward side by the staircase topography of the Green Mountain. Equal distances of about 1000 km separated Ptolemais from Tripoli to the west and Alexandria to the east. Boardman (1966, 153) states that, although there is some evidence to indicate settlement in the 6th century BC, it was not until the beginning of the 3rd century BC that a harbour developed here. According to tradition, it was named after Ptolemy III Euergetes (246-221 BC), and tied to the flourishing town of Barke (al-Marj).

The inland city needed an export outlet for its various products, including grain from the fertile Barke plain. Barkian territory offered few natural facilities for the creation of such an outlet along its coastline, and the best location was at the site where Ptolemais was subsequently built. It is thus likely that the site of Ptolemais was occupied and

developed as soon as Barke entered upon its commercial enterprise, in other words, as early as the last quarter of the 6th century BC when Barkian coinage began to be issued (Kraeling 1962, 3-4).

Interestingly, Herodotus (IV, 171) in the 6th century BC reports that people from Barke, a city 25 km south of Ptolemais on the first escarpment of the Jebel el-Akhdar, apparently settled first in the location of the coastal plain later occupied by Ptolemais. He adds that Barke was founded in the middle of the 6th century BC by a schismatic element of the population of Cyrene, and that Barke soon flourished despite tensions with Cyrene. While maintaining friendly relationships with the nearby natives the city developed a territory of its own, known as Barkaia, with dependent settlements, such as Taucheira in the coastal plain to the northwest.

The history of archaeological exploration at Ptolemais began with the first descriptions of the site by Raymond Pacho in 1824-5 and the Beechey brothers in 1828). Smith and Porcher explored some ruins of the city's monuments in 1860-1 (Smith and Portcher 1864). The first systemic excavations were undertaken by Halbherr and De Sanctis as part of an Italian mission and by the American team led by Norton in 1910-11. Ghislanzoni also undertook some excavations in 1913, shortly after the Italian invasion but it was not until 1935-42 that large scale works were started by Caputo (Caputo 1954, 33-66).

It was at this time that a large townhouse, the so called 'Palace of Columns', was discovered and work started on the west Basilica. Work re-commenced after the Second World War in 1954-8 when Kraeling from the Oriental Institute in Chicago commenced excavations and a detailed study of the city (Kraeling 1962; Little 1985). His publication on the city is still an important work of reference. In 1956-7 Italian excavations began on the 'Via Monumentale' and Richard Goodchild's commenced work on the 'Odeon' and the street grid (Goodchild and Kraeling 1962, 89-96).

Harrison started work on the 'House with the Orpheus Mosaic' in 1962 and Arthur and Bazama explored the aqueduct for the first time and published the results (Arthur and

Bazama 1974-5, 243-9). Between 1971 and 1980, Ward-Perkins worked on the late antique houses originally excavated by Goodchild along the Via Monumentale (Ward-Perkins et al 1986, 111). Work at Ptolemais resumed in 2000 by the Polish mission under Tomasz Mikocki who carried out excavations and a detailed survey of the city using satellite imagery geophysics and Kite photography (Mikocki 2006). The team also excavated a large villa within the urban core built in the 2nd century BC and destroyed in an earthquake in AD 262.

2.3.2.2 A brief description of Ptolemais's major structures of the core and suburban zones

Ptolemais is an enormous site c.238 ha, and the city forms a rectangle approximately 1400 m by 1700 m with an additional 'refuge' located above the city on the escarpment (Fig 2.4). The city is flanked by the Wadi Ziwana to the east and the Wadi Hambish (Khambis) to the west (Kenrick 2013, 69). Extensive re-building took place in the urban core at the end of the 3rd century AD with many buildings reconstructed following earthquake damage in AD 262.

Although a second and more catastrophic earthquake in AD 365 destroyed many buildings in an already Christian Ptolemais, the city probably suffered less than others in Cyrenaica (Kraeling 1962). This was one of the main reasons why many of the institutions and offices of the government of the Pentapolis were transferred to Ptolemais at this time; an effort was even made to rebuild some of the public buildings of the city in monumental form (Anon 2009, 22).

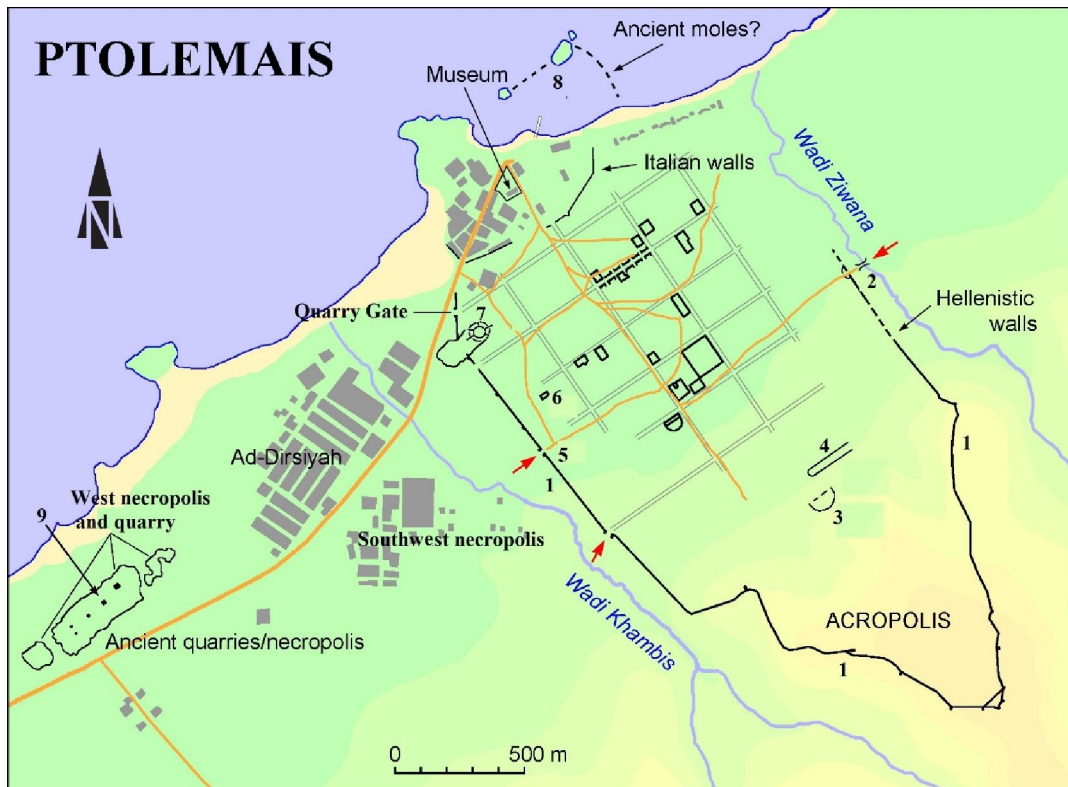


Fig 2.4: Plan of the ancient site of Ptolemais (After Kenrick 2013, 66).

1. Defensive walls; 2. Aqueduct and bridge; 3. Upper theatre; 4. Stadium; 5. Taucheira gate; 6. West Church; 7. Amphitheatre; 8. Harbour; 9. Royal Tomb.

Little investigation has been done on suburban monuments, which are particularly threatened by urban development on the west side of the ancient city. Extensive cemeteries and quarries flank the coastal zone to the west and the western side of Wadi Khambis from the foreshore to the escarpment (Kraeling 1962, 33) (see Fig 7.25). Close to the base of the escarpment in an elevated location west of Wadi Khambis is a Byzantine period fortification together with burials of an earlier period, now almost covered with new buildings.

To the east of Wadi Ziwana is an extensive necropolis extending from the foreshore to the base of the escarpment. Tombs were also cut in the sides of wadis flanking the west side of the city and there is a series of quarries close to the shoreline. Ptolemais began to shrink in the later 5th century, with inhabitants returning to Barke or resettling in the neighbourhood. At an unspecified date, the city's aqueduct was damaged and this may

have led to a major reduction in population and the removal of the headquarters of the dux and the governor to Apollonia.

To the east of the city is a well-preserved bridge carrying an aqueduct that can be traced to sources of supply in Wadi M'Likka and Wadi Haboon 23 km distant. Within the walls, although a very small proportion of the city has been excavated, a large number of buildings have been identified, such as the Greek theatre, the Hippodrome, and the amphitheatre. Most of these buildings presently exposed represent the glories of later Roman and Byzantine times (Kraeling 1962, 51-54).

The town defences were built by the 3rd century BC and included a fortified citadel above the town (280 m above sea level) that served as a refuge (Anon 2009, 22). The population was supplied with water from a huge cistern now largely blocked by debris. From the parts which are still accessible, it has been estimated to have had a capacity of at least 160,000 litres (160m³) (Kenrick 2013, 76).

2.3.3 Taucheira

2.3.3.1 Introduction and history of research

Taucheira (Tocra) is a coastal city located 120 km west of Cyrene, 67 km northeast of Benghazi. The ancient site of Taucheira has an extraordinary history and has one of the most complete ancient curtain walls surviving in North Africa. Towards Benghazi the coastal plain begins to open out into the vast and featureless expanse of the Syrtica. Only 5 km to the southeast of Taucheira rises the escarpment of the Jebel el-Akhdar. To the northeast the plain with its raised beaches rapidly narrows as the escarpment converges with the coast. Boardman (1966, 13) states that Taucheira was founded very soon after the traditional date for the foundation of Cyrene itself. The great quantity and range of the Archaic pottery found at Taucheira suggest a foundation date in the 620s BC (Boardman 1966, 89-91). Its name was briefly changed during the Ptolemaic period to Arsinoe, after Ptolemy II's wife.

The city of Taucheira was visited by several travellers and scholars who surveyed the site and recorded some of the monuments they found, including a number of quarry cemeteries and quarries (Pacho, J. R. 1827; Beechey and Beechey 1828, 367; Hamilton, 1856; Smith and Portcher 1864 and other). However, little excavation work was undertaken at Taucheira until after the Second World War (Jones 1983, 114). Some of the earliest work was undertaken by members of the Royal Air Force. A number of tombs were excavated at that time and grave goods used to start a museum.

Further excavations on tombs east and west of the city were undertaken by G R H Wright, who also updated the Beechey brothers survey and noted the extent of cemeteries southwest of the town and a possible hippodrome to the southeast (Wright 1963). Richard Goodchild and Ward-Perkins undertook a series of excavations in the late 1950s, and made studies of the eastern church, west church and west cemetery church in 1955 (Ward-Perkins and Goodchild 2003, 201-224) (see Fig 2.5).

In 1963 marine erosion west of the Turkish-Italian fort revealed potsherds of the Archaic Greek period. This observation led to the discovery of a foundation period Sanctuary of Demeter and Kore, excavated by Boardman and Hayes in 1964-5 (Boardman and Hayes 1966, iii). In 1966 Smith surveyed the defences of the town, including surviving excavated and unexcavated buildings and the coastline (Smith and Crow 1998, 35-82). In 1969 Jones and Little excavated a Byzantine bathhouse between the east gate and the palace and undertook a rapid underwater survey of the harbour (Jones and Little 1971, 64-79; Jones 1983, 109-21; Jones 1984, 107-11). A further underwater survey was undertaken by Yorke in 1971 (Yorke 1972, 3-4).

From 1974 the Department of Archaeology of the University of Benghazi commenced a series of training excavations at the site. The excavations have brought to light parts of the agora and a complex of multi-period domestic and industrial buildings such as pottery kilns and olive oil and wine presses (Buzaian 2000, 59-100). These excavations are continuing till the recent years within the walled area of the city.

2.3.3.2 A brief description of Taucheira's major structures of the core and suburban zones

In terms of its planning, Taucheira is an irregular polygonal circuit of some 2 km, with a curtain wall 2 m wide, forms an irregular square c. 42 ha, with sides of c. 650 m in length (Fig 2.5). The site is bounded by the sea to the north and here winter storms have exposed a new section of Archaic city wall, together with Hellenistic foundation and great quantities of collapsed stonework from the later rebuilding of the defensive wall and associated quay fabric, all now in the surf.

The city walls are well-preserved to the west, south and east, supporting 31 rectangular towers. Originally each side had a main gate, but the south gate was later reduced in width, concealed within a tower and relegated to postern status. Ultimately the two other gates were reduced in width but only at the very end of the Byzantine era. At least two other towers on the south had posterns implying that the population needed easy access to their fields, south of the main Roman road. Apart from these walls, the east and west gateways and certain internal buildings excavated since 1930, the visible remains today are scattered, generally incomplete, and can be planned only with difficulty. The archaeology of the city is consequently still largely unknown. The visible remains of unexcavated buildings are presumably all late Roman or Byzantine.

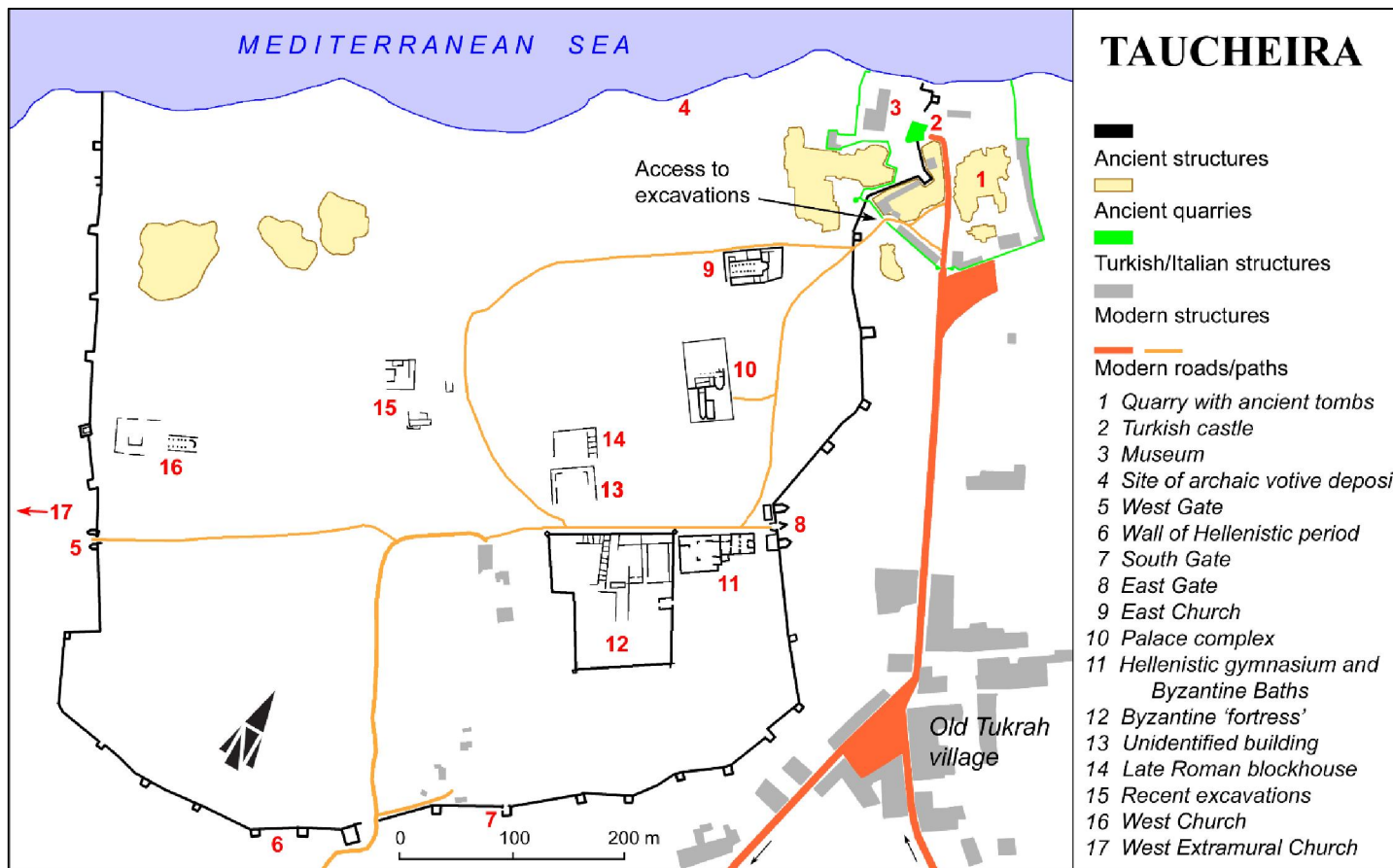


Fig 2.5: Plan of the ancient site of Taucheira (Kenrick 2013, 50).

The extra-mural of Taucheira contain buildings, including quarries, cemeteries, roads, churches, and farms. A chain of extensive cemeteries and quarries cut into the foreshore (Smith and Crowe 1998, 36-37). These quarries vary considerably in size and lie mainly along the coastline, spreading near the ancient city walls and to the east and west of the city (Fig 2.6). Those quarries located closest to the city walls contain a larger number of rock-cut tombs which many of them bearing inscriptions in Greek and Latin. A mixed population is suggested by some with Jewish names and also Egyptian names.

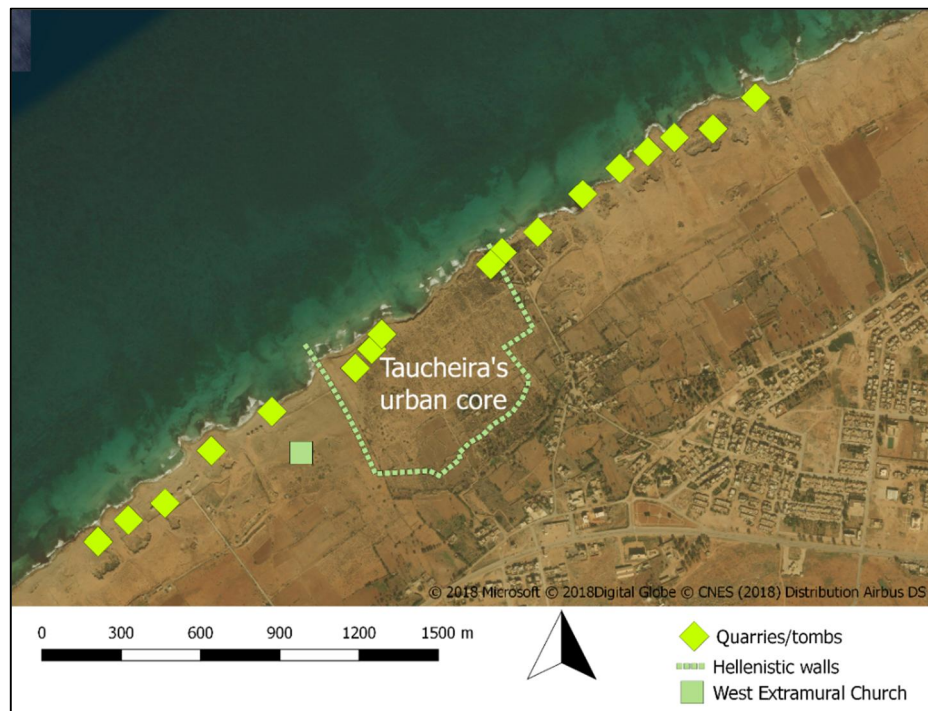


Fig 2.6: Locations of the suburban sites at Taucheira.

A number of buildings were also found outside the walls of the city including an unexcavated church located about 200 m southwest of the west gate, most likely dated to the Justinianic era (527–565) (Wright 1963, 24; Kenrick 2013, 63). In addition, several rock-cut tombs and other remains were also visible about 300 m east of the east gate, including two more extramural Churches mapped in the 19th century as ‘forts’ along with what thought to be a Hippodrome revealed by an air photograph (Wright 1963, 23). The vast majority of these monuments have been buried beneath the buildings of the new village.

Although Taucheira is never referred to as an important port, recent underwater exploration along the northern front of the city revealed an artificial harbour with two

quays running out from the shore and a rudimentary running about 220 m out of the sea (Yorke 1972, 4). Moreover, the shape of the seabed and the existence of masonry running into a sandbank suggest the possibility of further inner harbour wall running parallel to the coast from the west quay.

2.3.4 Euesperides

2.3.4.1 Introduction and history of research

Euesperides lies about 200 km west of Cyrene, and seems to have been founded in the first half of the 6th century BC, possibly in the first quarter. The city was moved a few km and renamed Berenice in the Ptolemaic era after Princess Berenice, the daughter of Magas, the provincial governor, on the occasion of her marriage to Ptolemy III (Goodchild 1962, 1-5). According to Wilson et al. (1999, 147), the relocation of the site to a more coastal position may have been due to the silting up of a lagoon on which Euesperides was sited (see also Buzaian and Lloyd 1996, 129). The numismatic evidence from the site offers information about the time of its desertion and the move to Berenice which lies underneath the modern city centre of Benghazi. From this point until very recently, the original site of Euesperides remained uninhabited and undeveloped, offering the opportunity to study the continuous development of a Greek colony from the 6th to the mid-3rd centuries BC. However, information about the layout of the public buildings and streets of Euesperides and Berenice remains poor, as are data on their with rural hinterlands (Lloyd 1985, 55).

The site Euesperides was first identified by Richard Goodchild in 1952 in the area of the cemetery of Sidi Abeid, to the north of the later city centre and on a small hill projecting into the Sabkah as-Salmani. The first archaeological work there was the Ashmolean Expedition of 1952-54, which excavated houses and parts of the town wall (Vickers et al 1994, 125; Hayes and Mattingly 1995, 83). In 1968-1969 Barri Jones conducted further excavations at the site, uncovering parts of a residential insula including an early Hellenistic house with a mosaic floor. In 1994 the site was threatened by the construction of shopping centre begun illegally on the northern part of the city area (Hayes and Mattingly 1995, 85, 94; Wilson et al. 1999, 150).

At the invitation of the Department of the Antiquities a British team undertook a surface survey of the threatened zone, followed up by a programme of excavations directed by John Lloyd from 1995-1998, and by Andrew Wilson and others from 1999-2006, designed to demonstrate the archaeological significance of Euesperides and to answer certain questions about the nature and development of the city (Wilson et al 2006, 117). These excavations which are conducted by the British team have continued until recent years

2.3.4.2 A brief description of Euesperides's major structures of the core and suburban zones

Today Euesperides lies mainly under waste ground within a developing area of the eastern suburbs of modern Benghazi (Fig 2.7). The hill of Sidi Abeid, is covered by a 20th-century cemetery, now deconsecrated and incompletely cleared (Fig 2.8). The site is particularly important because, apart from the modern cemetery, it was never built over after its abandonment in the 3rd century BC (Kenrick 2013, 39). The cemetery has interfered with the uppermost deposits on the mound of Sidi Abeid, but below the zone disturbed by modern burials there exists in places over 3m of stratified deposits (occupation materials, buildings and streets) ranging from the Archaic to the Hellenistic periods.

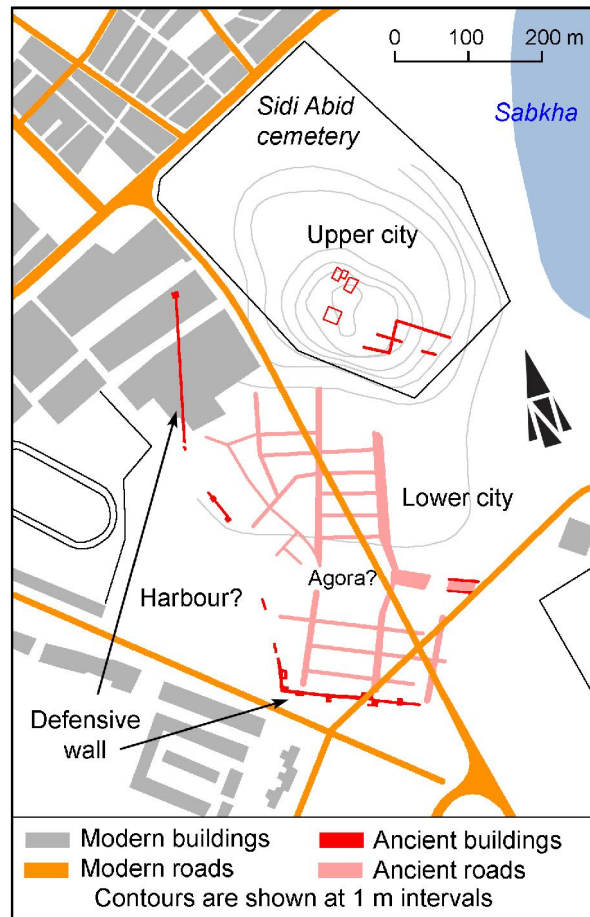


Fig 2.7: A general Plan of Euesperides (Kenrick 2013, 41).

The archaeological importance of the site of Euesperides lies in the fact that it was not overlaid by the occupation of the Roman and Byzantine periods (Kenrick 2013, 41). There is therefore a recoverable sequence which is limited to the span between the 6th and the mid-3rd centuries BC. However, the city of Euesperides was superseded by the foundation of Berenice on another site around 250 BC Kenrick (2013, 41) (Fig 2.9), which is occupied most of the area close to the present harbour and the old lighthouse, and there is rather more to see of its ancient monuments than there is of Euesperides.

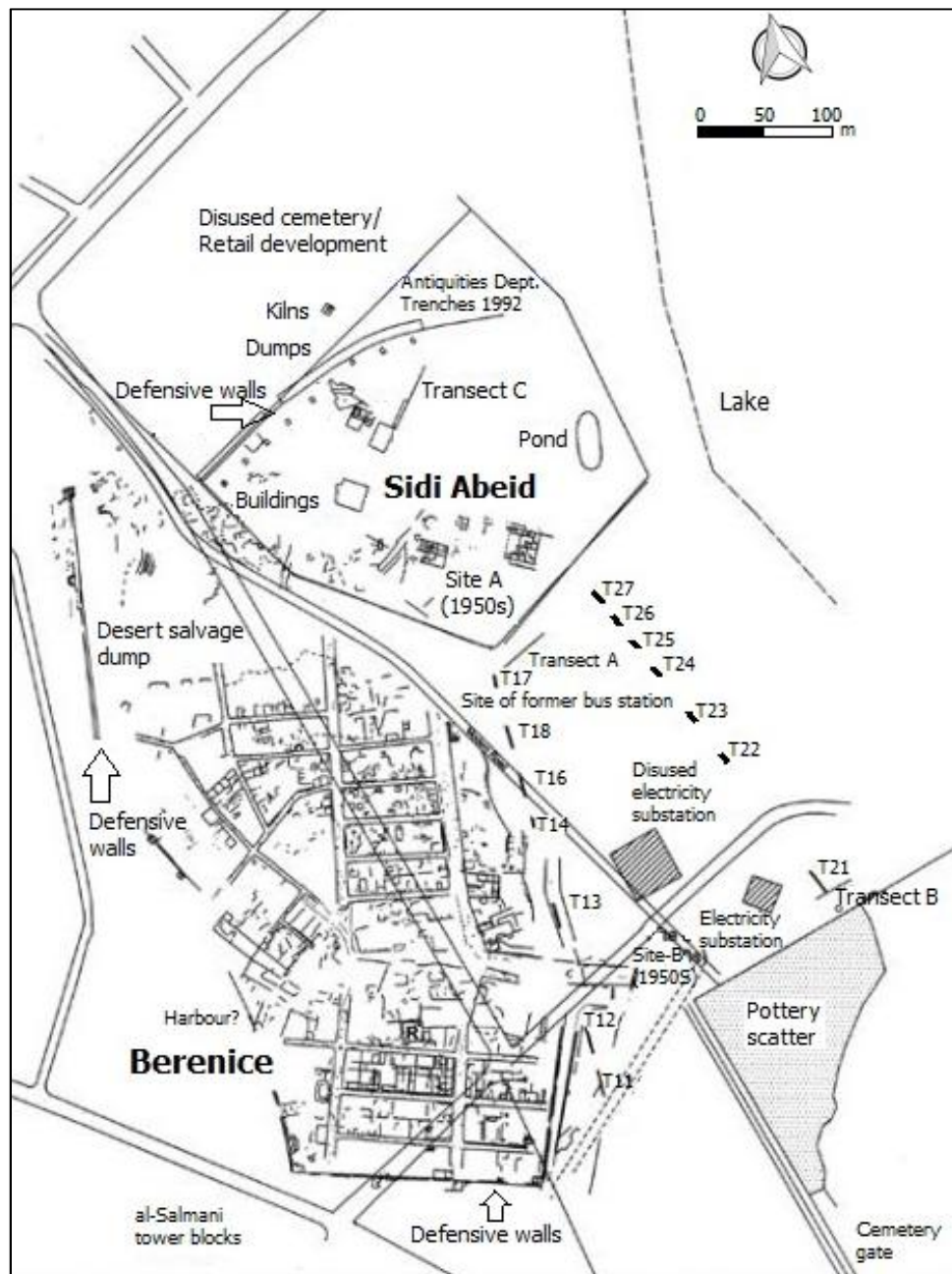


Fig 2.8: Benghazi: Locations of ancient sites and excavated areas (After Göransson 2007, 38).

The excavations carried out in the ancient site of Berenice have revealed a regular grid-plan of streets aligned to the cardinal point of the compass and laid out in the early part of the 2nd century BC at the latest. The excavated area was mainly residential, but the buildings in the western part of the site were abandoned and systematically demolished around the middle of the 3rd century AD (Wilson et al. 1999, 150). This seems to have been connected with the construction of a new defensive wall, running north to south across the centre of the site and enclosing only the ground to the east of it.

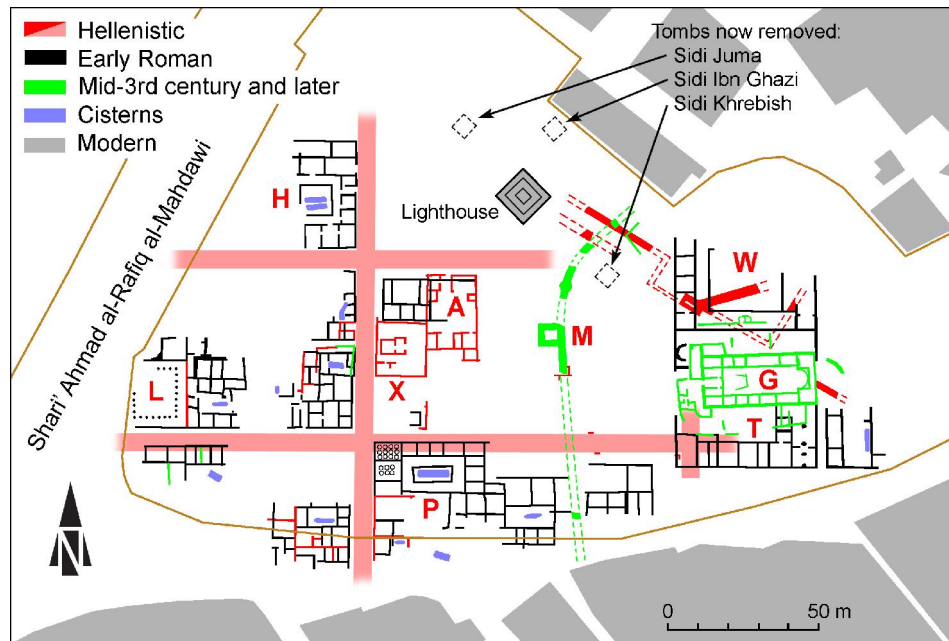


Fig 2.9: A general plan of the excavated area of Berenice (Kenrick 2013, 42).

The suburbs of Benghazi contain the remains of fortified sites, qsur, settlements, field systems, roads and industrial zones. Qasr Shibna is one of the most prominent examples of Benghazi's suburban monuments (Bennett and Buzaian 2006, 31-43). This qasr is positioned on a new road known as Palestine Road in the Suwani Osman district about 7 km north-east of the ancient site of Berenice (Fig 2.10). The new road was recently bulldozed through the northern side of the mound, exposing the north wall of a substantial building of ashlar construction. Elements of wine and olive oil presses were also exposed, including three basins for grape or olive presses. Walls of other buildings dating to Roman times were also found, together with a substantial cluster of graves.

The qasr occupies a triangular block of land of about 2,500 m² which adjoins a modern boundary wall. The qasr has been mostly destroyed and its walls, which have all collapsed, were associated with perhaps more than one phase of Roman period buildings. At least three sets of wall alignments were identified and are likely indicative of different dates of construction. It is most probable that economic activities such as olive oil and wine production took place at qasr Shibna. It is also most likely that the area within and around the qasr once formed part of a settlement.

The settlement of Garyounis is another suburban site located on the south-eastern side of Benghazi within the walls of the campus of the University of Garyounis (see Fig 2.10). This large Roman settlement covers a strip of ground about 220 x 130 m. Several ancient monuments were found within the site, including the remains of several buildings and walls, an oil press base and a paved road (Bennett and Buzaian 2006, 41-42). It is likely that the settlement's main activity was agricultural in nature due to the fertility of the land along with the frequency of rainwater in the winter.

There are also several ancient sites located in the suburbs of Benghazi which have not been fully recorded yet. For instance, about 5.5 km north-east of Berenice in the area known as Qasr el-Thama there is a raised mound, possibly a gasr, and an adjacent settlement site can be seen adjoining the shore of an ancient sebkha (Bennett and Buzaian 2006, 41). The raised mound is of particular interest for the survival of mud brickwork as well as a number of vestigial rubble walls and the remains of an ancient road. However, the enormous growth of modern Benghazi, especially since the 1970s, has resulted in the complete destruction of many urban and suburban archaeological sites. This rapid growth has also increased the risk of disturbing many other remaining sites within and around the city's urban core.

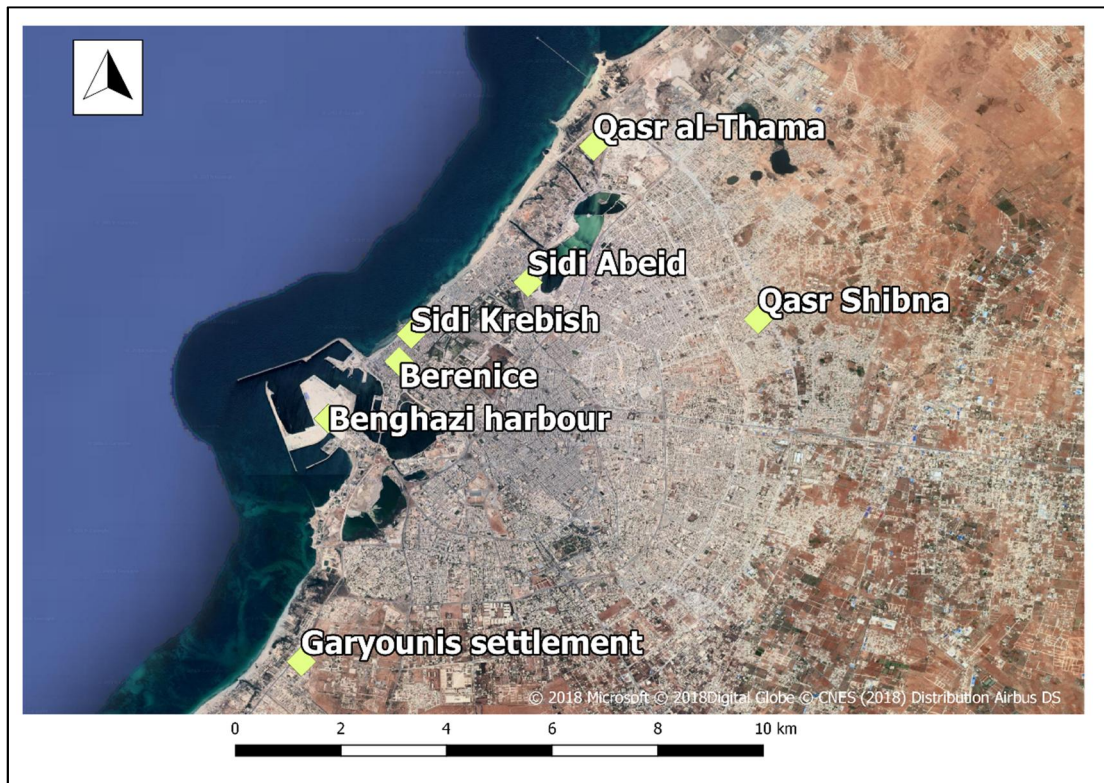


Fig 2.10: Locations of the urban and suburban sites of Benghazi.

2.3 The Greek Concept of *polis* and *chora*

Traditionally, the definition of the city (*polis*) in the Greek world focused on a people or community of citizens who shared common social, religious and political traditions (Owens 1991, 1; Hansen & Raaflaub 1995, 47). Although a number of public buildings played a vital role in the Greek life (for example, the acropolis, the agora, temples, theatres and other public amenities), the extent of the city, walls, houses and other buildings were secondary in importance (Wycherley 1967, 5-10).

On the other hand, the significance of the suburban areas of Greek cities (*chora*) cannot be denied, because it is clear that they were integrated with the urban centres. This can be seen in the position of certain important large buildings, for instance the stadium, gymnasium, amphitheatre and circus. These were often located in the outskirts or suburbs of the city, either because of the natural geography of the site or because they needed plenty of space (Wycherley 1967, xxi). Cemeteries as well were situated outside the urban core of both Greek and Roman cities (Owens 1991, 152).

Other significant elements of the city are usually found in the suburbs, in particular those related to economic activity. According to Owens (1991, 152-153) suburbs usually included important elements such as industrial sites, he adds that despite the waste and sewage which were dumped outside the city walls, the suburbs were generally safe and serene places, with gardens, farms, trees, shrines and other public and private monuments located in these wide and spaces.

Garnett (2007, 280) mentioned that the Emperor of Persia received a letter as early as 539 BC from a subject extolling the virtues of suburbs, which were also developed to provide housing for those too poor to afford the protection of city walls. The wealthiest urbanites also built private houses in the suburbs to escape the unpleasant aspects of city life - namely congestion, disease and social unrest. This granted them the advantages of suburban life while at the same time allowing them to live in close proximity to the city (Bruegmann 2006, 21; Owens 1991, 153).

2.4 A Definition of *suburbium*

The Romans defined the city in several different ways. Grimal & Woloch (1983, x) stated that the most obvious definition for Roman cities may be these which existed within the boundaries of the Roman Empire, which require a limit in time as well as physical area. This definition includes the cities founded by Roman citizens which were influenced by both Greeks and Etruscans in their urban planning. However, Roman cities are known to have been independent political units which were often laid out in a square or rectangle form crossed by two perpendicular roads. They also possessed well-built houses and other public and private buildings fulfilling various functions bounded by physical walls and sacred boundaries (Grimal & Woloch 1983, 10-11). City walls and gates were considered important public buildings because they were constructed for military functions, and to demonstrate or enhance the meaning of the city's status.

Romans referred to the area around the city as the '*suburbium*' (Garnett 2007, 280). It seems that the Latin descriptive adjective '*suburbanus*' and the rarer noun '*suburbium*' were mostly used to describe a particular landscape of private villa properties or a specific

elite lifestyle based around the city of Rome (Goodman 2007, 2-3; Champlin 1982, 97). The modern derivatives of these terms are in practice reserved for discussing features around Rome itself (Goodman 2007, 26). The adjective '*suburbanus*' was the preferred form, and was most frequently used to refer to features such as sanctuaries, tombs, funeral pyres or even small towns. It could also describe open land or even a whole region around Rome (Goodman 2007, 20). However, it did not include features such as kilns, quarries or small farms, although they all appear in the area around Rome. This highlights the differences between literary constructions of Rome's urban periphery and the actual reality (Goodman 2007, 21-22).

The term '*suburbium*' only appears twice in the known ancient sources. This lack of discussion and reference of such spaces (especially in regards to drawing their limits clearly) in the remaining ancient literature and epigraphy makes the definition of the suburbs (or *suburbium*), as well as their extent and roles, conflicted and unclear. However, a considerable number of studies and papers have focused on the suburbs of ancient Rome over the last few decades (Champlin 1982, 110; Mandich 2015, 81)

The urban periphery is defined as a zone which was neither entirely urban nor entirely rural (Goodman 2007, 8; Witcher 2005, 122). Champlin (1982, 97) states that the "suburb is simply something adjacent to the urban core of a city". It forms a part of the city, and serves several important functions of the city. On the other hand, it also possesses some features characteristic of the countryside (*rus suburbanum*). Suburbs were thus neither city nor country; they were places of industry, leisure and privacy, where suburban landowners had a great deal more to do with each other than to do with local towns (Champlin 1982, 104).

According to Goodman (2007, 65), Roman city planners regularly used several methods for outlining urban boundaries, and all of these features served as signs to help the city's inhabitants differentiate between urban and non-urban spaces. She adds that most of these features can also be used by modern scholars to reconstruct the course of an urban boundary, such as city walls, changes in the orientation of major roads,

monumental arches and natural topographical features, notably, rivers, steep slopes, cliffs and marshes.

In view of the study of the Greek and Roman concept of the city and its suburban zone, it seems clear that the suburban zone area was considered to be a key part of the city that cannot logically be isolated, even though it was located outside the city walls.

Different types of tombs and cemeteries were usually cut or built around the urban areas. These burial sites were connected with the city core by roads and paths to facilitate regular visits by the families and friends of the dead. In addition, as previously mentioned, some types of large buildings such as amphitheatres, circuses, stadia and gymnasia could occur in the suburbs; these huge buildings generally require a large area and a particular location to function (Wycherley 1967, xxi).

Several sites related to economic activity were positioned around the cities, including wine and olive oil production facilities as well as kilns. These important sites were also commonly situated close to the city walls for protection. In addition, fortified farms were sometimes built in the suburbs; these farms were usually associated with economic activity and featured wine and olive oil presses.

Moreover, religious sanctuaries were mostly located in the fringes of or away from the urban core. Some of these sanctuaries contained several buildings and usually hosted an annual festival, such as the sanctuaries of Demeter, so needed plenty of space. While some other sanctuaries were relatively small and included only a few chambers, they were also located in the suburbs. This may suggest that the location was chosen based on the area needed for the sanctuaries, and to secure a peaceful and quiet atmosphere away from the city for the practice of certain rites. It was important to make these sacred places accessible to the townspeople and those living in the rural areas.

Furthermore, several infrastructure projects, such as those related to water resources, were in many cases originally founded in the suburbs or rural areas. The cities were usually supplied with water from a distance, and the water would be transferred

through channels and stored in different types of cisterns located near the urban core before being delivered to the various buildings within the city's walls.

2.5 The Urban Core of Cyrene

Cyrene holds a unique place in the Classical world with its distinctive monuments and setting. It is located 20 km from the coast on a series of mountain levels situated on top of an escarpment, and defended by deep wadis and on some sides by walls dating to the Hellenistic era. Cyrene is an archaeological site rich in monuments both in its intramural portions and extramural extensions. The former category notably includes the Temple of Apollo and Artemis, the Temple of Zeus, the Greek agora, the Greek theatre, the Roman forum (known as the Caesareum, or the Forum of Proculus), the Roman baths, the Roman theatres, and the Byzantine church (Stucchi 1968, 209) (see Fig 2.11). Many of Cyrene's buildings and monuments were originally constructed in the Classical Greek and Hellenistic eras, and most continued to serve the same functions in the Roman times (Stucchi 1968, 208).

Notwithstanding this, some buildings were partially transformed by the Romans, while other completely new monuments were built for religious, social, economic, and/or political purposes (the Roman forum, the Baths of Trajan, the Temple of Hecate and the Basilica to name but a few) (Stucchi 1975, 204-206; Parisi 2002, 20). These successive changes cumulatively resulted in Cyrene's great Greco-Roman cultural and architectural heritage.

In this thesis, the urban core of Cyrene is considered to be the area contained within the traces of the Hellenistic and later city wall, though its line is still unclear to the north of the Temple of Zeus and the Hippodrome. Furthermore, the discovery of the extramural Sanctuary of Demeter and Persephone in the Wadi Bel Ghadir to the southwest of the

second zone (Luni 2005, 61-86) demonstrates that not all of Cyrene's significant buildings were enclosed within the walls.

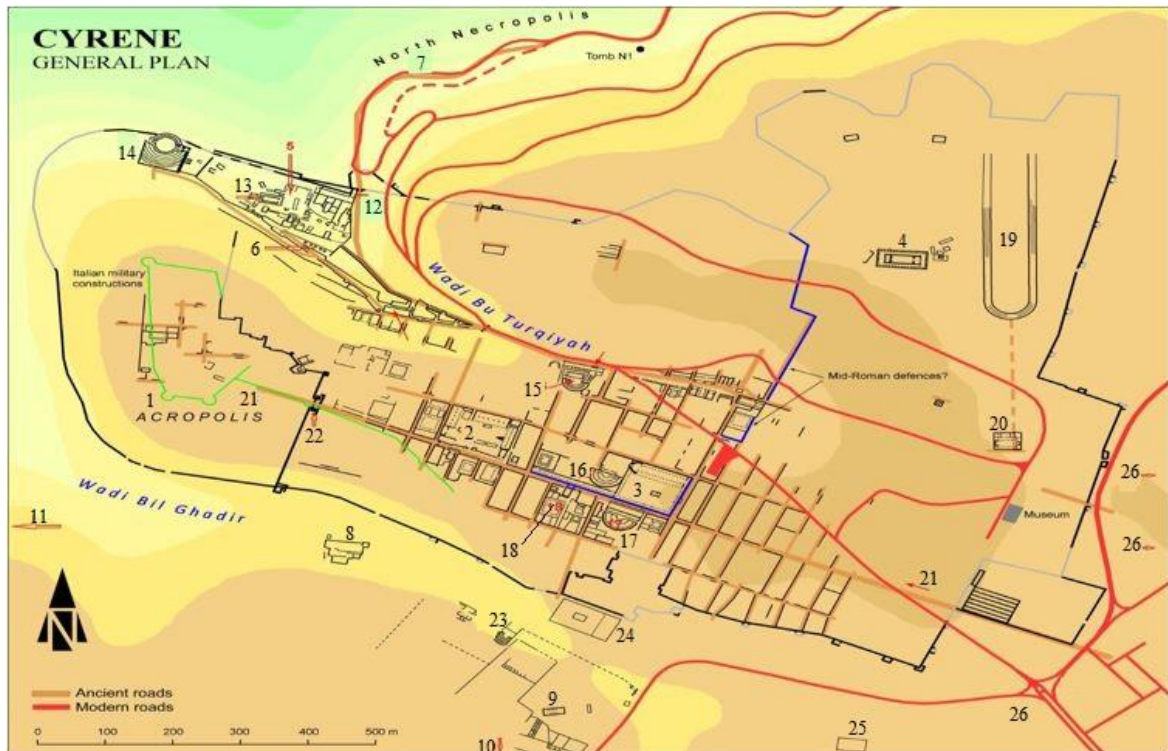


Fig 2.11: General map of the archaeological site of Cyrene (Adapted from Kenrick 2013, 357).

1. Acropolis; 2. Agora; 3. The Forum, or Caesareum; 4. Temple of Zeus; 5. The Sanctuary of Apollo; 6. Greek Propylaeum; 7. North Necropolis; 8. A sacred building of Demeter and Persephone; 9. Temple of Demeter; 10. South temple; 11. The Western Necropolis and Haleq Stawat; 12. The Former Museum of Baths; 13. Temple of Apollo; 14. The Greek Theatre, later amphitheatre; 15. Market Theatre, or Theatre 4; 16. Theatre 2; 17. Theatre 3; 18. House of Jason Magnus; 19. Hippodrome; 20. East Church; 21. Street of Battos; 22. Acropolis Gate; 23. Theatre 5; 24. Temple; 25. Funerary Basilica (Qasr Grescendi); 26. Modern city of Shahat.

Overall, the archaeological site of Cyrene can be divided into three main zones, according to the escarpment edge nature of Cyrene's location (Fig 2.12). The three zones cover a considerable area and form an urban core of c.65 ha, characterized by the co-existence of both Greek and Roman forms of urban planning.

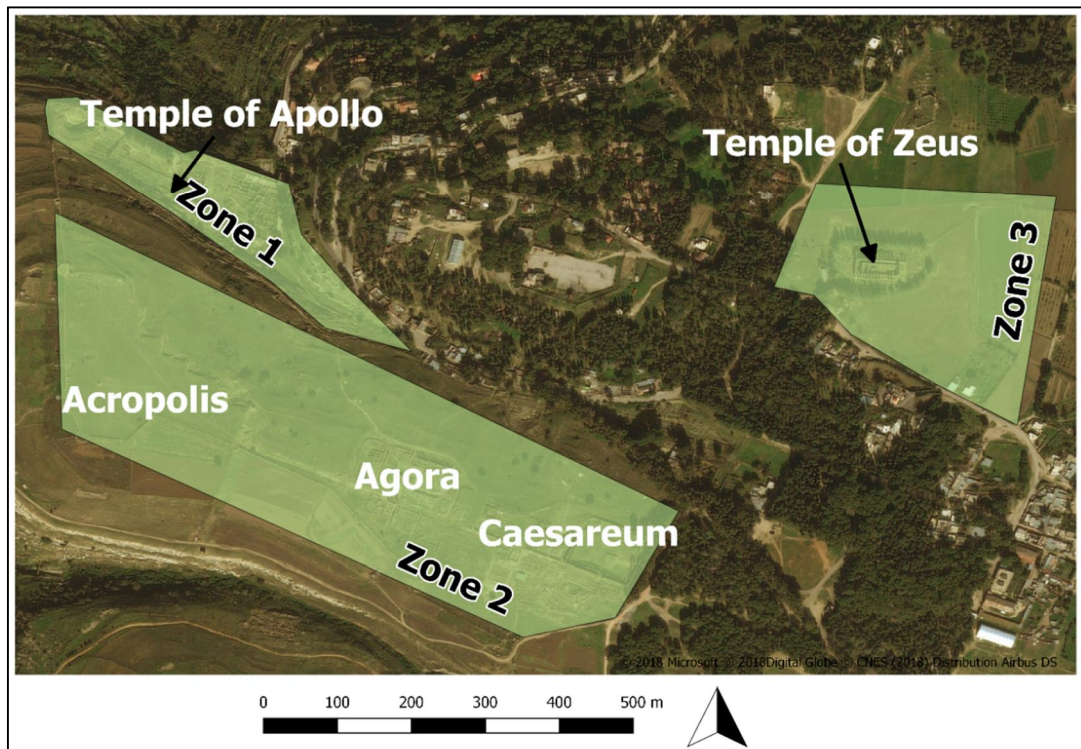


Fig 2.12: The three main zones of excavations within the urban core of Cyrene.

The first zone is called the North-Western Zone. It is lower than both the second and third zones, and contains the sanctuary of Apollo (Fig 2.13), which is crowded with religious shrines and temples; these include the Temple of Apollo and Artemis, and the Temple of Hecate (for more details about the sanctuary of Apollo, see Chapter 5). This sacred zone is also occupied by extremely large Roman buildings, of which the most important are the Baths of Trajan, which were restored during the rule of Hadrian (Fraser 1950, 89; Stucchi 1975, 283). The Greek theatre, which the Romans transformed into an amphitheatre, lay on the west side (Stucchi 1975, 287; Bacchielli 1995, 162), in addition to many other important monuments. Goodchild (1981, 51) suggests that the first zone, which also contains the fountain of Apollo, is probably where the first Greek immigrants settled since it contains a number of monuments and buildings dated to that early period.



Fig 2.13: A view of the Sanctuary of Apollo (the first zone), looking east (Author).

The second area of excavations is known as the South-Western Hill, situated about 500 m southwest from the first zone, and an escarpment separates it from the first zone. This area is occupied by several public and private buildings, which are well-preserved and which formed the centre of the city's civic life (Fig 2.14). Notable among these buildings are the Acropolis, the Agora and the Forum of Proculus or the Caesareum, which were linked together by a covered stoa called the Stoa of Hermes and Heracles (Goodchild 1981, 53; Rowe et al. 1952, 28).

This zone also contains two Roman theatres and an Odeon, in addition to some houses, such as the House of Jason Magnus. The Acropolis is situated to the west of the Agora, and is spread out over three small hills. From the eastern side, in the direction of the Agora and the city, the approach was lower and more feasible (Rowe et al. 1952, 28).

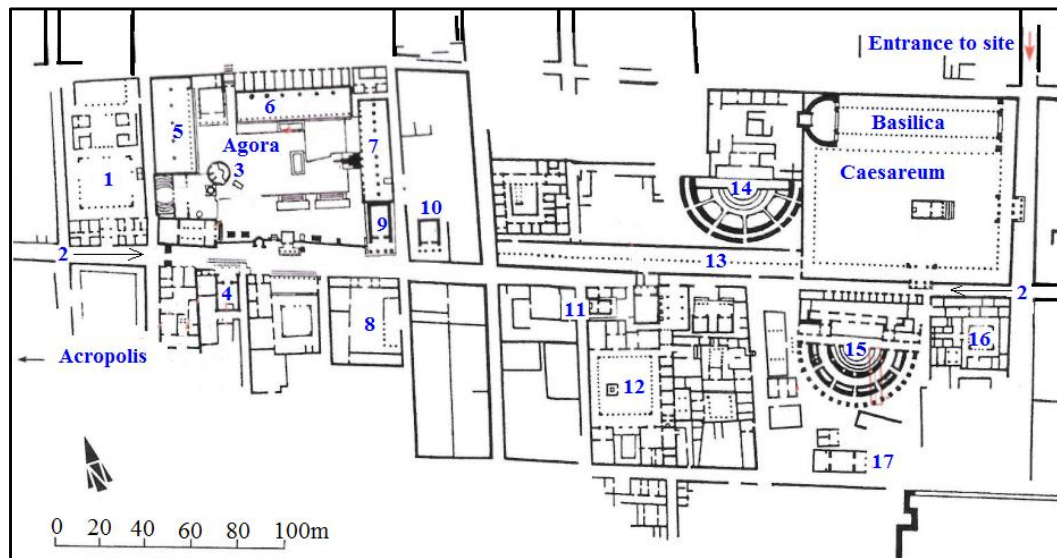


Fig 2.14: Map of the south-western hill (the second zone) (Adapted from Kenrick 2013, 152).

1. House by the Propylaeum; 2. Street of Battos; 3. Sanctuary of Demeter and Core; 4. Temple of Zeus; 5. West Stoa; 6. North Stoa; 7. East Stoa; 8. Archeion; 9. Temple of Asklepios; 10. Temple of the Muse; 11. Temple of Herms; 12. House of Jason Magnus; 13. Stoa of Herms and Herakles; 14. Theatre 2; 15. Theatre 3; 16. House of the Doric peristyle; 17. Temple of Aphrodite.

The third zone is the North-Eastern Hill, which contains the Great Temple of Zeus and the Circus (or Hippodrome). This location is higher than the previous zones and gives a clear view of the Temple from the centre of the city. This Doric temple dates to the 6th century BC, and is the largest religious building in Cyrene (Goodchild et al. 1958, 30) as well as the largest temple built in North Africa in the Greek era (Fig 2.15). Moreover, the measurements and dimensions of this magnificent temple confirm that it is slightly larger than both the famous Parthenon at Athens and the Temple of Zeus at Olympia (Goodchild 1971, 25, 151). Excavations in this zone so far have been limited, and further investigation is needed to reveal the full extent and nature of the area around the Temple of Zeus.

However, this zone is not completely devoid of monuments. A number of buildings and early architectural activity have been uncovered to the north of the Great Temple of Zeus (Fig 2.16), which were presumably connected more or less directly with the temple cult (Kenrick 2013, 224). The North-Eastern Hill, including the Temple of Zeus, was probably originally extra-mural in the early period. Later, it was included in the urban area when new walls were built around certain areas of the city.



Fig 2.15: A view of the Great Temple of Zeus in Cyrene, looking southwest (Author).

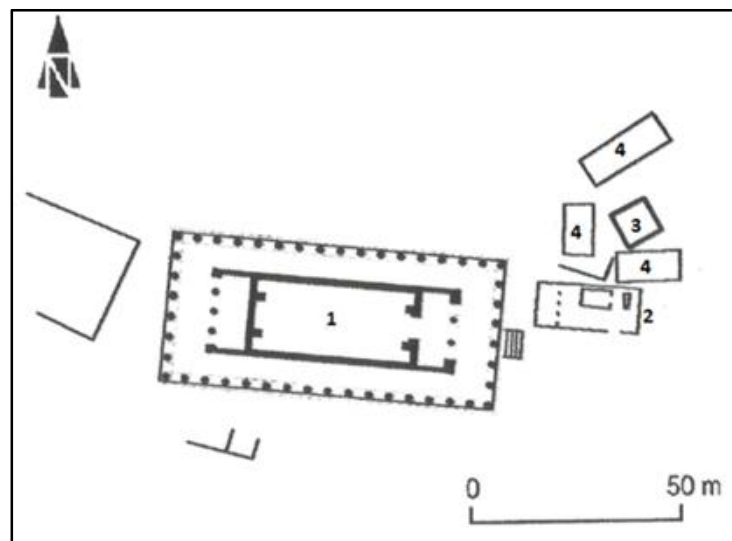


Fig 2.16: Ancient buildings and structures around the temple of Zeus (After Kenrick, 2013, 224).

Key: 1. Temple of Zeus; 2. East temple precinct; 3. Doric shrine; 4. Hestiatoria.

It should be noted that the areas between the three main archaeological zones were also occupied by monuments, most of which have not yet been mapped and excavated. For example, ruins of the Roman aqueduct lie to the south of the core sites, along with a number of tombs and cemeteries on different sides of the city, plus a number of Christian monuments (for these Christian monuments see Chapter 5).

2.6 The Suburbs and Rural Hinterlands of Ancient Cyrene

Outside the walls of ancient Cyrene, thousands of burial monuments ring the city within several discrete cemeteries, and line the main roads out of the city as well as the adjacent wadi sides (see Fig 2.17). The west side of Wadi Bel Ghadir forms the west side of the city, while the impressive tomb-lined cutting of the ancient road to al-Bayda (the Southern Necropolis) marks the city's southern limit (Thorn 2005, 140; Anon 2009a, 12).

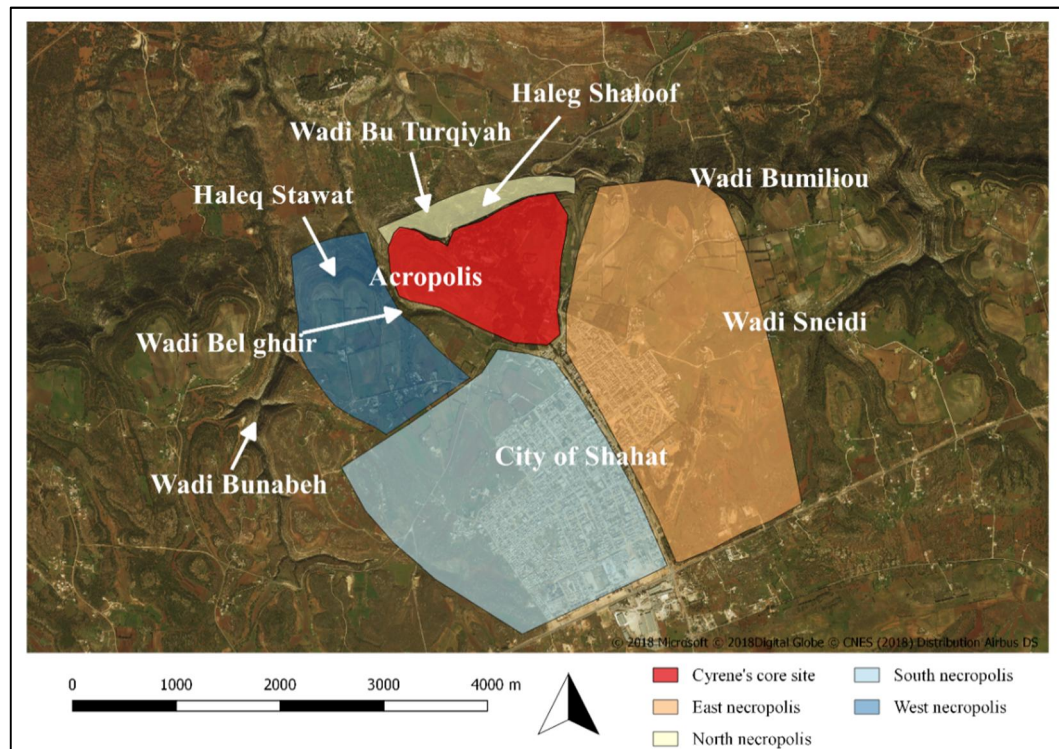


Fig 2.17: Map showing Cyrene's location and the surrounding cemeteries and wadis.

The modern city of Shahat, which has grown up over the last five decades, covers an extensive part of the Southern Necropolis. Many tombs remain evident in various places among the modern buildings of the new city, and while some of these tombs have been badly damaged and neglected, other examples are still in a very good condition and are well protected. The east side of Cyrene is also occupied by tombs and cemeteries, especially in the area between Wadi Ain Hofra and Wadi Bu Miliou, in addition to ancient roads, cisterns, and other structures (Menozzi 2007, 13). Their number, however, is small in comparison with those that are situated on the other sides of the city (For more details on the tombs located in the new city of Shahat and Ain Hofra see Chapter 4).

To the southwest of the city wall is the Wadi Bel Ghadir, where Mario Luni has directed extensive excavations in the last two decades with a team from the University of Urbino, Italy (Luni 2005, 61-86). These excavations have brought to light a huge sacred zone occupied by several buildings, including the Temple of Demeter, a propylaeum and Theatre 5 (see Fig 2.18). Most of the buildings located in this area were likely associated with Demeter and Persephone, who were the goddesses of rural fertility in ancient Greek mythology. Moreover, another sanctuary known as Budaraj was discovered to the west of the sanctuary of Demeter and Persephone, in the area between Wadi Bel Ghadir and Wadi Bu Nabeh. This sanctuary consists of a number of rock-cut chambers, niches and caves (Menozzi 2007, 12) (For more details on the sanctuary of Demeter and the sanctuary of Budaraj see Chapter 5, Sections 5. 2 and 5.3).

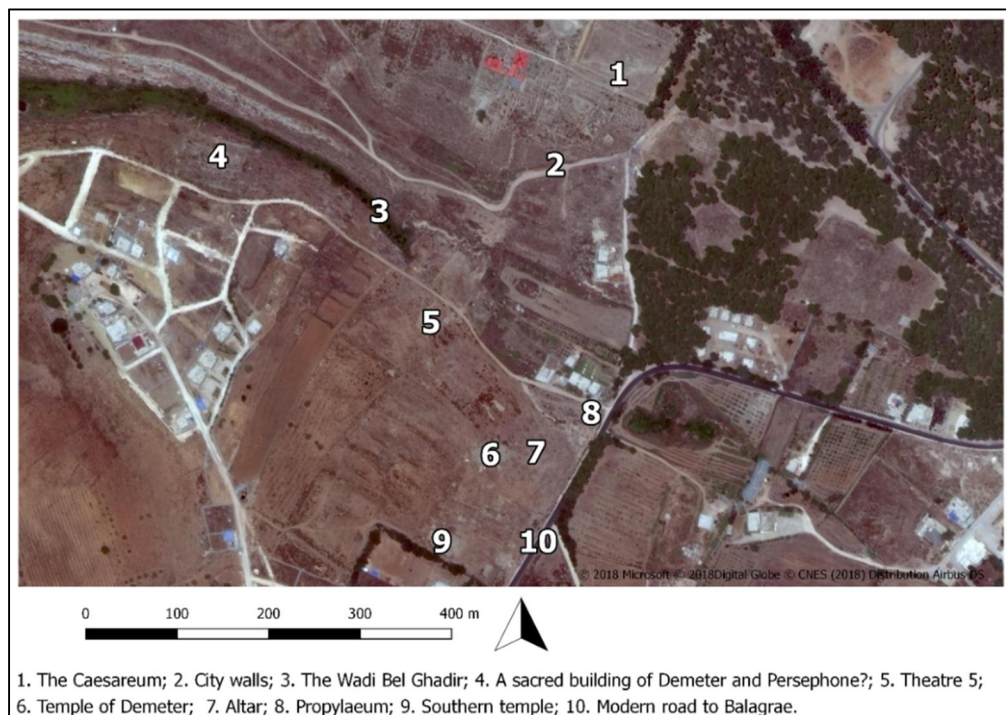


Fig 2.18: Buildings found within Demeter sanctuary and outside the southern walls of Cyrene.

Several tombs, ancient roads, cisterns and other monuments and structures occur to the southeast of the main archaeological sites of Cyrene. Most of these sites lie within the area called the Katiba, located on the east side of Shahat. Some archaeological studies have been conducted here in tandem with extensive surveys in recent years by a team from the University of Chieti, Italy (Anon 2011, 1-16). These studies have brought to

light a considerable number of different archaeological sites (For more detail on these sites and the area overall, see Chapter 4 and Section 4.3.4).

Beyond Cyrene's urban periphery are a number of settlements located at various distances. These include Balagrae (now al-Bayda) and Lasamices (now Slonta) in the southwest, Safsaf in the south, Limnias (now Lamluda) and Mgarnis (now al-Abraq) in the southeast (Fig 2.19) (Mattingly 2000, 558–59; Jones et al. 1998, 285–6). The location, nature and economic orientation of rural settlements in the hinterlands can provide important information about the general frame of the suburbs of Cyrene, and help us to understand better the city's relationship with its environs.

All these occupied areas were linked to Cyrene by roads, of which traces have been uncovered in both the city's core and its immediate environs. Many of the Greek and Roman roads can be seen clearly in several places in the area around Cyrene (For more details on ancient roads in Cyrenaica and around Cyrene, see Chapter 8).

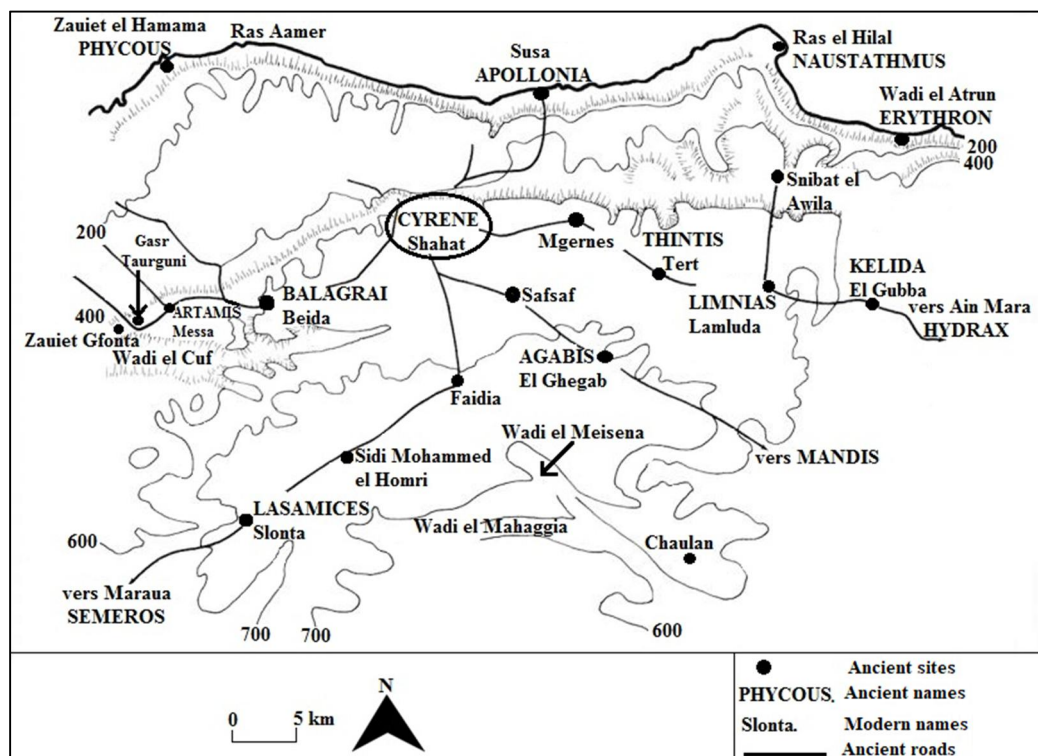


Fig 2.19: General map of Cyrene's *chora* (After Laronde 1987, 286).

2.7 Previous Studies

Many of the archaeological sites and structures in Cyrene's core and suburban zone have been recorded and described by several contemporary scholars, and were also noted by a number of eighteenth and nineteenth-century travellers, especially from Europe (Goddard 1884, 39ff). This section focuses on the most important reports of travellers in chronological order.

Claudio Le Maire (the French Consul at Tripoli) was the first traveller to document the monuments of Cyrene, when he described certain sites and statues during his journeys from Tripoli to Cyrene in 1703 and 1706 (Goddard 1884, 39; Oliverio 1931, 7). In 1760, Granger, a French surgeon, visited Cyrene under the guidance of a robber chiefs, and journeyed from Cairo to Cyrenaica, and recorded a number of sites in the region. James Bruce (the famous Abyssinian traveller) visited Ptolemais in 1770 during his long expedition of 1768-72. He drew a number of paintings, and composed simple descriptions of several monuments during his journey (Goddard 1884, 40)

In 1812–1811 Agostino Cervell, a physician who accompanied the military campaign that had been led by the Karamanli government against rebels in the eastern region of Libya, visited Cyrene. However, little remains of the diaries he wrote during his visit, apart from a section in which he described Cyrene along with some other cities (Goodchild 1976, 274). The monuments of Cyrene were broadly documented in the 1820s by the Beechey brothers, two English travellers who left brief descriptions of some monuments that they encountered on their way along the Libyan coast (Beechey and Beechey 1828).

Jean Raymond Pacho, a French academic and traveller, also visited Cyrenaica in the 1820s during his journey from Alexandria to Cyrenaica. He recorded and made sketches and drawings of many monuments, especially in Cyrene. He also identified and presented some buildings in the region's countryside (Pacho 1827, 31). Paolo Della Cella, an Italian physician who was living with his friend the Consul of Sardegna in Tripoli,

visited Cyrenaica in 1871. He wrote a number of essays and notes that were collected later in a well-known and important publication about the region (Della-Cella, 1912).

In 1860 R. Murdoch Smith and Edwin A. Porcher, two British Royal Marine officers, carried out the first excavations in Cyrenaica, and sent 150 works of sculpture to the British Museum (Smith and Porcher 1964, 99-108; Menozzi et al. 2010, 20 ff). Herbert Weld-Blundell also carried out systematic studies of Cyrene's cemeteries in 1895 on behalf of the British School of Archaeology in Athens (Weld-Blundell 1895 – 1896, 113-140). In 1910 an American Expedition began excavations in Cyrene. It was led by Richard Norton, sent by the Archaeological Institute of America but the work was halted due to the outbreak of the Italian-Turkish War and the murder of one of the American team members (Norton 1910-11, 57-68; Goodchild 1976, 290-297).

Between 1913 and 1925 a number of interesting and important statues were discovered, including the 'Venus of Cyrene'. From then on, extensive and systematic work took place up to 1940 (White 1985, 107), and at the outbreak of the Second World War (1939–1945) the sanctuary of Apollo had been completely excavated and the Forum and Agora areas had been cleared of soil.

The Libyan Department of Antiquities was created in 1953 under a decree that aimed to organize and protect monuments across the country. British, Italian and American teams subsequently began in resumed excavations and restoration works from 1954 (Thorn 1994, 101-118). The Department entered into contracts with various foreign *Expeditions* from Italy, the UK, the US and France, and a royal decree was also issued in 1968 to protect Libyan monuments (Abdulkariem 2014, 37; Ben-Youssef et al. nd, 2). This work continued, with some interruptions, until recently.

A key name is Richard Goodchild, the British archaeologist and controller of the Department of Antiquity of Cyrenaica 1953-1966, documented and described many archaeological sites in all the cities of Cyrenaica, as well as many of its urban and rural structures (Goodchild 1950-1979). In fact, Goodchild's extraordinary efforts are

considered to be among the most advanced works done on Cyrenaica due to the wealth of information that he provided on many types of monuments.

Another important work on the immediate environs of Cyrene was conducted by André Laronde, Professor at the University of Paris-Sorbonne and head of the French archaeological mission in Apollonia from 1981 to 2011. His monograph presents a fundamental framework for studying the overall territory of Cyrene until the beginning of the era of Augustus (27 BC) (Laronde 1987). Sandro Stucchi, director of the Italian archaeological mission in Cyrene 1957-1991, also studied and documented most of the archaeological sites and monuments in the core site of Cyrene as well as in many sites in the area around the city (Stucchi 1961, 65, 67, 71, 73, 75). His remarkable works and papers are indeed key sources of information about Cyrenaica's archaeological sites and ancient cities.

Many important articles have been written on Cyrene's substantial cemeteries, as well as the cult sanctuaries within and around the city's urban core. Alan Rowe was the first to conduct an extensive archaeological study of the four necropoleis of Cyrene, conducting excavations across four campaigns from 1952 to 1957, mainly around Wadi Haleg Shaloof and Wadi Bel Ghadir. However, his final publications were sadly incomplete and misleading, and his original records were apparently lost prior to his death in 1968 (Thorn 1994, 101).

Between November 1953 and January 1954, John Cassels conducted a survey in which he divided the area around Cyrene into four main necropoleis according to the cardinal points. Although he produced the first large maps of the cemeteries, they are not definitive and possess gaps in the tomb distribution, possibly due to the preliminary use of aerial photographs as the basis of the plans (Cassels 1955, 1-43). The typological work by Thorn (2005) has also presented additional information of these monumental tombs, showing the need for new survey projects.

Notably, the Italian mission from the University of Urbino surveyed the western entrance gate of Wadi Bel Ghadir under the directorship of Mario Luni in 2000/2001, and discovered here the Temple of Demeter (Luni 2001; 2005, 61).

Furthermore, international relations between the United States and Libya were renewed in 2004 following 23 years of suspension due to political issues. This has permitted the resumption of the work of the American Archaeological Mission from the University of Pennsylvania. They have been able to continue the work of the Cyrenaica Archaeological Project (CAP), which was an international mission under the direction of Prof Susan Kane of Oberlin College in the USA. The key partners of this project are Oberlin College and the University of Birmingham's Institute of Archaeology in the UK (Cuttler et al. 2006, iii). The CAP is the successor to the American Archaeological Mission in Cyrene that excavated part of the sanctuary of Demeter and Persephone under the direction of Donald White between 1969 and 1981. The aim of the new project was to investigate Cyrene and the surrounding area using a range of archaeological techniques. Particular attention was paid in the 2006-7 seasons to assessing the survival and potential significance of any archaeology in the area of the Demeter and Persephone sanctuary (Cuttler et al. 2007; 2009, 65).

Moreover, from 1999 Chieti University started a survey project under the direction of Dr Oliva Menozzi to study the rocky rural sanctuaries in the *chora* of Cyrene. The project was then transformed into a wider project looking at both funerary and sacred spaces, especially in Cyrene's Southern and Eastern cemeteries. This systematic survey continued until recent years, and led to the creation of a GIS recording of tombs in an accurate database and produced a detailed study on tomb-types organised in the best possible chronology (Cherstich et al. 2010, 314; Menozzi 2015, 57).

Unfortunately, all works and other important projects which had not yet finished in this area were stopped due to the unstable security and political situation in Libya after 2011. This led the foreign archaeological missions as well as interested researchers to completely suspend all their projects within the whole country. The only exceptions are simple efforts being conducted by the DoA, such as rescue excavations and restoration

works to sites which have been discovered accidentally in recent years or which face intentional destruction.

2.8 Summary and Chronology

Overall, I would argue that the city of Cyrene developed in an irregular way in terms of its planning. The original plan of the city apparently changed when new buildings were added between the Greek and Byzantine periods. It has consequently become very difficult to recognise the original planning. The expansion of the city in the first zone (the Sanctuary of Apollo) involved adding more religious buildings around the Fountain of Apollo, as it was a cult location associated with the Greek myths about the foundation of the city in the 6th century BC. During this early period the Great Temple of Zeus was also built, albeit at a considerable distance from the second zone.

However, the more elevated second zone or Acropolis area was most likely a suitable and safe place for Greek immigrants to settle when they arrived here. Stucchi (1967, 29-39) suggests that more buildings were built to the east and south of the Acropolis in the fifth and fourth centuries, including the Agora, the circular Temple of Demeter, and several adjacent monuments.

There is also, as previously mentioned, a massive necropolis scattered everywhere around the city. This can be dated to the Greek era, in addition to other sites which were discovered recently outside the city's urban core. Of these, the sanctuary known as Budaraj, the sanctuary of Demeter and Persephone and several monuments were discovered within the latter sanctuary zone (see Chapter 5). The random distribution of sites around the urban core shows the city's irregular expansion during the Archaic and Classical eras. This could be due to the nature of the city's hilly location and the absence of the city walls during these periods.

Cyrene expanded further in Roman times, and more buildings were added especially at the end of the first century AD and in the early second century (Stucchi 1975, 215). A considerable number of buildings were restored after the Jewish rebellion in AD

115, in addition to many new buildings built during and after the period of Hadrian. A number of structures built in the second zone during Roman times, including the Roman baths, the Temple of Hecate, the Strategeion building and the Roman Propylaeum (Stucchi 1968, 224).

The majority of Cyrene's expansion during Roman times probably took place in the second zone, in particular in the area located to the east and south of the agora. The huge Roman forum is situated here, in addition to a number of adjacent public and private buildings. It seems that the Romans reused most of the Greek buildings in Cyrene, albeit after altering many of them. However, they also constructed new buildings in the urban core as well as the area around the city.

The records and works of early travellers and modern scholars and researchers contain important information about many of the monuments found in different areas of Cyrenaica, and especially in Cyrene. Notwithstanding this, they have not yet accurately defined the limits of the city's urban expansion. These records have therefore failed, in many cases, in helping us decide whether many sites or structures are urban or extramural. This is particularly the case with structures located near the city's core site. The shortage of information about Cyrene's urban limits is perhaps due to the high density of sites, which are scattered everywhere within and around the three core zones, in tandem with the absence of walls around parts of the city.

Cyrene was inscribed on the UNESCO WHS list in 1982 according to the World Heritage Sites criteria ii, iii and vi (ICOMOS 1987; UNESCO 1982-92; Abdulkariem 2014, 1, 16), and is considered to be one of Libya's most important archaeological sites. However, the site is now under serious threat. A significant portion of its suburbs have been lost to the south and east of the city since the development of modern Shahat in 1965. Consequently, the landscape surrounding the old site of Cyrene is under increasing threat from the development of new roads and housing schemes. Service trenching to connect new buildings with water, electrical and sewage systems has recently been completed, and more is being planned.

Cyrene thus requires urgent protection, particularly its suburbs and wider landscape. My own study will, hopefully, show the importance of these suburbs and the need to record and protect their archaeologies.

3.1 Introduction

My research questions and the types of available archaeological data are the main factors that determined the kind of survey that I needed to undertake to gather good data on Cyrene's suburban sites and archaeology. This research has used both extensive and intensive surveys, which are of course the chief categories used in many different projects worldwide (Barker, 1991; Barker, 1996a). My surveys also used Global Positioning System (GPS) and gathered my data within a Quantum Geographic Information System (QGIS).

Over the past few decades, extensive and intensive surveys have dominated fieldwork activity in Mediterranean classical landscapes, and many projects that have adopted this method have generated remarkable results (see, for example, Barker and Lloyd 1991; Lolos et al. 2007). Several effective methods have been developed with the aim of studying the settlement patterns and historical evolution of sites in the Mediterranean basin. A good example of a Mediterranean survey is the Island of Jerba project led by Prof Renata Holod and Dr Elizabeth Fentress from the University of Pennsylvania, and Dr Ali Drine from the Tunisian National Institute for Heritage); this project was conducted to investigate the history and material culture of the island. It also included a detailed survey of Meninx, its main city, which dates to the 5th century BC, and investigated the suburbs (Fentress et al. 2009). Extensive and intensive surveys were used to obtain as much available data related to the project's aims as possible.

The Leptiminus (Lamta) Archaeological Project (under the auspices of the University of Michigan, U.S.A and Manitoba, Canada) is another prominent example of an urban field survey. The project began to investigate an important ancient coastal town in Tunisia, and to carry out a comprehensive survey in its immediate hinterland (Mattingly 1992, 89; Stone et al. 2011, 7). The multidisciplinary fieldwork covered the totality of the urban zone here, not just the centre, and has produced a number of significant findings. The evidence for the suburban zone importantly suggests a picture of the town that does not agree with the standard view of Roman urbanism. (For more

details on this city, the survey methodology and results see Mattingly 1992, 89-114; Lazreg and Mattingly 1992; Stone et al. 1998, 304-317; Stirling et al. 2001; Stone et al. 2011).

In particular, both the Jerba and Leptiminus projects have demonstrated the scale and significance of suburban manufacturing activity, especially pottery production. As part of my doctoral research, a new independent archaeological, topographical and landscape survey was planned and performed in the selected area of Cyrene's suburbs. In other words, this thesis used a mixture of methods in order to focus more on the spatial organisation of the archaeological sites located in the target area. Details on how these methods were organised and used in this research are discussed below.

3.2 Cartographic and Topographical Studies

A baseline representation of the study area of Cyrene was built in the first phase of the research. A thorough literature review of previous works was conducted, including data in the archives of the Department of Antiquities (DoA) being the body responsible for the study area such as, site images and plans, maps, archaeological missions' reports, etc). Information held in publications and archives is essential as it allows us to review and develop a contextual understanding of all the archaeological sites located in Cyrene's suburbs. Many suburban sites which may have been noted by past travellers, archaeologists and early explorers were re-assessed as part of this research, while recent excavations and surveys were reviewed (see Section 2.7).

Topographical features can play a key role in attempts to reconstruct archaeological sites and their history. Studying a target area's landscape may allow us to better understand the relationship between archaeological sites and their surroundings, as well as the geographical and physical nature of these sites. Studying the topography of the area around Cyrene will thus help in understanding their function as well as the reason for their location; it also provides a framework for the surface survey (see Section 3.5).

3.3 Google Earth Imagery

Satellite images can provide an overall view of a study area, and subsequently can be very useful in defining the most convenient samples for more detailed study (Hritz 2014; Allan and Richards 1983). High resolution satellite images, in particular, can help to map and plan sites accurately. In recent years many archaeological surveys have made use of satellite imagery since it allows surveys to capture large areas of the landscape in great detail, in order to analyse and extract valuable data through the recognition of archaeological sites and ancient routes.

Satellite imagery (via Google Earth Imagery) is thus used in this research where needed to provide clear evidence of the location of archaeological sites scattered outside the city walls. They guide on the distribution and typology of these sites, and possible routes of communication. This helps much in mapping and planning the target area, in addition to monitoring the modern buildings that have been built in recent years as well as noting and recording any other significant features that appear on the surface. My research also made use of high resolution orthorectified imagery, including both satellite images and air photographs of Cyrene, courtesy of the EAMENA project (Endangered Archaeology in the Middle East and North Africa) and Louise Rayne (a Post-Doctoral Research Associate at Leicester University).

3.4 Using GIS and GPS Approaches

Geographic Information Systems (GIS) are well-established archaeological tools which have played an important role in the study of past landscapes since the early 1990s (Hritz 2014; Gillings and Sbonias 1999). This doctoral research project uses QGIS (the Quantum Geographic Information System) to illustrate the spatial organisation of the ancient sites and their chronological, functional and topographical significance through assessing material distributions and site locations rather than focusing on the mechanics of the analysis. Moreover, as will be shown, mapping via QGIS reveals the progressive encroachment of modern buildings, as it allows us to obtain an accurate picture of their numbers, the areas they occupy, and the extent to which they have impacted on any nearby archaeological sites.

The Global Positioning System (GPS) has also become a basic technique in archaeological surveys (Wilkinson 2007). The use of GPS in archaeological surveys is cost-effective and “allows for the collection of accurate, reliable information about archaeological ground conditions, such as surface artefact densities, subsurface prehistoric structures, and natural features that could be integrated into and visualised with QGIS for excavation prioritisation and planning” (Tomaszewski 2009, 17). Based on these previous successes, this research’s use of GPS was routine. This is firstly because GPS has become a basic tool for the use of GIS software (Wheatley and Gillings 2002), and, secondly, GPS is the best way to read the geographical positions of sites via their UTM coordinates and elevation above sea level. This survey’s use of GPS was thus essential, particularly in locating sites with the grid squares, in planning the CAS survey transects, and in following the N-S and E-W lines of the grid in an accurate manner.

3.5 Field Survey

I carried out two phases of new survey-labeled as the Cyrene Archaeological Survey (CAS)-in the study area. The first phase was conducted in the period from July 15th to September 15th 2015, while the second was completed between April 17th and May 16th 2017. The main objectives of these two phases of the field survey were:

1. To visit and record as many of the ancient physical sites scattered outside the city walls of Cyrene as possible, in particular recently discovered sites. This would offer a vision of the different activities and monument types situated in Cyrene’s suburbs, to produce qualitative data about the location and general character of the sites and activities located in Cyrene’s suburban zone.
2. To conduct systematic and intensive fieldwork on a series of sample transects in the suburban zone, to identify sites and collect qualitative data relating to the archaeology.
3. To assess the density of pottery sherds or any other materials observed on the surface in selected sample areas of Cyrene’s suburbs, as well as to search for evidence of manufacturing activity (potteries, furnaces, kiln debris and so on).

3.5.1 Extensive survey

An extensive survey was used within CAS to evaluate the different archaeological features that are still visible in the study area, and to produce qualitative data about the location and general character of the sites. For this reason, as many of the visible sites were visited as possible, including new ones identified by the researcher via satellite imagery. This was done in order to record dimensions, ensure the accuracy of past surveys, and to make any additions where needed. If no previous plan existed, a simple survey was performed to produce one.

In order to accurately map site locations, a square grid frame measuring 6.5 km east-west by 6.5 km north-south aligned with the UTM (Universal Transverse Mercator) grid was set up with the core site of Cyrene on the northwest side of the grid (Fig 3.1). Each square of this grid measures 500 x 500 m, and is numbered from A-1 to M-13. Archaeological structures around the core site within each square were mapped and recorded in detail. This allowed me to identify the exact locations of sites logged by GPS, and to obtain co-ordinates for features identified on the imagery to allow follow-up visits. However, a number of these squares contain no features for a variety of reasons, whether because of their location in very deep Wadis or cultivated lands so they usually do not contain any archaeological sites, or because a number of squares are located within the modern city of Shahat, and, therefore, they are completely covered by modern buildings.

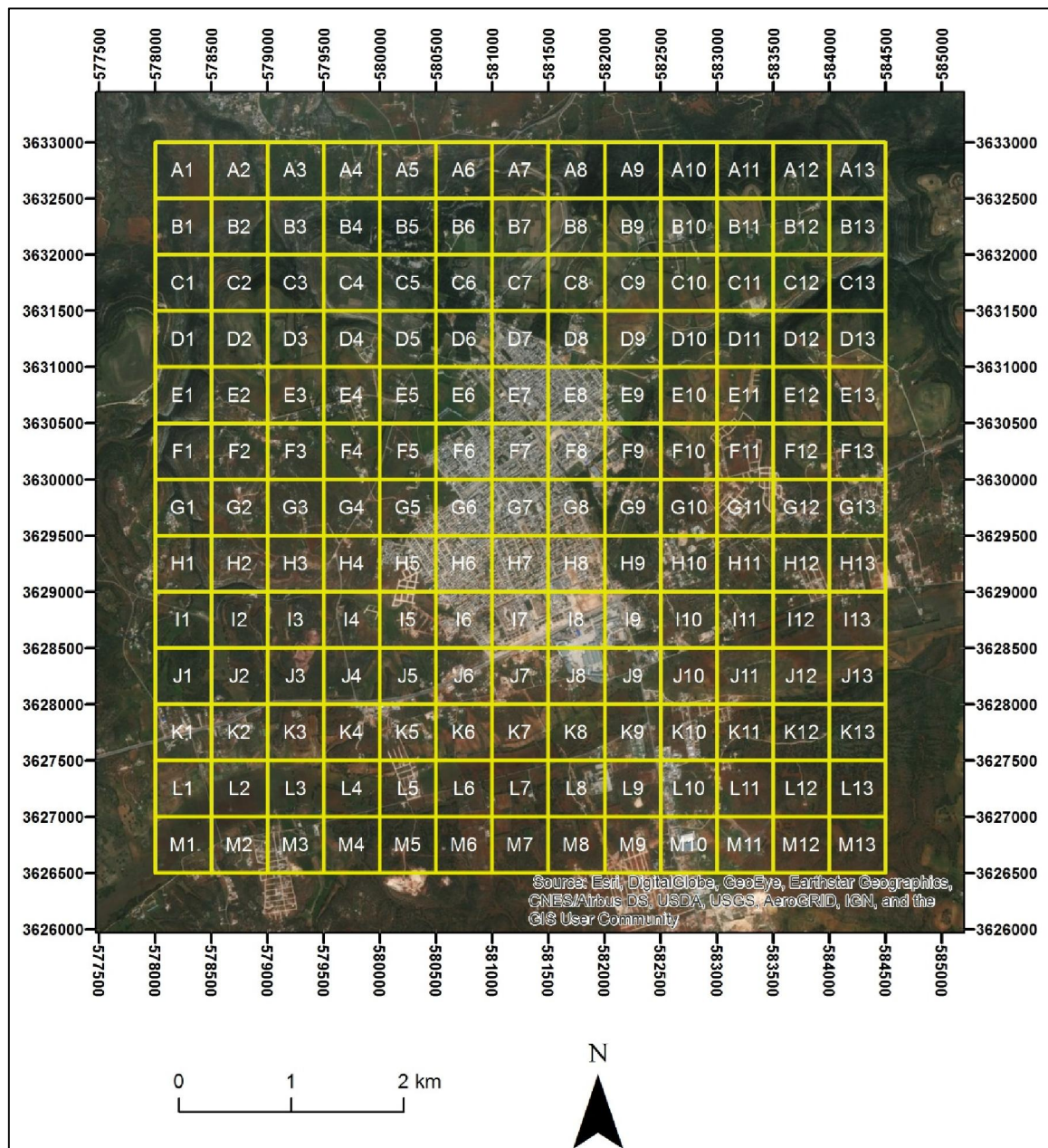


Fig 3.1: CAS square grid frame for Cyrene and its suburbs.

As many of the sites are located within private farms and properties, I had to interview the owners to obtain information such as the name of the site and the presence of any adjacent archaeological remains. This also allowed any destroyed monuments or endangered features to be assessed and recorded, in addition to taking GPS coordinates which allowed the accurate location of features not visible on the satellite imagery. All these details were noted in a special record sheet designed for the extensive survey and

included the grid square number, site number, UTM coordinates and other information (Figs 3.2 and 3.3).

CYRENE ARCHAEOLOGICAL SURVEY						
Extensive Survey Sheet						
سجل للمسح الشامل بمدينة قوريني						
Date / / 2015				Grid Square: رقم المربع		
Buildings and Structures						
المباني والمنشآت						
Site No رقم الموقع	Type النوع	Topographical Name إسم الموقع أو المنطقة	Coordinates (UTM) الإحداثيات		Date: التاريخ G, R, LR, H, B, L, Mod.	Description/ Comments الوصف أو التعليق
			E	N		

Cyrene extensive survey sheet (front) Page of

سجل للمسح الشامل بمدينة قوريني (وجه الصفحة)

Fig 3.2: CAS extensive survey sheet (front).

الصور

Cyrene extensive survey sheet (back) Page of

Fig 3.3: CAS extensive survey sheet (back).

Completing the extensive survey involved working through several different stages. One of the initial stages was surveying the literature relating to previous works. Plans and sketches of several sites were located within the archives. Interviewing researchers in the Department of Antiquities and people who live near Cyrene was also vital to obtaining important information about recently-discovered sites and other information. Another essential stage involved visiting the target sites to record information and any significant details in the pro-forma sheets, and also to make a photographic record, using a scale of each unit is 10 cm. This stage was the most difficult for reasons discussed in the fieldwork reflection section below (Section 3.6).

Cyrene has many archaeological sites situated throughout the core site and the suburbs. Large cemeteries containing hundreds of tombs can be seen on all sides of the city, and have been noted or studied by many past travellers, early explorers and archaeologists. Many of these archaeological sites throughout Cyrene's suburban zone were visited by myself during the survey, and 55 were recorded in detail, including a number situated within the modern city of Cyrene (Shahat). Some of these 55 sites were discovered recently by chance and have yet to be fully studied; these included olive oil and wine presses, ancient roads, cemeteries, quarries, fortified buildings (qsur) plus a number of unidentified sites.

3.5.2 Intensive survey

Not all of this project's research questions can be addressed by extensive survey alone. Intensive surveys of transects across Cyrene's suburbs were thus performed alongside the extensive survey within the CAS. The transect lines investigated during the intensive survey were chosen to provide a sample cross section of the suburban zone. This method of survey in particular played a vital part in this research, because it helped produce high-quality data regarding different structures and activities. These data were used to identify their functions and the factors influencing their location, and to assess the density of the artefacts found on the surface. This evidence was also useful when examining the relationships between these suburban sites and activities with the city's urban core and the wider rural landscape.

At the outset, I knew that I was embarking on the survey of a large ancient city and that wide coverage was beyond the scope of this PhD. For this reason, intensive surveys were carried out on just three transects. These transects run along the edge of 500 x 500 m squares in the chosen area of the UTM grid. Transect 1 ran West to East and measured 100 m in width and 2,000 m in length, and is located to the east of Cyrene's ancient core. Transect 2 was 100 x 2,000 m, but was located to the South-West of the city, again running West to East. Transect 3 was situated on the south side of the urban core, and extended North to South measuring 100 m in width and 1,500 m in length, and intersected Transect 2 at its southern end (Fig 3.4) These transects were subdivided into 100 m sectors, and each unit of these linear sectors was traversed by teams of walkers.

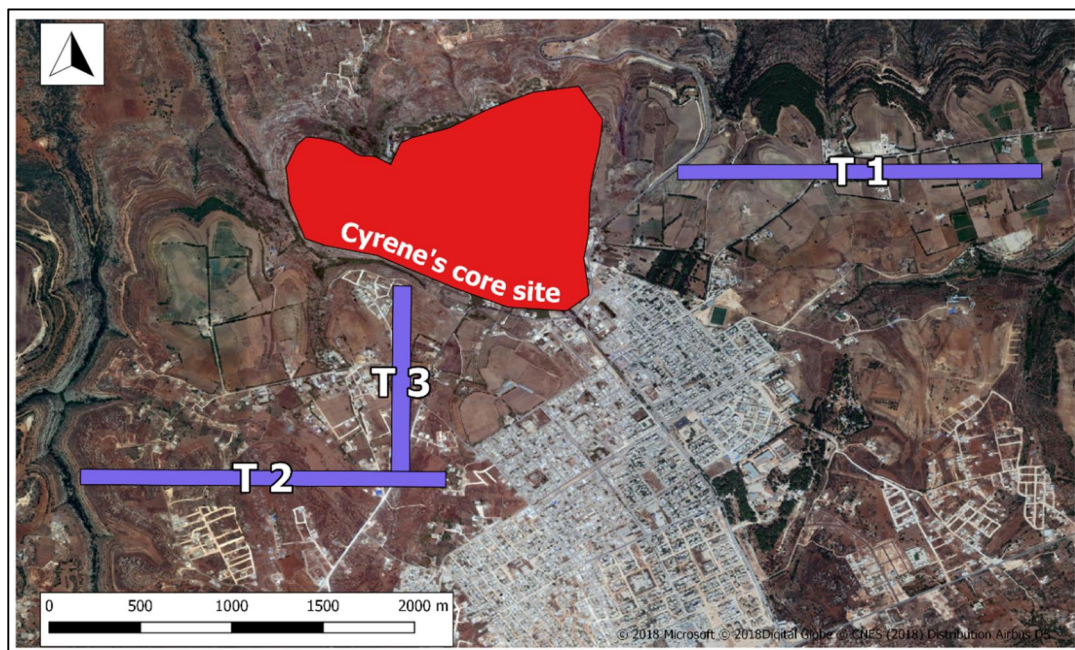


Fig 3.4: Transects 1, 2 and 3 within the CAS.

3.5.3 Walking strategy

Recent archaeological surveys have tended to recommend a systematic approach in order to obtain reliable data and a clearer idea of the character, range and density of the surface materials being surveyed (Slim et al. 2004). My own research used a systematic walking survey with a team of five people to survey selected areas of Cyrene's suburbs, aiming to count diagnostic pottery sherds and other materials from the surface. The purpose of this was to expand our knowledge about the chronology of the sites, and

identify any economic or industrial activity present in the area. The survey method was adapted from the standard techniques employed on rural surveys based on their success, particularly the Wadi Faynan survey of southern Jordan (Barker et al. 2007) and the Carthaginian Countryside survey conducted by Joseph Greene from 1979 to 1983 (Sycamore, R.A. and Buchanan, B.G 2016, 117-27). The similarity of both surveys, which aimed to study the surrounding rural area, is also another main reason for choosing this method.

The aim of my CAS intensive survey was not to collect samples of various surface finds, but primarily to record any monuments and physical remains encountered, and assess the density of pottery sherds or any other materials observed on the surface in some selected areas. It also sought to identify evidence of manufacturing activity (furnaces, kiln, debris, etc).

As mentioned, the selected transects were subdivided into 100 m sectors, and each unit of these linear sectors was traversed by a team of five walkers, including four who were employed as researchers in the Department of Antiquities in Cyrene (DoA), and myself (Fig 3.5). The walkers were spaced at 20 m intervals, and in the field each walker had to fill out specific information on a pro-forma sheet, recording information under various headings (Fig 3.6). These pro-forma sheets were written in both English and Arabic languages to make it easy for each walker to read and understand all the information on the record sheet (Figs 3.7 and 3.8).

All walkers were assigned a strip of ground 4 m wide to survey, this meaning a 20% sample of the ground area of any given unit was scanned. After field recording was completed, information from the record sheets was entered into a computer database. This was created to calculate density figures for every unit of the field from the data and information on the transect area. All walkers were given a handheld clicker counter to facilitate the counting of number of surface pottery sherds as they walked. A digital camera was used by myself to record general images and any other significant details of sites encountered in a systematic manner. In addition, a digital voice recorder was used to record additional information about the site, which was helpful, quick and easy.



Fig 3.5: Members during the survey with a spacing of 20 m (Author).



Fig 3.6: A survey team member fills in a pro-forma sheet after surveying 100 m (Author).

CYRENE ARCHAEOLOGICAL SURVEY

Transect pro-forma Sheet

نموذج تسجيل القطاع

Transect No: T رقم القطاع		Walker Name & Number: اسم المساح ورقمه		Date: / / 2015	
Starting GPS Coordinates إحداثيات بداية القطاع	E		End GPS Coordinates إحداثيات نهاية القطاع	E	
	N			N	
GPS Waypoint نقطة البداية				GPS Waypoint نقطة النهاية	

Transect Finds اللقى الصغيرة في القطاع	100	200	300	400	500	Total
Pottery فخار						
Marble رخام						
Mosaic فسيفساء						
Pottery Waster نغلية فخار						
Coin عملة						
Terracotta طين نضج						
Inscriptions نقوش						
Slag خبث/بقايا صهر المعدن						
Other Finds معثورات أخرى						

Sketch Plan of Transect Sector showing Topographic Features of Sites:

رسم تخطيطي للقطاع يظهر الملامح الطبوغرافية للمواقع

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Transect pro-forma sheet (front)

Page ____ of ____

نموذج تسجيل القطاع (وجه الصفحة)

Fig 3.7: CAS intensive survey sheet (front).

الصور

[illegible]

تعليقات على القطاع

نموذج تسجيل القطاع (ظهر الصفحة)

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The initial stage of the CAS fieldwork revealed a large number of pottery sherds in some sections, along with possible pottery wasters. As this likely suggests pottery production, I therefore revisited the locations between April 17th and May 16th 2017 and conducted an additional intensive surface collection in the areas with the highest density of pottery sherds to try to verify this and to gain additional information on these pottery concentrations. The bulk of the intensive survey was completed in the first stage of the survey. What needed to be investigated further was whether there was conclusive evidence of manufacturing in certain selected sample areas. The observed pottery concentration suggests that some high density areas might be related to pottery production.

Two circles were chosen within each of the three transects in the areas where the highest densities of pottery sherds were recorded. All the materials observed on the surface within these circles were collected, cleaned and then classified according to their type and shape (for more on the results of the second phase of the survey see Chapter 7, Section 7.4).

3.6 Field Survey Reflection

A number of factors had a negative impact on the field survey. Accessibility issues were always a concern, because the vast majority of the sites and study areas this research is concerned with were located on private land. For this reason, it was essential to use social contacts to facilitate access. I needed to speak personally to a number of landowners to explain what I needed to do and obtain their permission to visit the target sites. In some cases, especially if the landlord was not well known to me or refused access, I sought the assistance of a person better known to them in order to pursue my request. However, in some cases access was still refused, or else the landlord granted access as long as I did not take a camera, which meant that I was unable to make any photographic about the site.

Some sections of the three transects were also affected by accessibility issues, especially in Transects 2 and 3. For example, some areas could not be surveyed because

they were greatly affected by the construction of modern private houses, or were occupied by new fences (Fig 3.9). In some places other buildings had been constructed recently, or were being built near and around a number of tombs and cemeteries (Figs 3.10 and 3.11). Consequently, I was unable to collect surface samples for the intensive survey from some target areas, and therefore I had to choose another nearby area to carry out the survey.



Fig 3.9: A new house being built on an archaeological site, view looking southeast (Author).



Fig 3.10: Some exposed tombs and cemeteries at high risk of urbanisation, view looking northeast (Author).

Other areas were being used to cultivate fruit or as irrigation farms, which meant that we were not allowed to access those regions. Unfortunately, there are now many fences and other new buildings being constructed near many of the city's archaeological sites, especially on the south and south-east and around Wadi Bel-Ghadir (Fig 3.12). As a result, the sites located in the wadi are now under greater threat and face a very high risk of destruction.



Fig 3.11: A view of new walls being built around some ancient tombs, looking east (Author).



Fig 3.12: New walls being built near the ancient sites to the west of wadi Bel Gahdir, looking west. (Author).

Interruption was another issue that we faced several times. We were stopped from surveying several times by landowners who saw our survey team walking across their lands. These interruptions caused much time to be wasted, in addition to affecting the continuity of the survey. In some cases, after a discussion we were asked to leave the site in the middle of our work. Some landowners even refused to respect the official letter granting us permission from the relevant authorities (the DoA) due to Libya's unstable political and security situation. However, I managed to resolve most of these problems. In cases where we had to leave, we were usually able to use our social contacts to return later to complete the rest of the survey.

On the other hand, many people whom we met were very helpful and understood the importance of the archaeological sites. They encouraged and supported what we were doing, and kindly allowed us access to their lands. In addition, they often gave valuable information about local archaeological sites, and guided us to others in the nearby area. Others generously provided us with cool water and meals, and offered to support us with any kind of assistance we might need.

Overall, the survey method was very successful in gathering information and recording sites. However, the location of the archaeological sites and the nature of the study area overall made it difficult to complete the fieldwork. Moreover, if I were not a citizen of Cyrene and well known by the majority of local people, the fieldwork would likely have been dangerous or impossible due to Libya's present security situation.

In fact, I have been told by some friends and relatives that some other sites were discovered recently, but unfortunately I have been unable to visit and record them because some landlords (sometimes without any obvious reason) refused to allow me access. I have nonetheless continued to make social contacts in the region in hopes of gaining admittance to as many sites as possible during my research. Moreover, more archaeological sites may be discovered in the near future. If so, it will be important to conduct research and carry out fieldwork in order to obtain more data about them.

PART II

Chapter 4 - Cemeteries

4.1 Introduction

Cyrene has several distinct cemeteries which are considered to be among the most extensive and spectacularly preserved cemeteries of the ancient world (Cassels, 1955; Thorn 2005). Many tombs and cemeteries can be seen on all sides of the city, especially the two extensive necropoleis which surround the north and west flanks (Cassels, 1955, 1ff). Many of the rock-cut tombs around Cyrene were noted by past travellers and early explorers such as Beechey and Beechey (1828), Cassels (1955), Rowe (1959), Thorn (2005) and Cherstich (2009) (see Section 2.7). When Cassels wrote (1955, 10), more than 1271 tombs had been recorded (Table 4.1), however, discoveries of the last sixty years, in addition to the over 2000 individual sarcophagi which are scattered throughout Cyrene's neighbourhoods (Goodchild 1981, 101), mean that this figure needs much revision.

There are of course too many recorded tombs to provide a detailed description of all of them. Instead, this chapter will investigate various aspects of burials of Cyrene, including the topography of their distribution across the urban periphery. Section 4.2 provides general information on burial customs in the Greek and Roman eras, while Section 4.3 discusses Cyrene's main four necropoleis in terms of their location and distribution. Section 4.4 describes the main types of tomb and their architectural features. Some other isolated tombs in Cyrene's suburbs are discussed next in Section 4.5. The chapter ends with a discussion (Section 4.6), offering which additional details on the distribution of the tombs and their chronology.

<i>Necropolis</i>	Total Tombs	Built Tombs	Rock-Cut Tombs	Proportion of Built Tombs to Rock-cut Tombs	Approximate Area (as in Cassels' maps)	<i>No. of Tombs per Hectare</i>
<i>Rocky Necropoleis</i>						
<i>North</i>	422	55	367	1 : 6.6	1,512,500 m ²	2.79
<i>West</i>	159	11	148	1 : 13.4	562,500 m ²	2.82
<i>Necropoleis on the plains</i>						
<i>South</i>	423	161	262	1 : 1.6	7,817,500 m ²	0.54
<i>East</i>	267	206	61	3.3 : 1	6,017,500 m ²	0.44
<i>TOTAL</i>	1271	433	838	1 : 1.9	15, 910,000 m²	6.59

Table 4.1: Comparison of the four cemeteries of Cyrene as they presented in Cassels' records in 1955 (Cherstich 2009, 4).

4.2 Burial Customs

The burial customs practised in the Greek and Roman eras, generally, altered over time (Retief and Cilliers 2006, 55-6). More detailed scholarly descriptions have been devoted to analysing the structures and types of tombs than to burial customs. However, the available information from the archaeological data and vase paintings, as well as recent historical and archaeological research, provide at least general information on the common burial rites used in ancient times.

According to Retief and Cilliers (2006, 53-4), the body was washed after death, wrapped in white or red cloth, and usually adorned with a crown, ribbons and flowers. This task was usually performed by close female relatives over the age of sixty. The body was left for a day in the 'house of death' to ensure that the person was indeed dead before they were buried. The body was then carried by the family and friends on a cart drawn by a horse or a mule. The deceased was normally transferred from the city to the burial place within one of the necropoleis around the city, where the burial rites were held at the graveside. While there were no age restrictions on the accompanying men who walked ahead of the cart, the women walked behind and had to be both close family members and over sixty years old.

From the Classical era to the 3rd century BC, cremation and burial were equally popular (Retief and Cilliers 2006, 57). However, the commonest form of burial in all the cemeteries of Cyrene was inhumation (Cassels 1955, 3), although, the form of certain small monuments suggests that they were designed to hold cremation, since charred bones have been found in pots in some tombs (Rowe 1959, 2). It was traditional to put a coin (*Obolos*) in the mouth of the dead as a fee for the boatman (*Xapov*), who was believed to carry the souls across the river of Acheron or Styx, or the lake of Acherousia to Hades in the underworld (Pausanias X, 28). However, such coins have not been found in many tombs at Cyrene, which means that this tradition was not widely known or - most probably - not widely used throughout the Greek world.

There were probably several rites that took place annually or on regular occasions at the graveside to commemorate the dead (Kurtz and Boardman 1971, 149). These rites were probably performed by the dead person's family, relatives and friends, especially, on the dead person's birthday or on the anniversary of their death. It was traditional to scatter grain or flowers over the grave after burying the body, and offerings wreaths and ribbons and to leave gifts for the deceased among other objects on or in the grave as parts of the ceremony which would be repeated three days later (Retief and Cilliers 2006, 54). Animal sacrifices were sometimes made at the graveside, which would be followed by drinking and the pouring of libations for the gods. After this, the family would return to the house of death to commemorate the deceased's life. Their spirit was believed to be present at this event, and their deeds would be praised while wearing crowns and festive wreaths.

However, these burial rites were not applied to everybody and there were exceptions made in some cases (Garland 1989, 4). Slaves were buried and interred like members of the family, their graves were simple and no gifts were offered because it was thought that slaves did not have an afterlife. On the other hand, criminals were not buried after execution but were cast into the sea. While, in the case of suicides the right hand was chopped off before burial, and if a person had hanged themselves, the rope and whatever structure the rope had been attached to was destroyed.

There was a strong belief in the ancient world in the pollution of death, and it was thought to last through the period of mourning (Retief and Cilliers 2006, 48-55). A house affected by a death was considered to be polluted, and any water in the house was automatically contaminated. If a death occurred on the street, that whole zone of the city had to be purified. Moreover, everyone who entered a house in which there had been a death or who had touched a corpse was contaminated. The house where the death occurred and the people contaminated by the death were purified on the third day after the funeral. They would wash themselves with unpolluted water from a source other than the house of the dead.

While there is little information available on burial customs in Cyrenaica, the region was part of the Greek world and so it is most probable that the practices discussed above were widely used. Small ducts have been found cut in the floor of the enclosures of some tombs, and square covers occur near many rock-cut sarcophagi in the necropoleis of Cyrene. This represents primary evidence of funerary practices and rituals connected with inhumation burials (Thorn 2005, 535).

4.3 The Necropoleis of Cyrene

In 1955 Cassels classified Cyrene's suburban cemeteries as the Northern, Southern, Eastern and Western necropoleis (Cassels 1955, 3) (see Fig 4.1). These four necropoleis surround the city on all sides, as detailed below (Fig 4.2). Although the division of the necropoleis according to the cardinal points is understandable, the borders between them are not always clear. In fact, the four main cemeteries are essentially partitions of two wider zones created due to the geography of the city, which is located on the southern edge of a mountain scarp, with steep slopes to the north and north-west and with flatter land to the south and east (Thorn 2005, 23; Cherstich 2009, 4). Thus the Northern and Western Cemeteries were terraced into steep scarps, the Eastern and Southern Cemeteries developed more extensively on the flattish plateau lands. The necropoleis extend in time from the 6th century BC until at least the 5th century AD (Rowe 1959, 2).

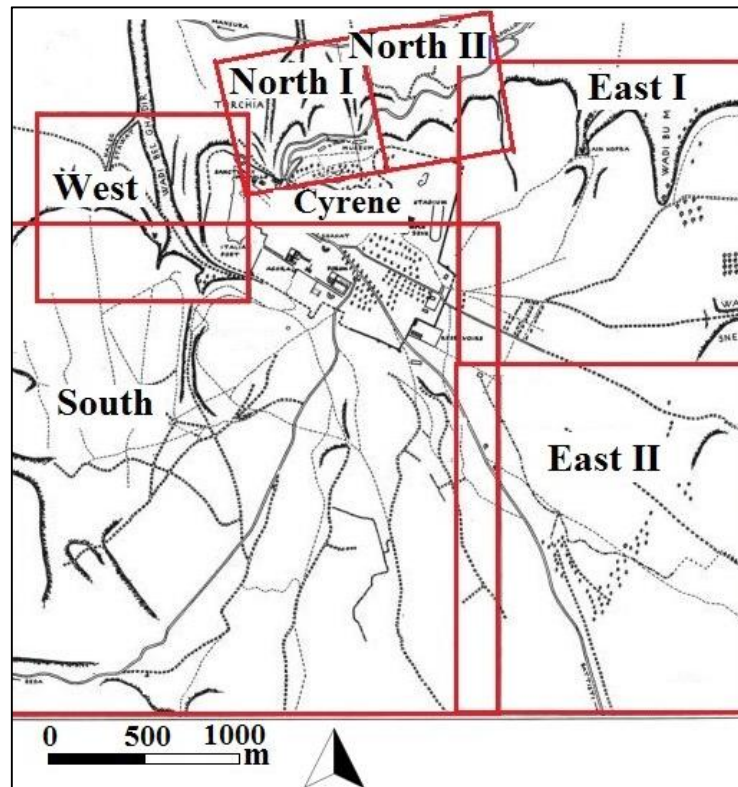


Fig 4.1: Cyrene's four necropoleis as categorised by Cassels (1955, 2).

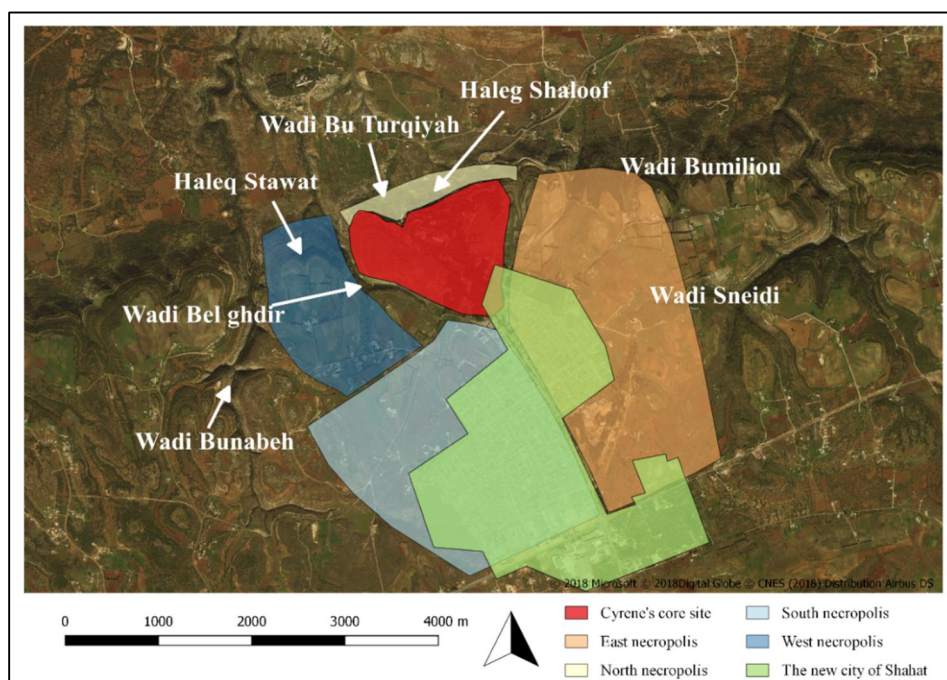


Fig 4.2: Location of Cyrene's four necropoleis.

4.3.1 The Northern Necropolis

This enormous necropolis stretches to the north of Cyrene's sanctuary of Apollo, and extends down the northern face of the upper escarpment, with tombs clearly seen on both sides of the modern road to Apollonia. Terraces of rock-cut tombs built on the natural steep slopes lie along both sides of the road leading down the escarpment to Apollonia, most of which possess large and elaborate façades (Cassels 1955, 3).

These cemeteries are spread along steep slopes, especially on the cliffs and escarpments above Wadi Bu Turqiyah) and its tributaries (North II) and Wadi Haleg Shaloof (North I (see Fig 4.2). The tombs were organised here into narrow terraces, one above the other. This means that more than one line of tombs can be parallel to the same road (Cherstich et al. 2010, 315; Norton 1910–1911a, 152-153) (see Fig 4.3). The vast majority of these tombs were cut into the rocky hillside: at least 370 of them are rock-cut tombs, 174 with loculi opening off the façade, while roughly 55 are built tombs with large and elaborate façades (Cassels 1955, 3; Cherstich 2009, 4).



Fig 4.3: A view of the rocky landscape in the Northern Necropolis, looking west (Author).

4.3.2 The Western Necropolis

This cemetery zone is located in the steep-sided Wadi Bel Ghadir and its tributaries, in the area called Haleq Stawat (Goodchild 1981, 101-2) (Fig 4.2). Its topography is

roughly similar to the Northern Necropolis, however, but due to its location away of the new roads and modern development of the new city, most of the tombs of the Western Necropolis are better preserved.

More than 160 tombs have been found in this zone, generally smaller than those of the Northern Necropolis (Cassels 1955, 3; Thorn 2005, 24-5) (Fig 4.4). The vast majority of these 160 tombs have porches with columns, and usually feature one entranceway leading from the porch to a square room.



Fig 4.4: A view of the rocky landscape in the Western Necropolis, looking west (Author).

4.3.3 The Southern Necropolis

This extensive funerary zone (see Fig 4.2) has tombs located on both sides of the ancient road to Balagrae (Thorn and Thorn 2009, 17-18). More than 420 different tombs have been identified of here, including sarcophagi, rock-cut burial cemeteries and built tombs. The number of built tombs here is c. 160, a figure higher than that found in the other necropoleis. This is because built tombs are better suited for flat areas than steep cliffs. Around 262 are rock-cut tomb-types (Cherstich 2009, 5, 148-9).

Most of these tombs are badly damaged, since their open location has led to stone-robbing and erosion (see Fig 4.5), and some even became dwellings for the local population in the past (Cassels 1955, 3), a number are currently being used to store local agricultural products and building materials, or are used as animal pens.



Fig 4.5: A view of the Southern Necropolis, looking north (Author).

4.3.4 The Eastern Necropolis

The largest part of the Eastern Necropolis occupies the north-east side of Cyrene (Fig 4.2), while its south-east side is situated in the plain between Cyrene and the modern crossroads to Balagrae (the modern city of al-Bayda) (Thorn 2005, 23; Cassels and Tomlinson 2009, 18). About 270 tombs have been found and recorded in the Eastern Necropolis; around 70 of these tombs are rock-cut, while roughly 200 are built tombs, some of which represent Cyrene's biggest tombs (Cassels 1955, 3). Approximately 195 of the 200 tombs are of the rectangular type, and 5 are circular (Cassels 1955, 38-43; Thorn 2005, 129-139). Again, many of these tombs are now badly eroded.

4.4 Tomb Types

As seen, the tombs of Cyrene are very numerous and present a wide range of structural types. However, they can, generally, be divided into four main types (Table 4.2):

<i>Category</i>	<i>Northern Necropolis</i>	<i>Western Necropolis</i>	<i>Southern Necropolis</i>	<i>Eastern Necropolis</i>	<i>Total</i>	<i>Comments</i>
<i>Rock-cut Tombs</i>	375	149	262	68	855	
<i>Circular Built Tombs</i>	8	2	5	4	19	
<i>Rectangular Built Tombs</i>	47	13	156	202	418	
<i>Sarcophagi</i>	?	?	?	?	2000	Number not confirmed
<i>Total</i>	431	164	423	274	3292	

Table 4.2: Main tomb types and numbers in the four necropoleis of Cyrene.

4.4.1 Stone sarcophagi

The first type is **stone sarcophagi**, which usually contain a rock-cut base and a lid (Fig 4.6) shaped like a roof with four acroteria at the angles and a plinth in the middle (Rowe 1959, 2; Cassels 1955, 10). While these sarcophagi average about 2.5 x 1.2 m, they can range from approximately 3.5 x 1.4 m at their largest to around 1 x 0.6 m at their smallest. These smaller sarcophagi could have been used for cremations, infant burials or secondary burials (Thorn 2005, 532; Cherstich 2009, 72). Finds from this tomb type reveal that the use of sarcophagi started in Cyrene at least from the fifth century BC and continued into the Hellenistic period; some were also re-used in the Roman era (Cherstich 2009, 75).



Fig 4.6: A view of sarcophagi in Cyrene's North Necropolis (Bonacasa and Ensoli 2000, 161).

4.4.2 Rock-cut tombs

The second type is the **rock-cut tomb**. The oldest examples of this tombs date to the Archaic period (Thorn 2005, 336). This category includes simple cist-graves as well as rock-cut underground chambers with loculi or spaces for burials in the façade (Rowe et al. 1956, 22). These types can be arranged in many ways to form different kinds of plans. They are similar in being entirely rock-cut, all have porches, some with columns and some with pillars. These tomb types contain chambers with rock-cut internal sarcophagi, simple external façades, which, in some cases, were decorated with square acroteria above the doors (Cherstich 2008, 76). The typical arrangement of these tombs was a single entrance leading from the porch to a chamber which is roughly square in shape. The chamber can have several loculi (klinai) cut in the floor by the side and end walls (Cassels 1955, 17) (see fig 4.7).

The loculi of the tombs of Cyrene were arranged in several ways, forming different kinds of plans. Some of these plans offered spaces for more loculi than others, and in several cases where no space was left for more graves, another square or rectangular was cut into one of the sides of the chamber to add more. The earliest tombs could have been those in which loculi open off the façade, then the ones with square chambers. Some of these tombs have wide chambers, while other examples have long chambers (Cherstich

2009, 78-9). Many of these tombs were re-used in the Roman era with new loculi added.
(Cassels 1955, 17).

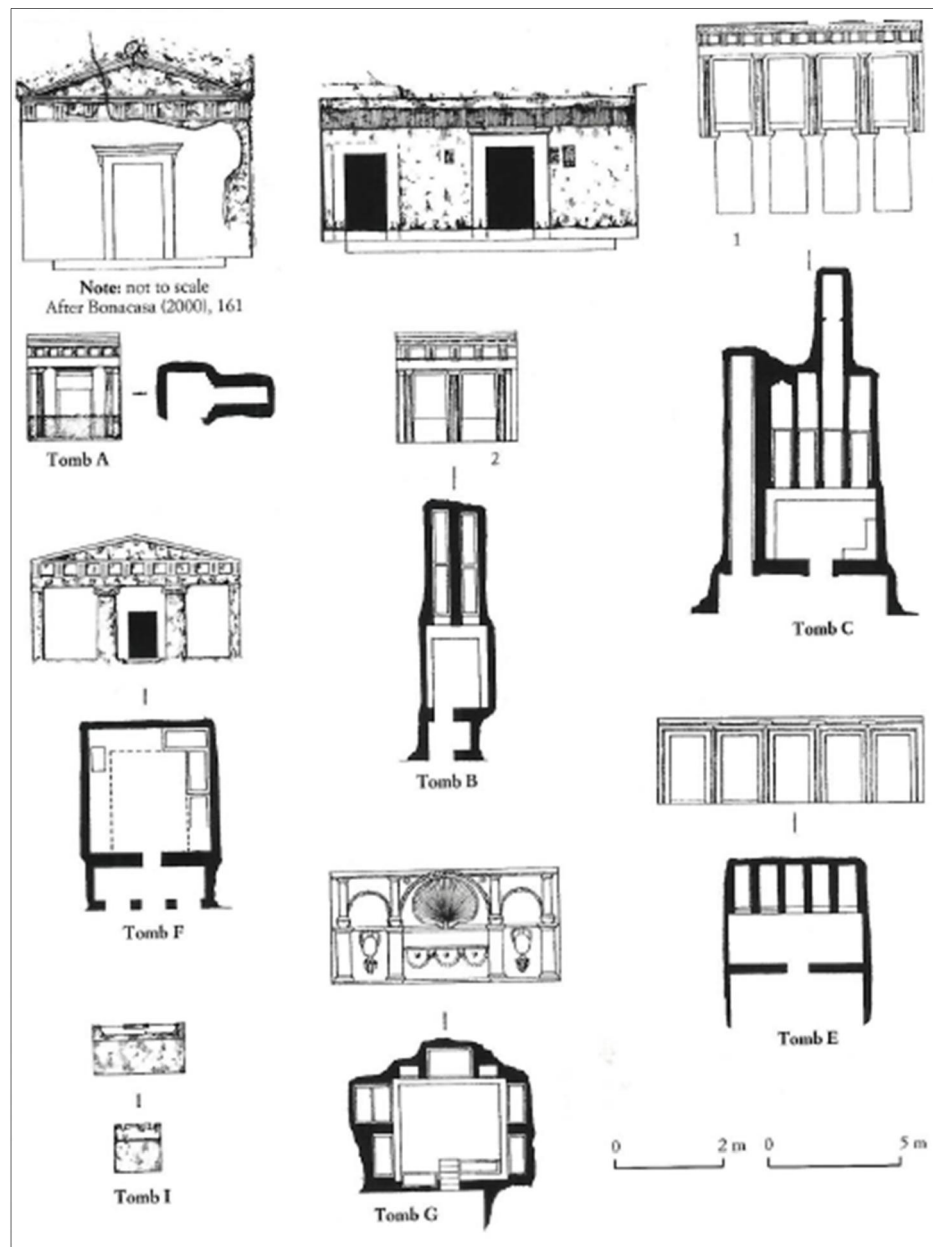


Fig 4.7: Plans of Classical Greek rock-cut built tomb with loculi in the Northern and Western Necropoleis at Cyrene (Thorn 2005, 64).

New rock-cut tombs were made in the Roman period, many of which feature mosaics on the floor and painted decorations. They are all of the same basic type, with a single entrance leading to a square chamber (Cassels 1955, 21). Marble sarcophagi were also used, with some being elaborately carved. The vast majority of these sarcophagi were closed by heavy stone doors carved with panels in imitation of wood. Only the lower half of the door was movable, since the top half was carved in the natural rock (Cassels 1955, 3-4).

4.4.3 Rectangular built tombs

The third type of tomb, which is also a common sight in the necropoleis of Cyrene, is the **rectangular built tomb**, which has in common the use of built, usually multilevel loculi, resembling those in rock-cut tombs (Fig 4.8). There are various types of rectangular built tombs which can be generally split into two main groups: temple-tombs and “mastabas.” These two types of tombs date back possibly to the 4th century BC. The temple-tomb type is a typical Cyrenaican kind of tomb. Its usual form is a kind of naiskos/small house, with usually one or two loculi (Cherstich 2009, 87-8) (Fig 4.9). The “mastaba” tomb type has a flat roof which was made of a series of slabs. As there is no door on this type, so the tomb cannot be accessed without lifting the covering slabs (Cassels 1955, 14-5). The walls of the “mastaba” tomb are lower than their counterparts in the temple-tomb (Cherstich 2009, 99).

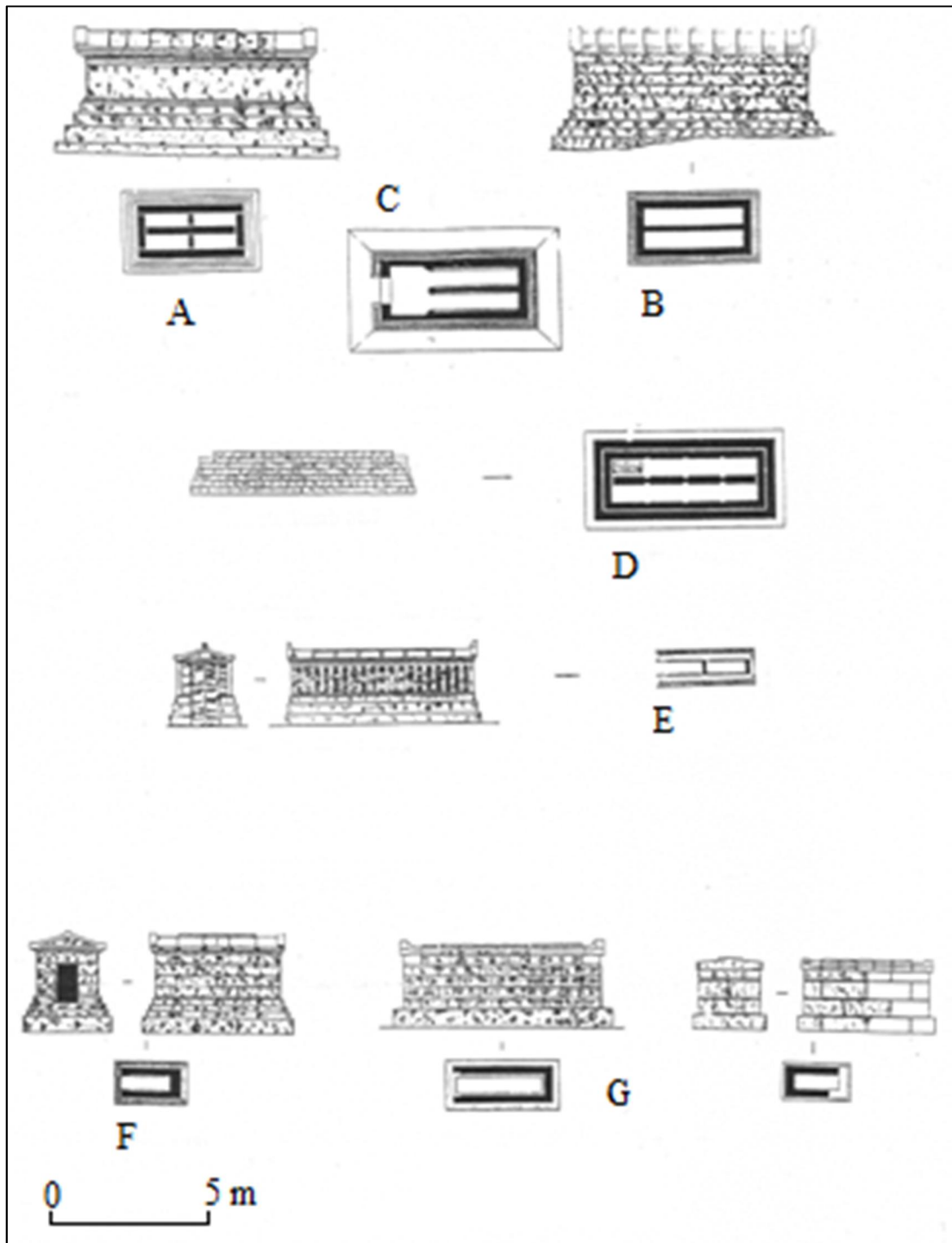


Fig 4.8: Types of rectangular built tomb at Cyrene dating to the fourth century BC (After Cherstich 2009, fig, 75).

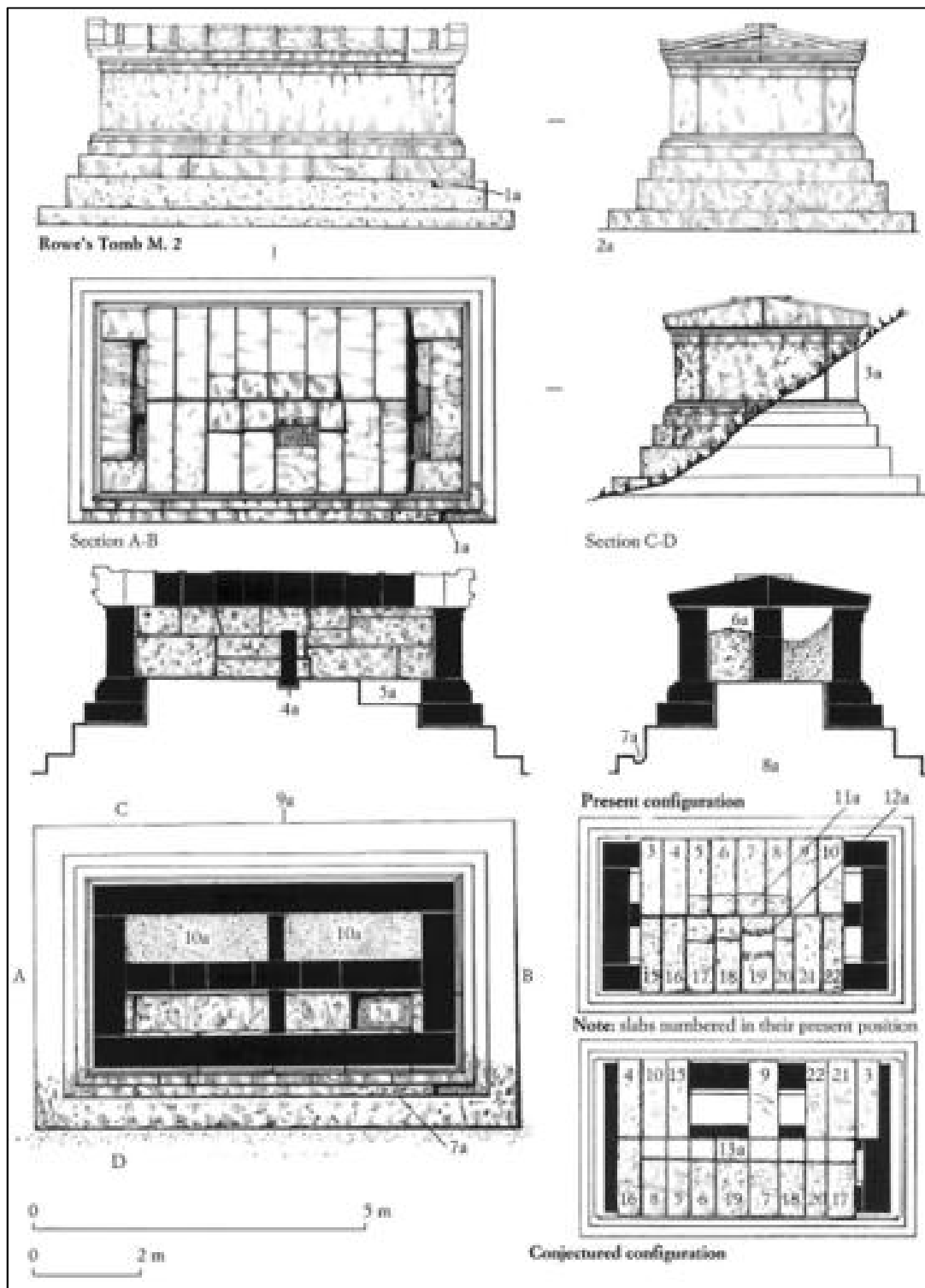


Fig 4.9: Plans of the temple-tomb type at Cyrene (Thorn 2005, 207).

4.4.4 Circular built tombs

The fourth main type is the **circular built tomb**, which can also be classified into several sup-types based on tomb size and internal and external arrangements (Thorn 2005, 407). These tombs are delimited by a circular wall and include one or two cists (Fig 4.10). However, it is worth mentioning that some of these tombs have no visible burial inside, and, therefore, they possibly could have been used for cremations (Cherstich 2009, 92).



Fig 4.10: A view of a circular tomb in the Northern Necropolis (Cherstich 2009, 66).

Most of the circular tombs stand on a squared crepidoma, a stone base of three steps, bordered by steps often four in number. The crepidoma does not extend far under the inside of the drum, which could not be entered. The drum of the circular superstructure is usually about 8 m diameter at the base and stands up to 1.70 m high (Cassels 1955, 11). The roof slopes up gently towards the centre and is made of three concentric rings of blocks segmental in plan (see Fig 4.11). However, some of the tombs of this type have no roofs. The circular built tombs which have roofs are dated later as they most likely developed from the earlier types, which were possibly Archaic in date.

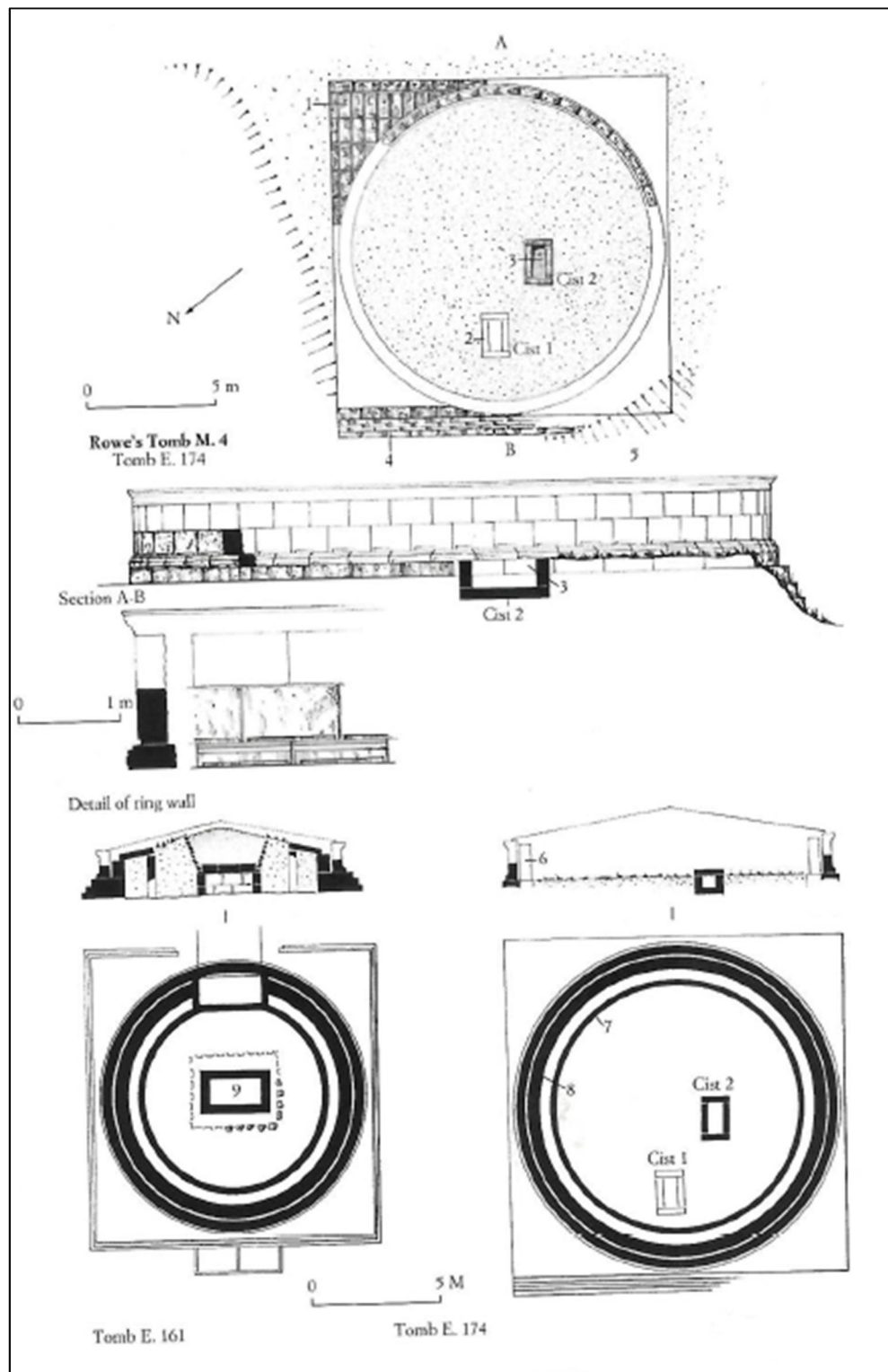


Fig 4.11: Plans of circular built tombs in the Northern Necropolis at Cyrene (Thorn 2005, 228).

4.4.5 Decorative features

A great number of female half-length figures and busts dating to the Greek period are known from the necropoleis of Cyrene (Rosenbaum 1960, 14). While most of these busts feature the upper part of mantle worn as a veil over the back of the head, some examples are unusually provided with a smooth curved plane in place of a face, and some had the veil drawn over part of the face (Fig 4.12). It is thought that these female busts, which were placed on the graves, especially on the rock-cut tombs, represent a local goddess, perhaps Persephone.



Fig 4.12: Examples of Greek-period of female busts found in the necropoleis of Cyrene (Author).

The most common way of recording the name of the dead in Roman times was to have it carved either on a base for a funerary statue or on a stele made of marble (Norton 1910–1911a, 159; Rosenbaum 1960, 17, 21). The stele is the simpler form, being usually about 1 m high, rectangular and tapering gently towards the top (Cassels 1955, 4). Although the elaborate facades of the large tombs did not offer places to carve names without destroying the architectural lines, some names appear in rough inscriptions carved on the interior walls of tombs (Cassels 1955, 4).

Furthermore, the facades of some of the chamber tombs often have niches (Fig 4.13), which, according to Norton (1910–1911a, 158) were predominantly used to hold busts of the subsequent generations who were interred in the family tombs.



Fig 4.13: A view of a Hellenistic tomb's facade near Cyrene modified in Roman times (Cherstich 2011, 35).

Placing a portrait-bust for the dead inside a small rectangular niche on the external façade of a rock-cut tomb was a custom introduced by the Romans (Rosenbaum 1960, 15-7; Bacchielli 1987, 57). Cyrenaica was greatly influenced by this tradition which probably appeared in Cyrene about 75 BC and then spread in all the cities of Cyrenaica and continued until the first half of the fourth century AD (Bananno 1976a, 27). Only the upper part of the body (the head and part of the chest) appear on these funerary statues and the name of the deceased was usually inscribed on the base (Cherstich 2011, 34).

These types of funerary busts in Cyrenaica are very unique in shape. Their most prominent feature are the two flat strips extending from the sides of the head behind the ears to the shoulders (Bananno 1976a, 27; Bacchielli 1987, 56-7) (see Fig 4.14); therefore, they are immediately recognisable. The Cyrenaican busts are also characterised by a flat back which was intended to give the impression that the bust were originally engraved

into the bedrock of the external façade of the rock-cut tomb (Banonno 1976a, 27; 1976b, 40).



Fig 4.14: Examples of Cyrenaican busts, especially at Cyrene (Abdrbba 2007, 258, 295).

4.5 Other Isolated Tombs Located in Cyrene's Environs

4.5.1 Introduction

In general terms, the number of tombs located in the landscape around Cyrene is considerable. The following sections will shed light on various isolated tombs located in the city suburbs because most of them were discovered recently. Some of these tombs are situated in the modern city of Shahat or in modern military camps and security institutions (Fig 4.15); gaining access to these sites was thus either difficult or, in many cases, prohibited before the Libyan Revolution of 17 February 2011. Consequently, they have not been fully recorded yet and further study is still needed. Furthermore, the vast majority of them are now under serious threat of destruction, especially from modern urbanisation.

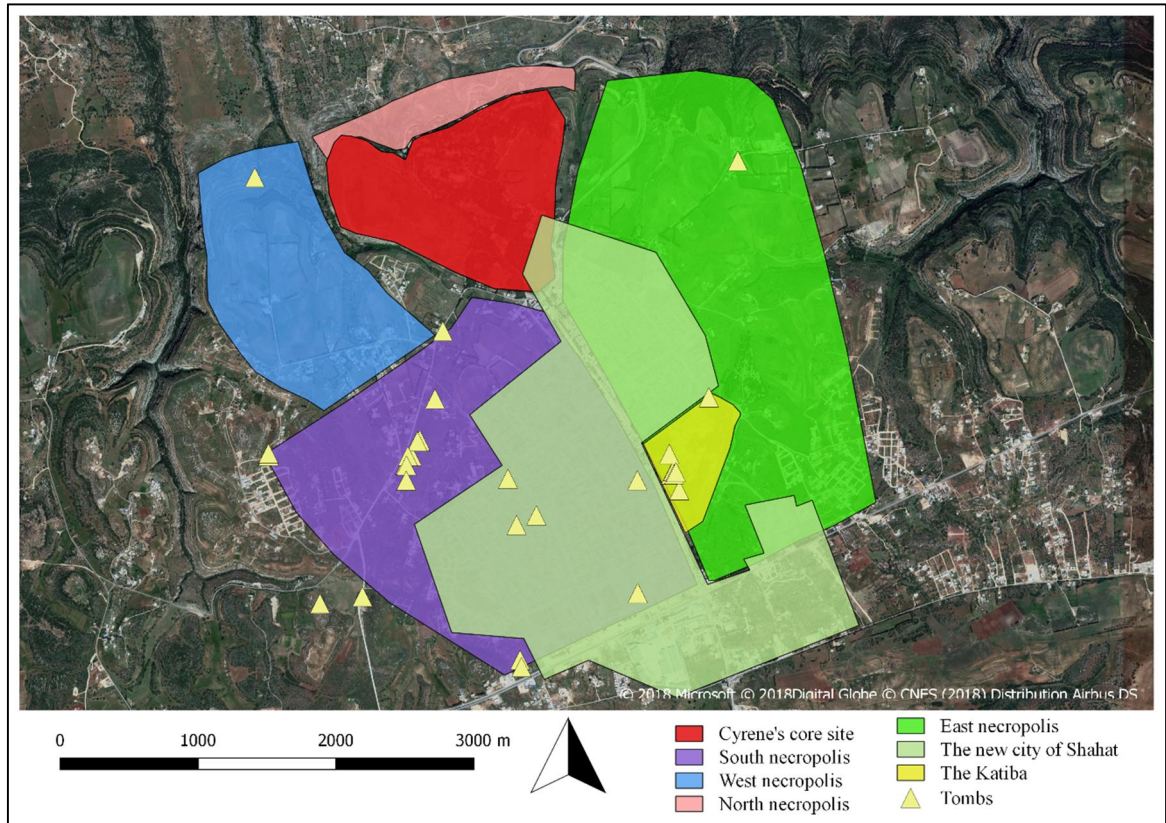


Fig 4.15: A map showing some isolated tombs around ancient Cyrene.

4.5.2 Ain Hofra: tombs A, B and C

The area known as Ain Hofra is located in the northern part of the Eastern Necropolis, about 2 km to the east of the urban core of Cyrene, and bordered by Wadi Ain Hofra to the west and Wadi Bu Miliou to the east (Laronde 1987, 428) (see B8.001 in the Gazetteer). This location on the limit of the first step of Jebel al-Akhdar is, of course, crucial because it is a vital strategic position. It seems that the area of Ain Hofra was used as a rocky sanctuary, probably in the Archaic and Classical ages by aristocratic cults (for more details on this sanctuary, see Chapter 5, Section 5.4).

The tomb named Ain Hofra A, B, and C is located on the top of Wadi Ain Hofra and faces the sea to the north (Fig 4.16). This monumental built tomb consisted of three rooms (labelled A, B and C) and has been dated to the Roman period (Thorn and Thorn 2009, 17) (see Fig 4.17). Rooms A and C are similar in plan, but different in size. While room A is the largest 7.80 x 7.70 m, room C is smaller 5.50 x 4.20 m and situated in the back. Both rooms had columns on the northern entrance side, probably arranged as a *pronaos in antis*. Room B seems to have been a secondary room and was very small 3.60 x 3.10 m compared with rooms A and C, and was directly connected with both rooms A and C. The finds from rooms A and C were particularly rich and interesting, especially from room C, where most of the sculptures were found. These include three statues (two male and one female), two sarcophagi, a female portrait and an urn (AR UniCh, 6-8).



Fig 4.16: A view of the Ain Hofra tombs A, B, and C, looking south (Author).

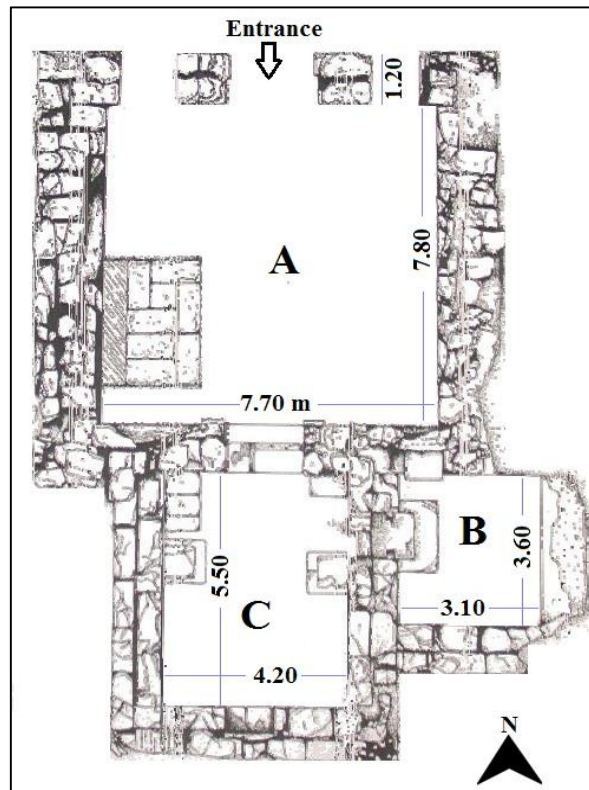


Fig 4.17: Plan of Ain Hofra tombs A, B and C (After AR UniCh, 6).

4.5.3 The Garden Tomb

This tomb complex is located in the Southern Necropolis, on the south side of the new road to Balagrae (Al-Beida) (see E5.002 in the Gazetteer). The tomb was discovered in 2000, and named the Garden Tomb by Thorn because it was enclosed in a modern private garden (2005, 361). It consists of a large rectangular courtyard 7.90 x 6.70 m (Fig 4.18), later provided with a monumental Doric façade. Access to this feature was most likely by steps that have now disappeared (Stucchi 1975, 155–156; Cinalli 2014, 8). In addition to the courtyard, the tomb consists of two chambers, one on the east side of the tomb 6.50 x 2.85 m and the other on the south side 2.70 x 2.60 m (Fig 4.19).

The tomb has been dated to the Late Classical/Early Hellenistic eras, probably to the fourth century BC. However, its architectural arrangement shows that it remained in use until the late Roman period and underwent at least three phases of use (Cherstich 2011, 33-4).

The first phase includes the two chambers with three funnel-shaped loculi. All the three loculi have the same dimensions, 2.50 m length, 0.80–1.10 m width, and were cut into the eastern side of the wide eastern chamber. This typology is attested in Cyrene from the mid-fourth to the second century BC (Thorn 2005, 349-350). The second stage includes two loculi opening off the northern short side. These loculi are much longer than those at the front, 4.30 m, and were shaped with less attention, probably due to the urgent necessity to bury more people at a later stage, probably in the second century BC. In the third phase, probably Imperial Roman, the eastern chamber was extended from the southern side to about 2.65 m, and a rock-cut sarcophagus was added to the eastern, western and southern sides of this chamber (Cinalli 2014, 11-15). The chamber on the south side of the tomb contains a double loculi system 2.20 x 1.00 m and 2.00 x 0.90 m (one loculus linked to a second), which seems to have been very rare in Cyrenian tombs.



Fig 4.18: A view of the Garden Tomb, looking north (Author).

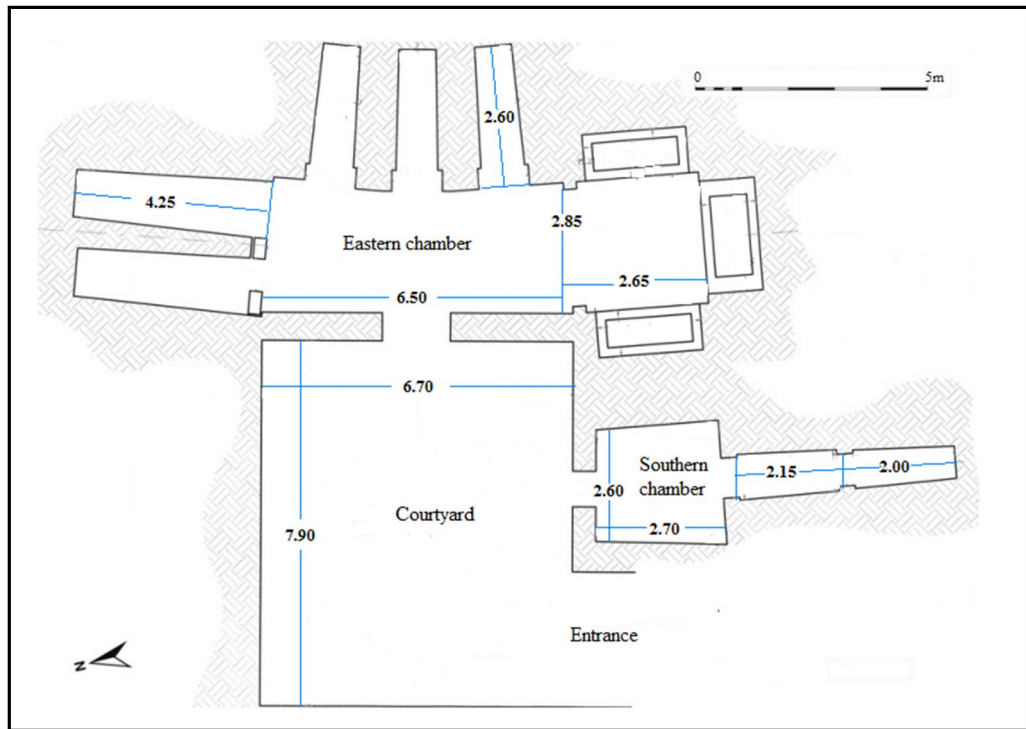


Fig 4.19: Plan of the Garden Tomb (After Cinalli 2014, 9).

The systematic excavations carried out in the tomb in 2001 brought to light several finds, including a funerary portrait, a typical Cyrenian half-figured statue of a funerary goddess, a full-sized statue with a himation holding a papyrus scroll, blocks from a Doric frieze supported on a base of long blocks, moulded blocks, and other finds (Cinalli 2014, 7).

The vast majority of the tombs in this area were not located on a wadi terrace, but extended over the plain along the ancient road which leads to Balagrae (Chamoux 1953, 287). However, some of the rock-cut tombs in this necropolis and their façades have sunk below ground level, as with the Garden tomb; most of these are partly concealed by vegetation (Thorn 2005, 23).

4.5.4 Tombs in the Katiba and beneath the modern city of Shahat

The area known as the ‘Katiba’ was originally a military camp built under Gaddafi, who ruled Libya for more than four decades between 1969 and 2011. This large military settlement was located on the south-east side of the new city of Shahat (Fig 4.20), and

was where the initial fierce battles of the 2011 Libyan Revolution took place. Some of the archaeological sites located within the Katiba were badly damaged as a result of the conflict. Notwithstanding this, the Katiba still contains some of the best-preserved built tombs in the Eastern Necropolis. While it is probable the only external portion of this necropolis that is still extant and not yet urbanised, the tombs are under serious risk due to their current location. The quality of these tombs, which are up to 4 metres high in some cases, make them amongst the most monumental buildings in Cyrene's necropoleis (AR UniCh, 7).

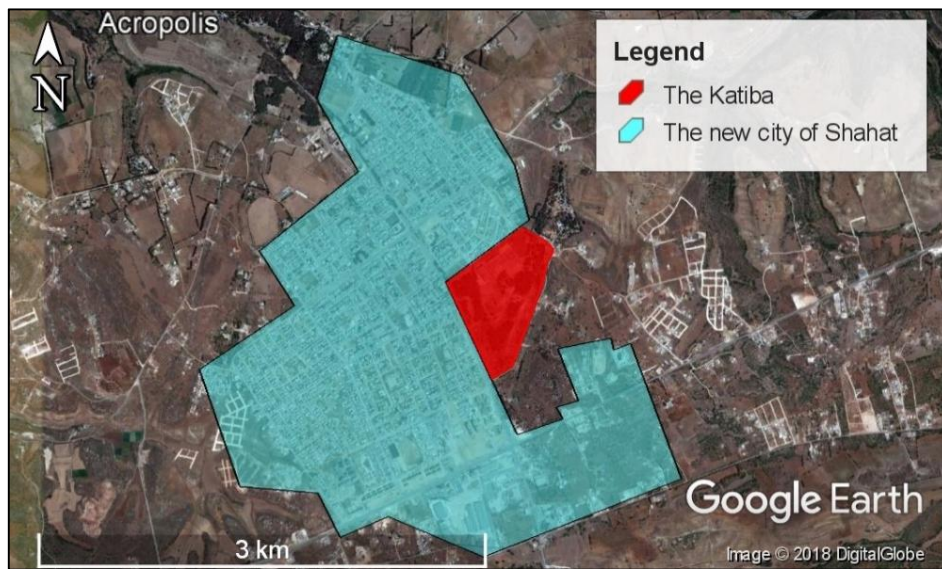


Fig 4.20: Location of the Katiba.

Among the various monuments here are a number of different types of tombs dating to the Hellenistic and Roman periods (see G8.001, G8.004 and G8.005 in the Gazetteer). These include nine rocky courtyard tombs with one or four loculi in the façade (see Figs 4.21 and 4.22), 15 temple tomb-types (Fig 4.23), approximately 5 built sarcophagi (Figs 4.24 and 4.25), one Roman mausoleum, which is a monumental circular tomb positioned on a high podium (AR UniCh, 6-7).



Fig 4.21: Rock-cut courtyard tomb at the Katiba, looking west (Author).



Fig 4.22: Rock-cut courtyard tomb with four loculi, looking east (Author).



Fig 4.23: Temple tombs in the Katiba, looking north (Author).



Fig 4.24: Limestone sarcophagus found at the Katiba (AR DoA).



Fig 4.25: Built sarcophagus, looking east (Author).

Isolated tombs occur in many places around Shahat. In fact, most of the modern city was built over the Necropoleis, especially since 1962 when the city began expanding. A significant number of the remaining tombs in the modern city have been damaged. In the worst cases, they have been completely demolished and covered by new structures, while several tombs are still at serious risk because of modern construction, such as housing and infrastructure. The tombs within and close to Shahat face real threats from vandals and those who would remove archaeological materials, re-use the space for other purposes or cover them with rubbish dumps.

All of these isolated tombs are surrounded by new structures, which is why the areas around them cannot be investigated. In many cases their surroundings have been covered by buildings, or cleared and bulldozed. Consequently, the vast majority of these tombs now occupy small areas among the city's buildings.

An example of this is a temple-tomb type located on the west side of Shahat (G6.001 in the Gazetteer), which measures 7.50 m in length, 4.20 m in width and 2.30 m in height (Fig 4.26). This tomb probably dates to the Hellenistic or early Roman periods, based on a comparison of its architecture with other similar types found in the city's necropolis, especially in the south-east side of the Eastern Necropolis (Archive UniCh, 23, 33).



Fig 4.26: A view of the temple tomb located on the west side of Shahat, looking west (Author).

The area adjacent to the tomb contained a number of other smaller tombs. However, most of these have been covered by buildings in recent years (Fig 4.27). Although the tomb is still standing in fair condition, more buildings are being built in the area, which makes it very vulnerable to destruction.



Fig 4.27: A view of new buildings being built in the area adjacent to the temple tomb, looking southwest (Author).

About 350 m to the southeast of the last tomb is another identical example with the same shape and type (H6.002 in the Gazetteer). This tomb is 7.30 m long, 4 m wide and

2.80 m high, and likely dates to the same period (Hellenistic or Roman) (Fig 4.28). The tomb is in bad condition, and stands among the modern houses and other structures built nearby since 1985.

There is also a courtyard tomb to the north of the last tomb (Fig 4.29). This tomb consists of two loculi, seen in its façade. Unfortunately, these tombs are currently being used by a citizen to house domestic animals and birds, among other purposes.



Fig 4.28: A view of the temple tomb among modern buildings, looking southeast (Author).



Fig 4.29: A courtyard tomb with two loculi, looking north (Author).

At least 37 examples of both built-type sarcophagi and tombs directly cut into the bedrock have been seen in some parts modern Shahat, but unfortunately most of them were destroyed in recent years. However, some samples of these sarcophagi still remain, especially on the fringes of the city where they face a significant threat from development (Fig 4.30). Furthermore, two circular tombs are located among the modern buildings (see G8.006 and H6.001 in the Gazetteer) (Fig 4.31).



Fig 4.30: A view of some exposed sarcophagi located in the new city of Shahat, looking south (Author).



Fig 4.31: A circular tomb at a high risk of new buildings and bulldozing, looking north (Author).

The location of the tombs within the modern city of Shahat, in addition to the tombs on the eastern side of the ancient city including the Katiba strongly suggest that the

expansion of the new city of Shahat to the south and south-east likely occurred on a significant part of ancient Cyrene's suburbs.

4.6 Discussion

4.6.1 Location and distribution of the necropoleis

In the seventh and sixth centuries BC, tombs were not usually positioned within the walls of Greek cities but were generally outside (Kurtz and Boardman 1971, 49). However, even in the Classical era, some burials still took place within the city walls in cities such as Sparta and Tarentum. The location of the necropoleis of Cyrene and the high number of the different tombs spread around the city walls reveal that in general burial took place outside the urban core of Cyrene in both Greek and Roman eras. The main exception is the circular tomb in the Agora.

Study of the location and distribution of Cyrene's tombs shows that the necropoleis were of great extent and impressive size; the city is surrounded by tombs on almost all sides, they are more frequent indeed than any other kind of suburban monument. However, tomb density and the proportions of the four main tomb types vary by site. This difference is likely because the tombs have been formed according to the geology and size of their location, which may have played a key role in this aspect.

The Northern Necropolis, for example, contains about 430 tombs, most of which are located on the steep slopes of the so-called Wadi Haleg Shaloof. While both the Southern and Northern necropoleis contain roughly 426 tombs, the Southern Necropolis has more built tombs because of the area's flat topography (see Table 4.2). This flat topography had other effects on rock-cut courtyard tombs; these are sunken below ground level and therefore are often heavily infilled (Thorn 2005, 23; Cherstich 2009, 5). In many cases, only a small part of this type of tomb is evident at ground level.

The locations of the Northern and Southern necropoleis are also remarkable, being nearer to the city's urban core than the other two. This location was most likely favourable

for the Greek population to bury their dead, especially in the Archaic and Classical periods. The proximity of the tombs to the early city, in addition to their distribution and arrangement in tight terraces one above the other (as in the case of the Northern Necropolis) or on parallel lines (like the tombs in the Southern Necropolis) probably made it easier for people to visit these tombs and perform funeral rites.

Modern roads and buildings have changed the landscape partially, particularly in the Southern Necropolis. Nonetheless, the lines of tombs are still clearly visible on both sides of the new roads. It is apparent that the new roads were built on the ancient paths between the lines of tombs, which can be tracked via Beechey's map of Cyrene and its environs (Fig 4.32).

When Cyrene's cemeteries expanded in the Classical and Hellenistic periods, they were spread out more to the north, west and south of the urban core of the ancient city. Meanwhile, in the Roman period the expansion was mainly to the east and south-east. This was probably due to the topography of the locations of the Northern and Western cemeteries on the steep cliffs below the Jebel scarp, which were full of Classical and Hellenistic tombs. It seems that the Roman population sought other places to cut cemeteries and build burial monuments, especially to the east and south-east of the ancient city site. This explains why more tombs dating to the Roman period occur in the Eastern and Southern necropoleis than the Northern and Western cemeteries.

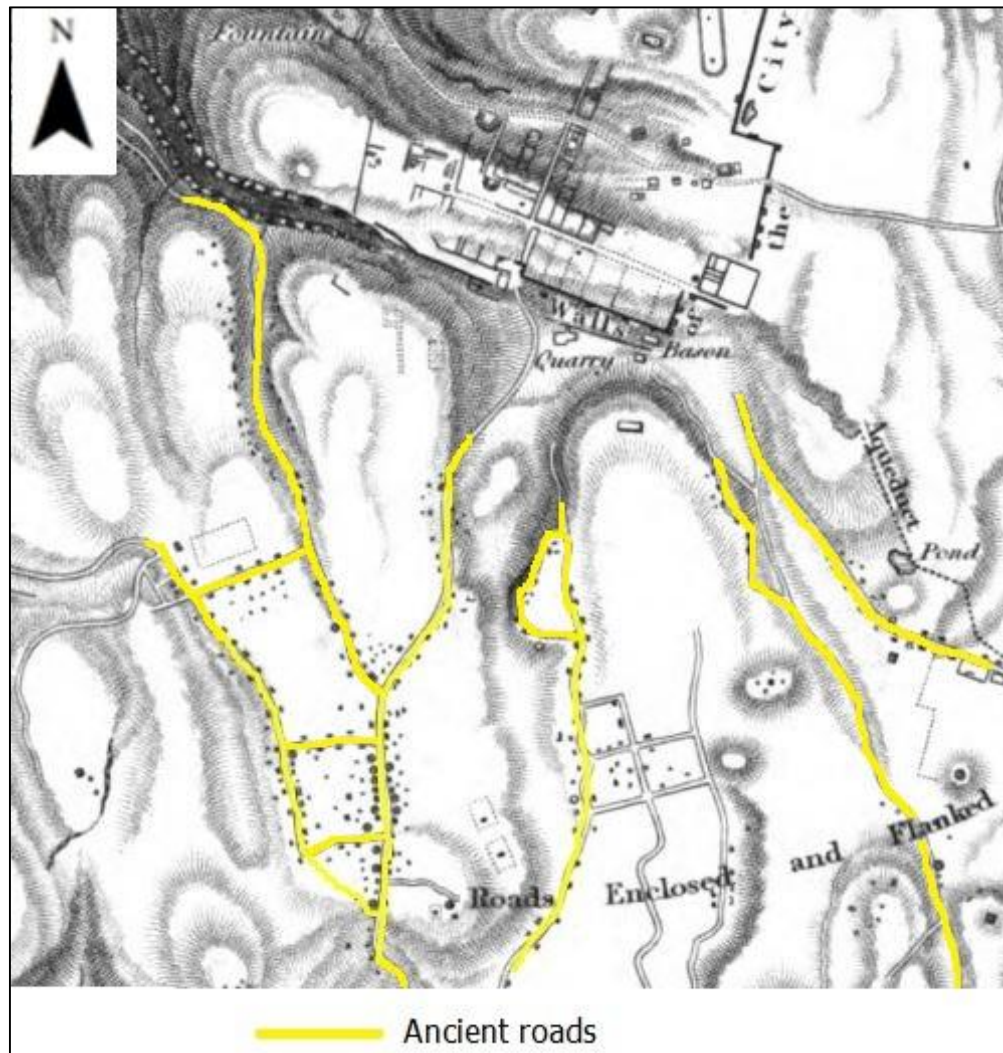


Fig 4.32: The Beechy map of 1828, showing Cyrene and its environs with rows of tombs on both sides of the ancient roads prior to construction of new roads and buildings (After Beechey and Beechey 1828, unnumbered page between 404-405).

4.6.2 Chronology

In general, classifications of tombs have not been really successful in Cyrene. It is very difficult to classify these monuments chronologically according to their exact date, in particular with regards to Classical and Hellenistic tombs. This is because they have so many varieties, and many of them were reused in Roman times. However, recent studies have revealed that the oldest tombs in Cyrene are found in the Northern Necropolis, dating from the early years of the city until the fourth century BC (Cherstich 2008; 2009; Thorn 2005; Cassels 1955). This necropolis also contains tombs dating to the Hellenistic era, and a few from Roman times or which were reused in the Roman period.

In the Southern Necropolis, about 17 rock-cut tombs date back to the Archaic period, while 262 are Classical-Hellenistic tombs, of which 128 are built and 164 rock-cut. 114 tombs can be dated to the Roman period. There are also 62 sarcophagi, most of which were reused in the Roman era (Cherstich 2008, 84; 2009, 75-76). The Western Necropolis includes at least 160 tombs, 147 of which were of the rock-cut type, while about 13 tombs have spaces cut in the floor by the side and end walls for burials. At least 4 of these tombs have two loculi with semi-circular heads, which strongly suggests that they were re-used in the Roman period.

The vast majority of the tombs located in the Eastern Necropolis and a great part of the modern city site of Shahat, including the Katiba and the nearby area, date to the Roman period. About 70 of these tombs are rock-cut while 205 are built, including 5 circular tombs and 200 temple or rectangular tombs. It should be noted here that there are fewer Roman burial monuments in Cyrene than those which are dated to the earlier periods. However, this cover number of Roman tombs does not necessarily mean that fewer people were buried in monumental tombs. Cherstich (2009, 84) in fact suggests that the majority of people in the Roman era continued to use Classical and Hellenistic loculi to bury their dead. He adds that though most loculi were cut in the Classical and Hellenistic times, there is some evidence showing that a few loculi were cut anew during the Early Imperial period.

5.1 Introduction

This chapter deals with a set of substantial and important complexes around Cyrene, namely sanctuaries and religious structures. Sections 5.2-5.5 cover four of the ancient Greco-Roman sanctuaries: Sanctuary of Apollo, Sanctuary of Demeter, Sanctuary of Budaraj and Sanctuary of Ain Hofra (Fig 5.1). It describes the various structures and buildings located within these sacred areas and gives some information on the type of rites associated with these sanctuaries. Section 5.6 is devoted to suburban churches and other possible Christian monuments at Cyrene. It investigates their distribution and their relationship to the urban site, however, further study is still needed to investigate the Christian monuments across Cyrene. This is followed by a discussion (Section 5.7) which considers how the sanctuaries and religious structures at Cyrene have been altered and expanded over time and explains how these religious structures were likely used by people, moreover, it will clarify the types of religious buildings that existed within the suburban sanctuaries and examine their chronology.

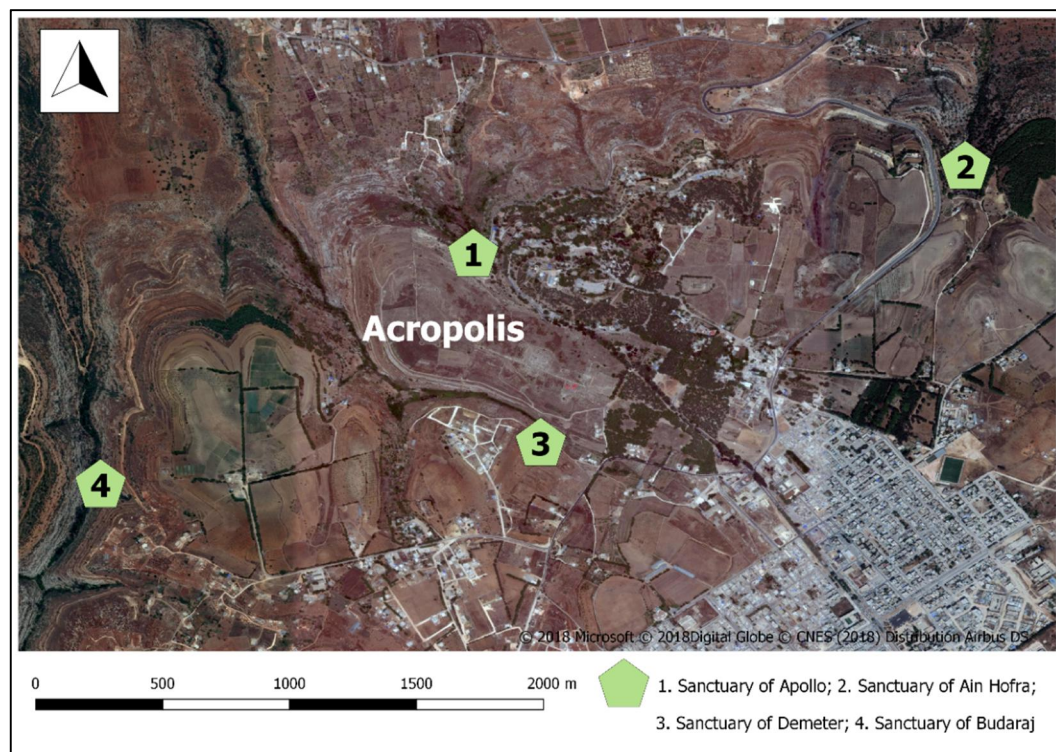


Fig 5.1: Location of the suburban sanctuaries at Cyrene.

5.2 Sanctuary of Apollo

The sacred sanctuary of Apollo (also known as ‘the North-Western Zone’) is located on a terrace on the steep escarpment to the northwest of Cyrene’s urban core (Fig 5.2). Though the sanctuary became an essential part of the ancient city's urban core, its topographic position, which occupies a low area to the north of the Acropolis, and relationship to the city’s known defences suggest that it originated as an extra-urban sanctuary when it was founded at the end of the 7th century BC. However, the whole area was considered by the Greeks to be a main part of the urban core. This change perhaps happened when this area was expanded and more buildings were constructed within the sanctuary zone from the middle of the 4th century BC.

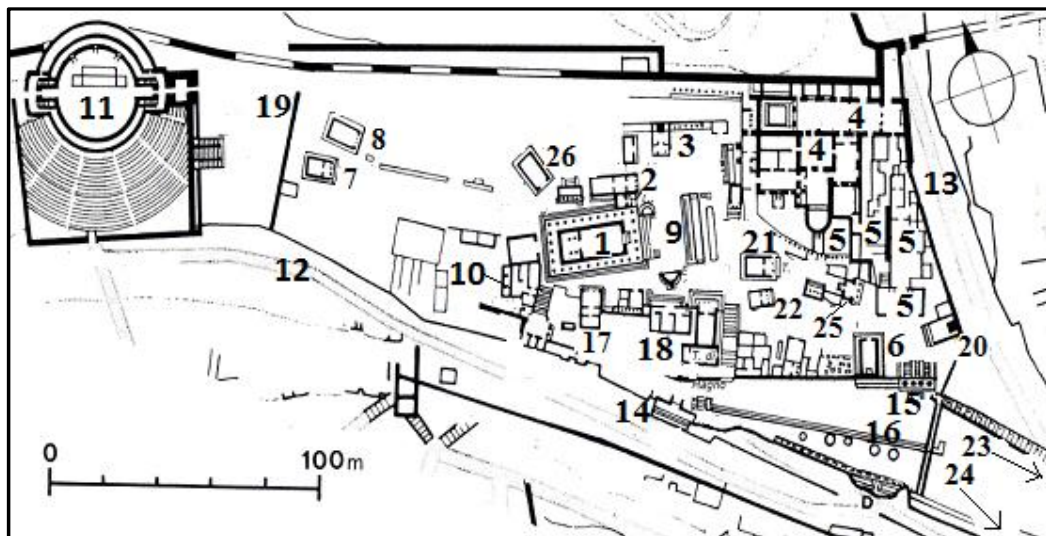


Fig 5.2: Plan of the Sanctuary of Apollo (the North-Western Zone) (After AR DoA).

1. Temple of Apollo; 2. Temple of Artemis; 3. Temple of Hecate; 4. Baths of Trajan; 5. Byzantine baths; 6. Strategheion; 7. West temple (1); 8. West temple (2); 9. Altar of Apollo; 10. Roman house; 11. Greek theatre; 12. Ancient road; 13. Ancient road; 14. Springs of Apollo; 15. Greek propylaeum; 16. Byzantine lime kilns; 17. Temple of Isis; 18. Temple of Apollo Nymphegetes; 19. Wall of Nikodemus; 20. Temple of Aphrodite; 21. Temple of Hades; 22. Temple of Athena; 23. To the arch of Marcus Aurelius; 24. To the Greek baths; 25. Roman Propylaeum; 26. Unidentified temple.

The sanctuary was in use over a long time, and accordingly is an area crowded with religious shrines, temples and many other important monuments. One of the most famous and important sites in the sanctuary is **the Fountain of Apollo** (no. 14 on Fig 5.2). This

is a spring with a cave cut deep into the cliff on the south-west side, from where the water flows out the rocks and runs in a channel to distribution structures in front of the cliff (Wright 1957, 310) (Fig 5.3).



Fig 5.3: A view of the Fountain of Apollo, looking east (Author).

As well as a very important source of water, the fountain was associated with the worship of Apollo and the city's founding myths (Wright 1957, 303-4). According to Herodotus (IV, 155-57), when Battus and his group of men sailed in two ships to Libya for the second time to found a city based on Delphi's advice, they arrived at Aziris where they lived for six years. Finally, the local people offered them a better place to live and led them to Cyrene, intentionally at night so that they would not see the most beautiful part of the country called Irasa (between Derna and Apollonia) (Dillon and Garland 2010, 26). When they reached the Fountain of Apollo, the Libyans told Battus that this area of the country had a hole in the sky and was a suitable place for them to settle: "Ἄνδρες Ἕλληνες, ἐνθαύτα ὑμῖν ἐπιτήδεον οἰκέειν· ἐνθαύτα γάρ ὁ οὐρανός τέτρηται" (Herodotus IV, 158). This refers to the heavy rains and the great amount of water in the area.

Apollo was an important god to Cyrene, and is involved in the myths relating to the foundation of the city, because Battus was advised by the Pythia (the priestess of the

Temple of Apollo at Delphi) to found a city in Libya. Battus was also told that Apollo himself had visited Libya (pastures' land) once: “αἰ τὸ ἐμὲν Λιβύην μηλοτρόφον οἶδας ἀμεινον, μὴ ἐλθὼν ἐλθόντος, ἀγαν ἀγαμαι σοφίην σεύ” (Herodotus IV, 157). According to the myths, he saw a girl called Cyrene wrestle a lion and fell in love with her. He subsequently kidnapped her and took her to Libya, where a city was later founded which carried her name. This might explain why a great **Temple of Apollo** (no. 1 on Fig 5.2), dating to the beginning of the sixth century BC, occupies the centre of the sanctuary (Pernier 1935, 1 ff; Boardman 1966, 152-3).

The Temple of Artemis (no. 2 on Fig 5.2) is considered to be one of the most important temples, alongside that of Apollo. It is among the oldest buildings in this sacred area, and is linked to the Temple of Apollo from the north side (Pernier 1931, 173-5). Apollo and Artemis were twins according to the Greek myths, so founding temples for the worship of both gods in the same sanctuary is understandable (Stucchi 1968, 208). Among the Greek structures in the sanctuary is the **Strategheion** building (no. 6 on Fig 5.2), which stands to the south-east of the Temple of Apollo. In the Doric style, it dates to the middle of the fourth century BC (Goodchild 1981, 79). To the west of the Strategheion is the **Greek Propylaeum** (no. 15 on Fig 5.2), consisting of a Doric porch in four columns with a pediment above (Fig 5.4). It is thought to be a reconstruction of the sanctuary's monumental entrance, built by the priest Praxiades in the second half of the third century BC (Kenrick 2013, 196).



Fig 5.4: A view of the Greek propylaeum, looking south (Author).

One of the well preserved buildings in this sanctuary is the **Greek Baths**, also known as the ‘Ritual Baths’ or the ‘Baths of Paris’ (Fig 5.5). These rock-cut baths are located c. 100 m south-west of the sanctuary of Apollo, on the west side of the sacred road (Goodchild 1981, 65-6). Although these baths have been dated to the Hellenistic era, they underwent at least two phases of reconstruction. While the second major phase happened probably in the Augustan period, the third dates most likely to the Hadrianic period (Lucore and Trümper 2013, 306). However, the architectural arrangements of these phases cannot be clearly determined. The baths consist of at least seven main chambers cut deep into the cliff, and were used as a sweat bath and for bathing. There are also several reservoirs served the baths (no. 8, 10, 12 and 16 on Fig 5.5) and these were supplied by water through a channel from the hillside above (no. 14). In addition, several rooms were probably used to heat stones to create steam for other washing purposes and for water storage. The main bathing features comprise at least 48 small rock-cut basins, several rows of seats, and high niches used during the bathing process (Wright 1957, 307-9; Lucore and Trümper 2013, 306).

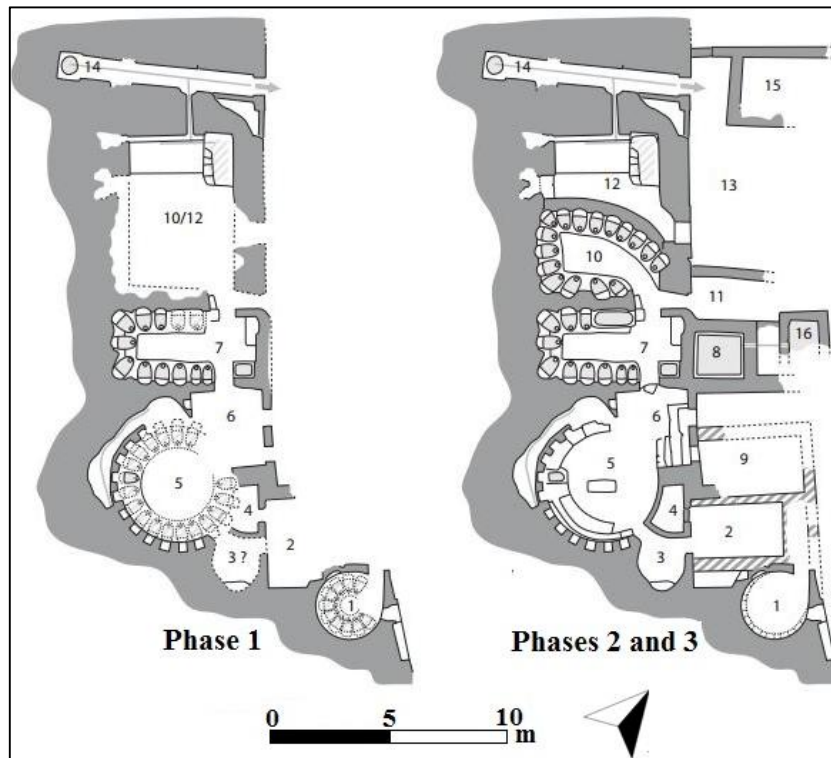


Fig 5.5: Plan of the Greek baths (Lucore and Trümper 2013, 307).

The west side of the sanctuary is occupied by the **Greek Theatre** (no. 11 on Fig 5.2), which is also now known as the Amphitheatre. Hamilton (1856, 42) described the Greek Theatre at Cyrene as the best-preserved monument in the city. It was first built from wood in the 5th century BC, and was then rebuilt in stone in the 4th century BC before the Romans transformed the building into an amphitheatre (Stucchi 1975, 34 ff), starting in the 1st century BC and finished by the second half of the 2nd century AD, which involved several changes to most of the original elements (Stucchi 1975, 135; Bacchielli 1995, 163).

Several Roman buildings are found in the sanctuary of Apollo. The large **Baths of Trajan** (no. 4 on Fig 5.2), which were built in AD 98 and are located on the north-east side, are a significant Roman complex (Fig 5.6). These baths were restored in the second century during Hadrian's rule (Fraser 1950, 89; Stucchi 1975, 28 3).



Fig 5.6: A view of the Baths of Trajan, looking east. (Author).

The **Roman Propylaeum** (no. 25 on Fig 5.2) stands opposite the Strategheion building, dates to the period of Trajan or Hadrian, and consists of four Corinthian columns (Stucchi 1975, 270-1) (Fig 5.7). The **Arch of Marcus Aurelius** stands at the south end of the sanctuary (no. 23 on Fig 5.2) and consists of three openings or arched passageways. Built in AD 164-166, it was dedicated to Marcus Aurelius and Lucius Verus (Stucchi 1975, 268). Between the Roman Propylaeum and the large Baths of Trajan are **the Byzantine Baths** (no. 5 on Fig 5.2), which were built in the 4th century AD (Goodchild 1971, 132).



Fig 5.7: A view of the Roman Propylaeum, looking east. (Author).

Other temples and shrines dedicated to **Apollo**, **Athena**, **Aphrodite**, **Isis**, **Hades**, **Artemis** and **Hecate** (no. 2, 3, 17, 18, 20, 21 and 22 on Fig 5.2) have been identified within the sanctuary. The vast majority of the buildings in the sanctuary of Apollo were extremely damaged (and a significant number destroyed or burned) during the Jewish rebellion in AD 115. However, most of these buildings were renewed and rebuilt in the Roman style. This occurred after the Jewish revolt was overcome, and again after the widespread destruction due to the earthquakes which hit the city in AD 262 and 365 (Walker 2002, 46 – 54; Al-Mayar 1978, 60-2).

5.3 Sanctuary of Demeter and Persephone

The extramural sanctuary of Demeter and Persephone or Kore is located c.100 m to the south of Cyrene's ramparts, opposite the Agora, and across the steep Wadi Bel Ghadir (see Fig 5.8); from the sanctuary stream bed to the top of the cliff, forming the southern edge of Cyrene's Acropolis hill (Luni 2005, 61-72; White 1972-3a, 172). The location is described in the Hymn to Apollo by Callimachus (lines 110-112) who was

born in Cyrene c. 305 BC. His description fits well with the features and remains of the site (Chamoux 1953, 267; Goodchild 1970, 47):

‘Δηοῖ δ’ οὐκ ἀπὸ παντὸς ὕδωρ φορέουσι μέλισσαι=And not of every water do the Melissae carry to Deo

ἀλλ’ ἥτις καθαρή τε καὶ ἀχράαντος ἀνέρπει=But of the trickling stream that springs from a holy fountain

πίδακος ἐξ ἱερῆς ὀλίγη λιβάς ἄκρον ἄωτον.’=Pure and undefiled, the very crown of waters"

The sanctuary is also clearly indicated on the Beecheys’ plan of 1827 (Beechey & Beechey 1828, unnumbered page between 204-205; Chamoux 1953, 265).

Excavations by Donald White, director of the American Mission in Cyrene between 1969 and 1981, identified the sanctuary in 1969 with the remains of a religious complex (no. 4 on Fig 5.8). However, subsequent excavations have revealed many other features that appear to have been part of a much more extensive sanctuary extending along the southern terrace of the Wadi Bel Ghadir. The whole area, including all neighbouring buildings at this part of Wadi Bel Ghadir, is thus now known as the Zone of the Sanctuary of Demeter.

This zone of at least 5 ha is occupied by several buildings, including temples, a theatre, and other structures which are described below. Further excavations here would almost certainly reveal additional buildings within the sanctuary area.

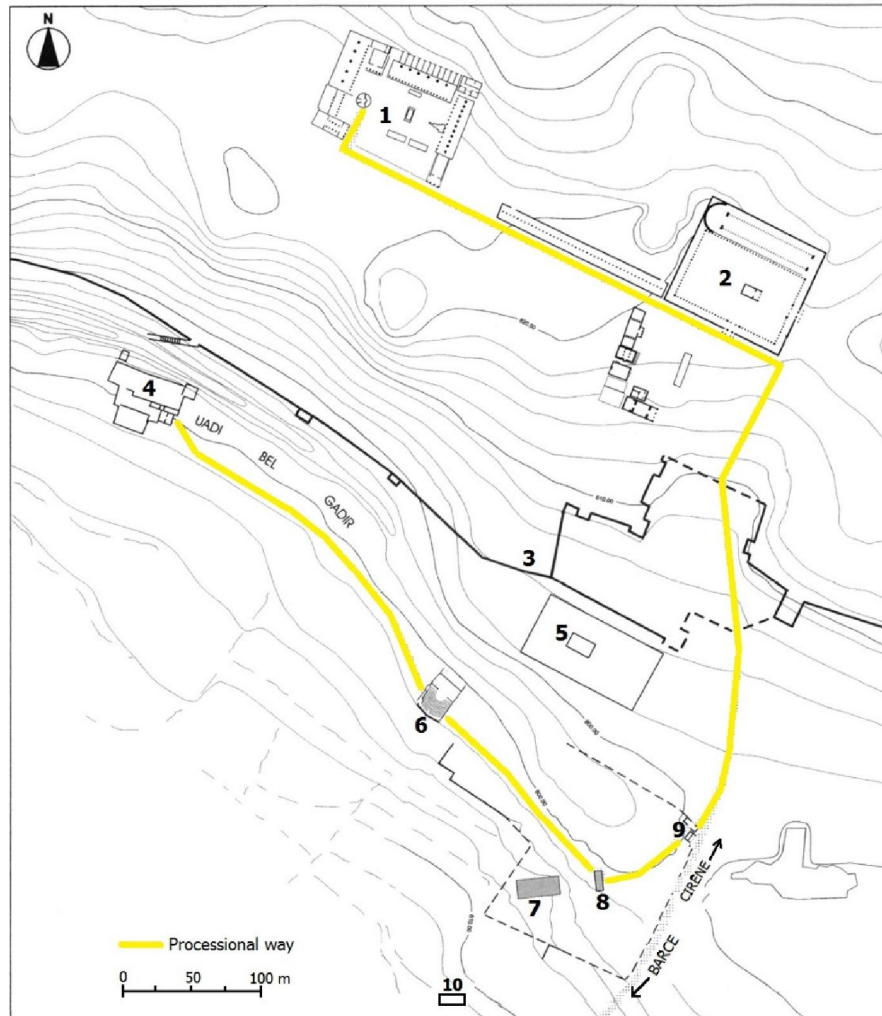


Fig 5.8: Map of the area of Demeter sanctuary (After Luni 2005, 69).

1. Agora; 2. The Roman forum; 3. City walls; 4. A sacred building excavated by Donald White;
5. Water cistern; 6. Theatre; 7. Temple of Demeter; 8. Altar; 9. Propylaeum; 10. Southern temple.

5.3.1 A building sacred to Demeter and Persephone

This sacred building covers c. 3,000 sq. m. and is divided into three terraced levels: the Lower, Middle and Upper (White 1981, 14-5) (no. 4 on Fig 5.8). As mentioned, this building was known for some time as the Sanctuary of Demeter, because it was the only structure related to this deity discovered in this zone during White's excavations (see D4.001 in the Gazetteer). This building is also one of the largest and best-preserved sacred buildings dedicated to Demeter and Kore in the eastern Mediterranean (Kane 2009) (Fig 5.9).

However, it was badly damaged by a massive earthquake which hit the city in AD 262 and eventually destroyed by an even more severe earthquake in AD 365 (White 1992, 7; 1984, 1) (Fig 5.10).

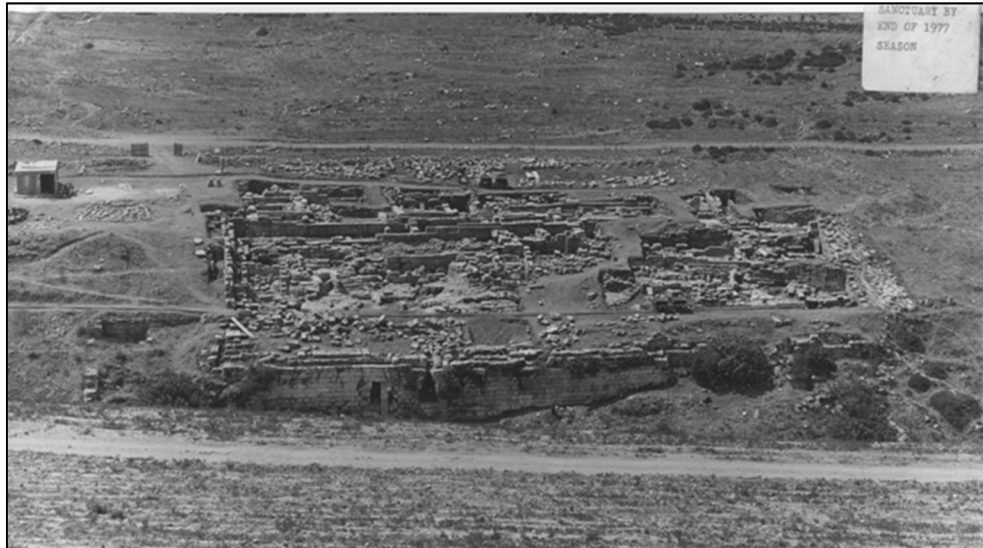


Fig 5.9: General map of Demeter and Persephone's sacred building. (Adapted from Kenrick 2013, 231).

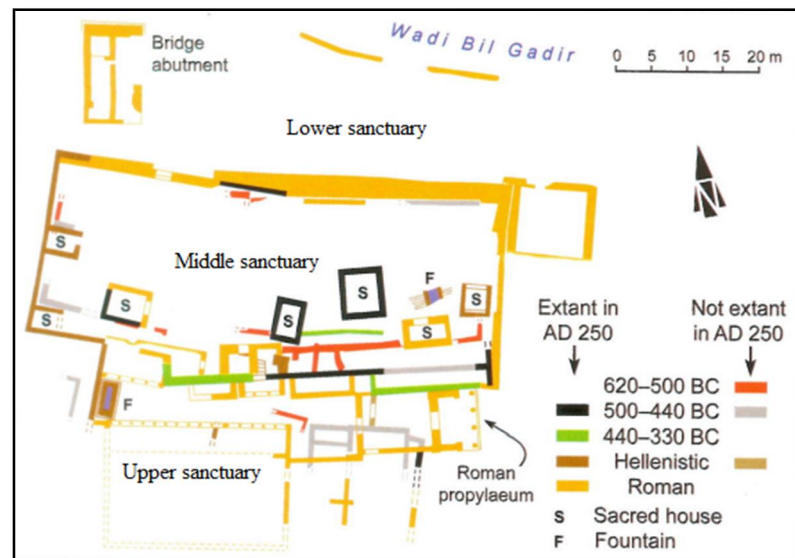


Fig 5.10: A view of Demeter and Persephone's sacred building in Wadi Bel Ghadir, looking northeast, dated 1977 (AR DoA).

In antiquity, one route to the lower northwest corner of the site crossed a bridge across the wadi. Access to the Agora was obtained through a number of openings in the

city walls via narrow steps, only 1.00 to 1.50 m wide, which were cut in the steep side of the wadi above the bridge. Meanwhile, the main entrance during the Roman period was through a propylaeum or gateway of four columns on the site's eastern side (White 1972-3a, 172-3). This discovery shows that the complex excavated by White related to other structures to the east.

The finds from the site include both animal bones and the remains of broken pottery from ritual meals. These suggest strongly that Cyrene's main agrarian festival, the Thesmophoria, was most likely celebrated in the Wadi Bel Ghadir Sanctuary (Chamoux 1953, 265-7; White 1984, 11, 21) (For more about this festival see section 5.7.2).

5.3.2 Temple of Demeter

This monumental Doric temple is one of the area's most significant buildings, and is located in the sacred zone to the east of the sacred building of Demeter and Persephone (no. 7 on Fig 5.8). It dates to the late Archaic period of about 490-80 BC, and measures c. 33 m x 16 m (Fig 5.11). The temple possesses six columns only across the front, while from inside, the cella was divided into three aisles by two rows of seven Doric columns, which were re-erected in recent years from the south side (Luni 2001, 1540) (Fig 5.12). Traces of red (for horizontal lines) and blue (for vertical lines) paint were found on the Doric frieze and cornice mutules of the entablature, and may relate to the temple's original colour scheme (Luni 2001, 1540-41).

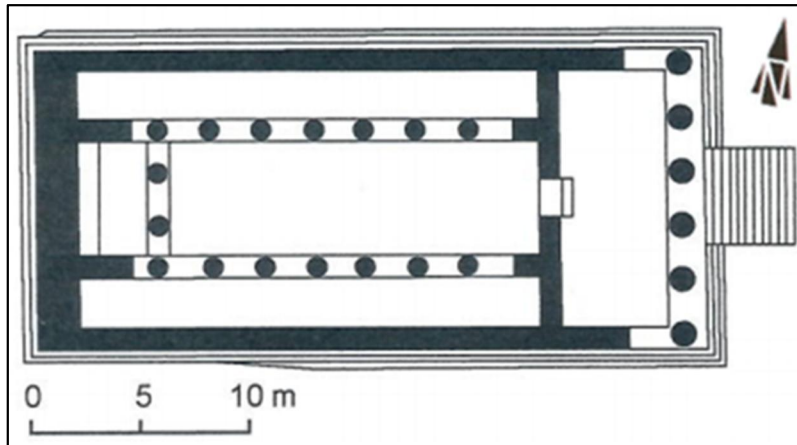


Fig 5.11: Plan of the Temple of Demeter (Kenrick 2013, 229).



Fig 5.12: A view of the Temple of Demeter, looking west (Author).

Several different strands of evidence found within the temple associated with its large altar suggest that the temple was dedicated to Demeter (Luni 2005, 67). These include three well-preserved statues, one of them of Demeter, the other two possibly of Zeus and Athena; a number of terracotta statuettes (mostly of Demeter); and more than 90 lamps, which were required for the nocturnal rites of the goddess. The remains of a number of sacrifices were also found, such as pig bones mixed with ash and charcoal (Kenrick 2013, 230) (For more on this temple see D5.002 in the Gazetteer).

5.3.3 Southern Temple precinct

The remains of a second Doric temple have been discovered to the south of the Temple of Demeter, next to the modern road which leads to Balagrae (al-Bayda) (no. 10 on Fig 5.8). The Southern Temple is east-facing and dates to the fifth century BC, with a peristasis of 6 x 11 columns enclosing a simple pronaos and naos (Kenrick 2013, 233) (Fig 5.13). There is an altar in front of the temple similar to the large altars found in front of both the Temple of Demeter in Wadi Bel Ghadir and the temples of Apollo and Artemis in the sanctuary of Apollo (For more see E5.001 in the Gazetteer).



Fig 5.13: A view of the Southern Temple, looking west (Author).

5.3.4 Propylaeum

This monumental Propylaeum is located at the north-east side of the sanctuary of Demeter and Persephone, east of the Temple of Demeter, and next to the modern road which leads to Balagrae from Cyrene's main south gate (no. 9 on Fig 5.8) (also see D5.003 in the Gazetteer). Luni (2005, 67-8) suggests that the current remains of the Propylaeum date to the early Hellenistic era, although some finds from his excavation could show that the building was originally erected in Archaic times. This Propylaeum consists of two rooms flanking a central passageway, and four Doric semi-columns standing on Ionic bases (Luni 2005, 68) (Fig 5.14). Sockets that indicate the outer portal was closed by

doors, in addition to an elegant Doric stoa facing the road adjoining the Propylaeum with three columns in the front between semi-columns in the end walls (Kenrick 2013, 229). This appears to have formed the main processional entrance to the Demeter sanctuary coming from the city.



Fig 5.14: A view of the Propylaeum, looking north (Author).

5.3.5 Theatre 5

This theatre was cut into the wadi slope midway between the Propylaeum and the sacred building of Demeter and Persephone (no 6 on Fig 5.8). It was discovered during a survey carried out in 2002 (Luni 2005, 71) (see D5.001 in the Gazetteer). The theatre is north-facing and is fairly well-preserved, with a large series of steps carved into the rock and staircases of low steps in the central axis of the building (Fig 5.15). At least 20 tiers of seats can be reconstructed, giving a seating capacity of about 1,000 people (Luni 2005, 17-2; Kenrick 2013, 230).

The theatre is flanked by rock-cut walls with niches, which once held votive statues and reliefs. On the east side, a large quantity of votive material was discovered during the

excavations, notably lamps, miniature vases and terracotta statues of Demeter and other deities which can be dated in general to the Hellenistic period (Luni 2005, 72).



Fig 5.15: A view of Theatre 5, looking west (Author).

Comparing the size and limits of the sanctuary today with past descriptions, especially those of Donald White, it appears that it is clearly bigger than previously imagined. As previously mentioned, several additional buildings and structures have now been discovered in this zone, including the temple of Demeter, a building sacred to Demeter and Persephone, the Southern Temple precinct, Propylaeum and Theatre 5. It seems that all these buildings have relationships to each other and to Demeter. These excavated structures demonstrate that the sanctuary of Demeter and Persephone covered an area in excess of 600 x 350 m. This extramural sanctuary was filled with various buildings, and other religious elements, which were used for diverse activities related to the cult of Demeter and her agrarian festival.

5.4 Sanctuary of Budaraj

This cultic sanctuary is located on an irregular rocky terrace in Wadi Bu Nabeh, about 2 km west of the ancient site of Cyrene (see E1.001 in the Gazetteer). It consists of two main rocky cult chambers (nos. A and B on Fig 5.16), which contain channels for the supply of water to pools for ritual ceremonies, in addition to a number of other minor niches and caves (Ferri 1992, 95-6; Fabbriotti 2000, 181) (Fig 5.17). Furthermore, the architecture of the sanctuary is characterised by the narrow staircase directly cut into the slope of Wadi Bu Nabeh (AR UniCh 2007, 12). This represents the only realistic way to reach the main part of the sanctuary in both antiquity and the present time. This sanctuary dates to the Classical period, with a continuity of use into Roman times (Menozzi 2002, 72).

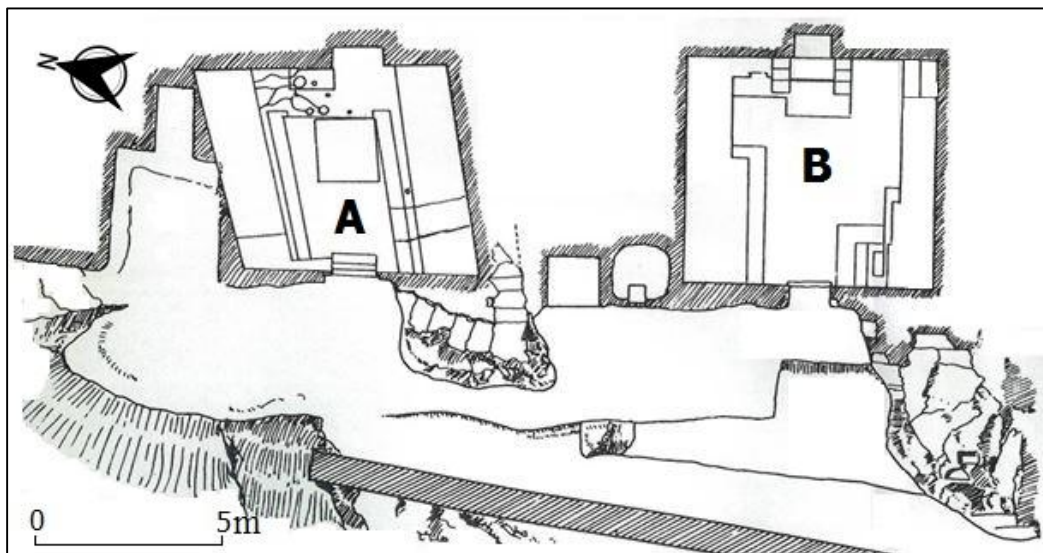


Fig 5.16: General map of the sanctuary of Budaraj (Ferri 1992, Fig 2).



Fig 5.17: Views of the rock-cut chambers of the sanctuary of Budaraj (Adapted from Menozzi 2007, 24; 2015, 59).

5.5 Sanctuary of Ain Hofra

The rocky sanctuary of Ain Hofra is located on the slopes to the east of the urban core of Cyrene at a distance of about 2 km (Laronde 1987, 428; Fabbriotti 2000, 182). The archaeological remains in this area include a wide range of ancient structures and monuments. At least 65 monumental tombs or loculi were directly cut into the rocky slopes (Cherstich 2009, 178; AR UniCh, 13) (Fig 5.18). The highest density of tombs is found around a water source similar to the Fountain of Apollo, where a spring emerges from the cliff of the Wadi Ain Hofra (Kenrick 2013, 252).

One of the most interesting votive niches in this area is a rock-cut chamber called the Shrine of Ammon (Fig 5.19), which was originally an early archaic funerary chamber. At some point, its function changed and it housed a cult of the Heroes together with Zeus Melichios and the Eumenides (Fabbriotti 2000, 182; 2002, 93-100).

An inscription on the northern wall gives this triple dedication, though it was later erased and substituted with Ammon, probably in the Hellenistic period (Fabbriotti 2002, 94-5). Menozzi (2015, 64) suggested that the shift from aristocratic cults in the Archaic and Classical periods to more popular gods like Ammon, which represent a syncretistic

cult of the Greco-Libyan god Zeus Ammon, shows the significance of the sanctuary in the Hellenistic period for both Greeks and Libyans. It also attests to the complex use of the chamber and area.



Fig 5.18: A view of the rock-cut tombs of the sanctuary of Ain Hofra, looking east (Fabbricotti 2000, 182).



Fig 5.19: A view of the rock-cut chamber of Ammon, looking east (AR UniCh, 10).

5.6 Suburban Churches and other Christian Monuments

5.6.1 Introduction

There is little archaeological evidence for the appearance of Christianity in Cyrenaica before the first half of the 4th century AD or how large Christian communities were in the region before this date. This is likely because the Roman Empire rejected Christianity at first and often persecuted the Christians for the first three centuries. However, there is some evidence which suggests that Christianity arrived in Cyrenaica before the third century: Mark the Evangelist from Cyrenaica is reported to have appointed Lucius, who was also from Cyrene, as Cyrenaica's first bishop, and by c. AD 260, it appears that every main Cyrenaican city contained a bishop leading a Christian group, while the bishop of the metropolis (Cyrene) had authority over all the bishops in the other cities of the region (Ward-Perkins and Goodchild 2003, 5).

Increasing the number of bishops in Cyrenaica was a clear sign that Christianity was spreading amongst the urban and rural communities. Following the Edict of Milan in AD 313, Rome legalised Christianity in the Roman Empire. At the end of the fourth century, the triumphant Christian masses at Cyrene smashed pagan cult images and temples (Ward-Perkins and Goodchild 2003, 5).

Churches subsequently became important religious buildings in Cyrenaica. The following sections will briefly describe the churches and other possible Christian monuments (Fig 5.20) found either within Cyrene's core site or within the urban periphery, in addition to providing an overview of their distribution and chronology. This description shows ongoing change at Cyrene during the late Roman period.

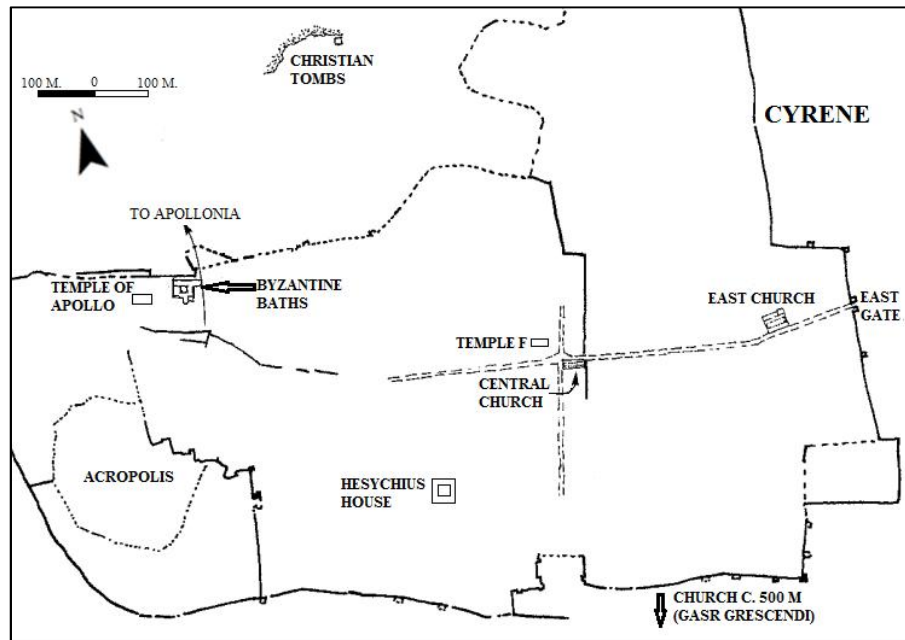


Fig 5.20: Location of Christian monuments within Cyrene (Adapted from Ward-Perkins and Goodchild 2003, 126).

5.6.2 The East Church

This large church is situated in the eastern quarter of Cyrene, c. 320 m southeast of the great Temple of Zeus. The church probably dates back to the 6th century AD, and underwent at least three structured phases. Though the actual chronology of these three phases is not exactly known, the changes to the building were identified (Stucchi 1975, 364-5). The original church had a rectangular frame (40 m x 28.40 m) and consisted of three aisles and an apse at its east end flanked by wide corner-chapels (Fig 5.21). The church could be entered via four doorways (two each in the west and the north walls) (Ward-Perkins and Goodchild 2003, 128-30).

The church was considerably reconstructed in the second phase. The major modification was the reversal of its orientation for unknown reasons (Kenrick 2013, 226). A new apse was constructed at the earlier west side, and the original entrance on the west side was therefore shifted to the south (Rosenbaum and Ward-Perkins 1980, 98-103). Another major change to the original plan was the insertion of a large baptistery in the north-east corner (Kenrick 2013, 226). In the third phase, the church was extended on the north side by the construction of a rectangular hall, which was later subdivided into

several smaller rooms, suggesting a fourth phase (Fig 5.22) (for more about this church see Rosenbaum and Ward-Perkins (1980, 95-109); Ward-Perkins and Goodchild 2003, 127-156).

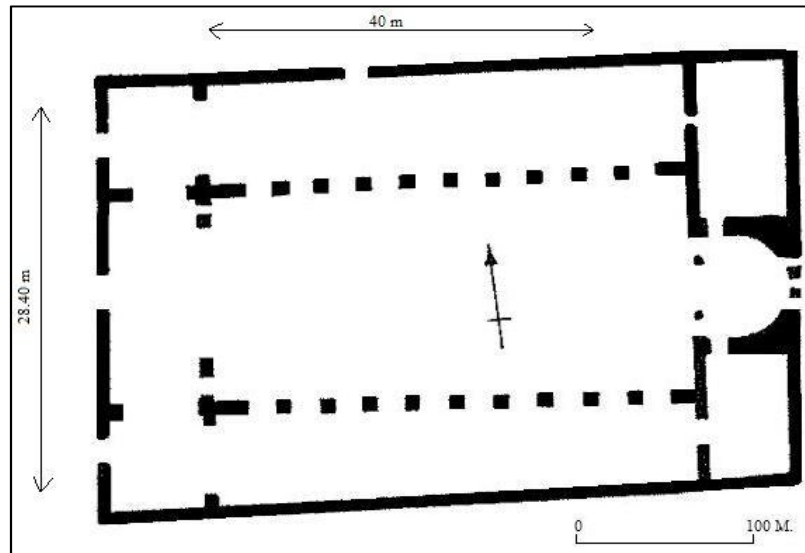


Fig 5.21: The original plan of the East Church (Ward-Perkins and Goodchild 2003, 129).

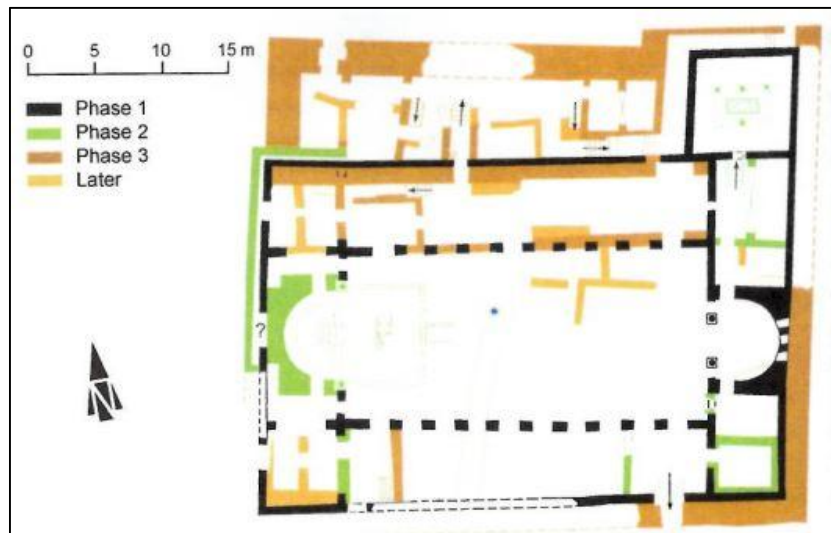


Fig 5.22: Plan showing the phases of the East Church (Kenrick 2013, 226).

5.6.3 The Central Church

This sizeable and important church is located about 50 m from the west edge of the Second Zone (the South-West Hill). This three-aisled basilica church has a near-rectangular frame (27.1-27.6 x 15.0-15.5 m) (Fig 5.23), with an apse at the west side framed between two angle-chapels and two more chapels flanking the main entrance at the east end of the aisles (Stucchi 1975, 382-3). There is also a triple archway in the centre of the east end supported on a pair of re-used classical columns (for more see Rosenbaum and Ward-Perkins 1980, 12-4, 115-9; Ward-Perkins and Goodchild 2003, 157- 66).

This church also was subject to a number of later modifications, including the addition of staircases to the south-west side and the reuse of bases and capitals of earlier columns in the construction of certain walls. The date of this church is still a matter of debate. While the mosaics found on the site date back to the sixth century, it is thought that the church is older than this and that the mosaics were added later (Kenrick 2013, 188).

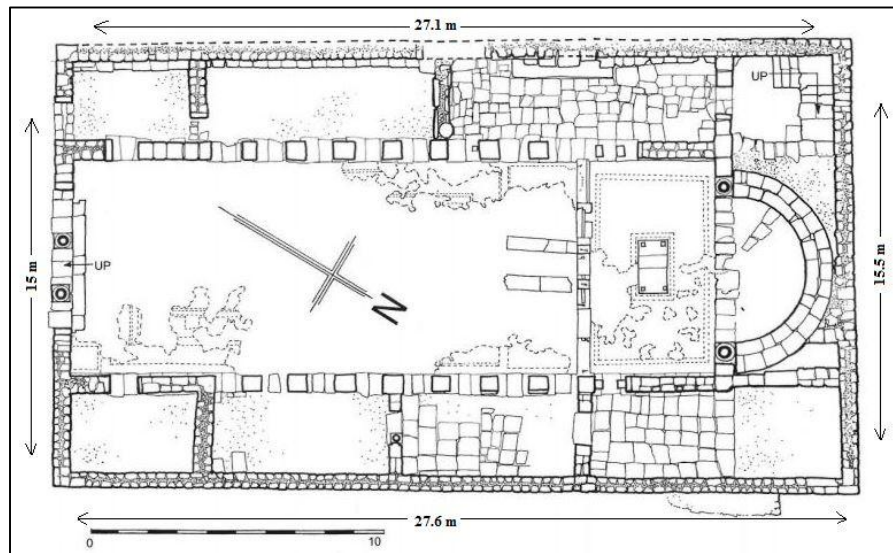


Fig 5.23: Plan of the Central Church (Ward-Perkins and Goodchild 2003, 158).

5.6.4 A suburban basilica (Qasr Grescendi)

This fenurary basilica, which is also called **Qasr Grescendi**, is located to the south of the city walls of the second zone (the South-West Hill) (Fig 5.24) (see also D6.001 in

the Gazetteer). It was found during the survey conducted at the head of the wadi in addition to a number of other structures and buildings (Stucchi 1975, 252). The basilica has not been fully excavated yet, and its date of construction is therefore still uncertain. However, its plan can be clearly seen on the ground, including a central nave, side aisles and entrances to the north and west (Ward-Perkins and Goodchild 2003, 174) (see no. 1 on Fig 5.25).

In addition to the funerary Basilica, masses of fallen concrete and traces of a bathing facility suggest the presence of a Roman bath building, probably belonging to a suburban villa (Stucchi 1975, 404, 418, 515) (no. 2 on Fig 5.25). It is thought that both the funerary Basilica and the villa date as a group to the period after the Jewish revolt of AD 115. However, as none of these Roman sites has been fully studied or excavated, their date is still uncertain and they may be considerably later (White 1985, 107).



Fig 5.24: A view of Qasr Grescendi (Ward-Perkins and Goodchild 2003, 174).

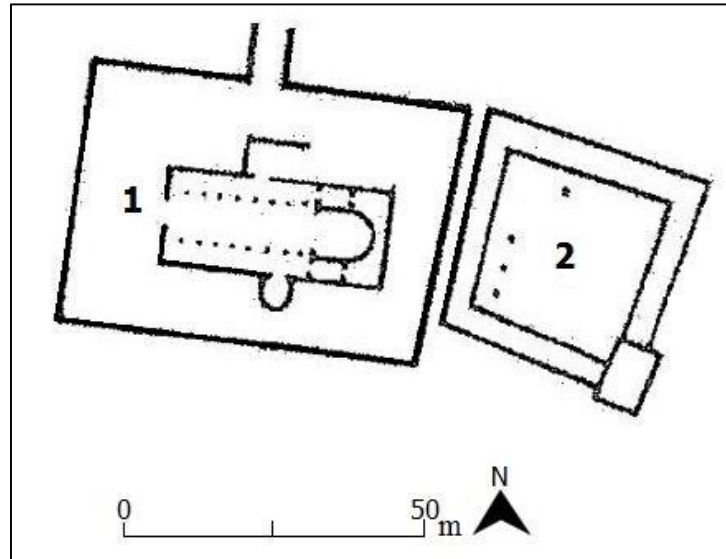


Fig 5.25: Plan of Qasr Grescendi (no. 1) and the suburban villa (no. 2). (Adapted from Ward-Perkins and Goodchild 2003, 175).

5.6.5 Other possible Christian monuments

Before complete churches were built in Cyrene, temples and a number of rock-cut tombs, particularly in the Northern Necropolis, may have been repurposed in the fourth century to practise certain rites of the Christian religion. A number of painted inscriptions and symbols found within several buildings and on the walls of tombs have been interpreted as signs related to early Christianity. For instance, the so-called **Tomb of Dimitria** (no. 83 in Cassel's map of the Northern Necropolis) (see Fig 5.26) has been dated to the Hellenistic era (Bacchielli et al. 1992, 5-22; Bacchielli 1993, 97-103; Al Raeid et al. 2016, 16-7), and contains paintings on its walls, including carpets of stylised flowers, garlands, Eros, and peacocks. The **Good Shepherd's Tomb** (no. 171 on Fig 5.26) is another prominent example of a tomb which contains Christian symbols (Ward-Perkins and Goodchild 2003, 175; Al Raeid et al. 2016, 13-4). The painted inscriptions here show five sheep surrounding a shepherd, who is carrying a sheep on his shoulders, while twelve fishes in an arch surround a peacock.

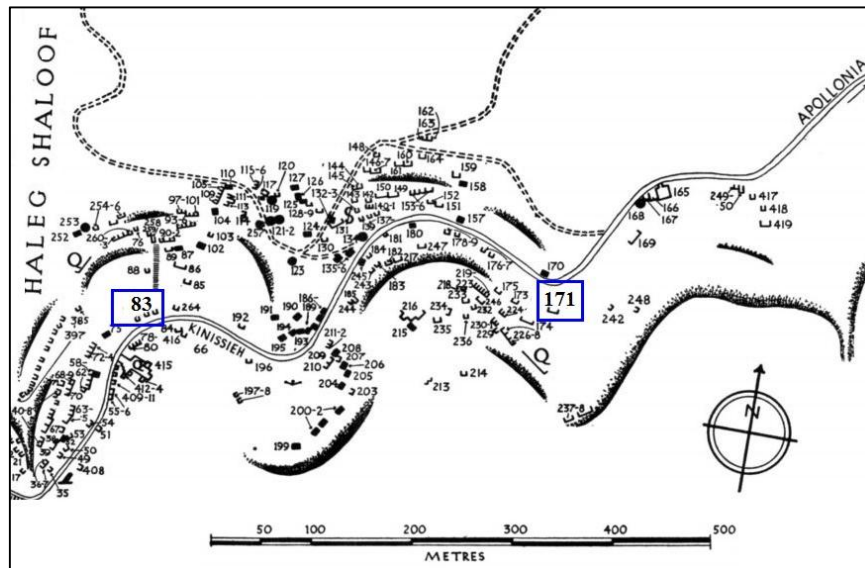


Fig 5.26: Tombs 83 and 171 in Cassels's map. (Cassels 1955, 25).

Moreover, a number of temples and large houses or villas were likely reused as chapels or churches and/or for other Christian purposes, after making some changes and adding symbols associated with the new religion. **The Temple of Apollo**, for example, was possibly converted after Christianity became an official Roman religion. Pernier (1935, 126-31) suggested that the temple was modified in the early Byzantine era to suit the requirements of the Christian religion. Some Byzantine symbols discovered within the temple reinforce this view, including a (Byzantine) cross engraved on a stone block, capitals of Byzantine columns, and the remains of trappings showing plants and branches.

The so-called **Temple F** in Valley Street northwest of the Central church was also repurposed at an unknown date for Christian worship (see Fig 5.20). The original building was erected as a temple in the 2nd century AD (Goodchild 1971, 141), and is thought to be the oldest known location reused for Christian purposes in both Cyrene and Cyrenaica (Stucchi 1975, 252). Christian graffiti were inscribed on the shaft of a column near the building, in addition to a Christian inscription on the floor of the building (Ward-Perkins and Goodchild 2003, 167-68).

The Hesychius House is another Christian monument, located east of Cyrene's Agora (see Fig 5.20). The name of Hesychius was found on a mosaic inscription recording a Christian family which decorated the floor of one of the rooms. The name was joined

with the title 'Libyarches', which means 'president of the provincial council of Libya' (Ward-Perkins and Goodchild 2003, 171-72). The original building was likely built in the 1st century AD, but was destroyed by the AD 365 earthquake, to be reconstructed and reused as a house by a Christian family in the later 4th century AD.

5.7 Discussion

5.7.1 Location of sanctuaries

Some of the sites within the Sanctuary of Apollo zone were located on the cliffs and cut deep into the rock. These include the cave containing the sacred spring of Apollo, the Greek baths on the south side, and a series of seats belonging to the Greek theatre. On the other hand, many other buildings were constructed in areas that had been terraced flat. These include all the temples in the sanctuary, the Roman baths, the Byzantine baths and the Strategheion.

While the area of the sanctuary of Apollo is often considered the main part of Cyrene's urban core, one can suggest that it was initially an extramural sanctuary according to its topographic position. Similar examples include the Bel Ghadir, Budaraj and Ain Hofra sanctuaries, which are situated in extramural locations. Apollo's sanctuary, however, seems to have become more closely integrated into the urban zone with the passage of time through with the addition of more buildings. It eventually formed a significant part of the city's core site, especially as this sanctuary was not far from the Acropolis, as in the case of the other sanctuaries around the city.

Sanctuaries of Demeter and Persephone were usually located just outside or near a city's walls, providing a transitional element between the urban centre and the countryside (Alcock 1994, 204-5). They were also often located near water resources such as springs or streams. The location of the sanctuary of Demeter and Persephone at Cyrene fits this pattern, as the complex formed a prominent transitional element between the urban and rural areas. However, this is not always the case: Alcock (1994, 205, 208) argues that while some examples of sanctuaries of Demeter were located outside cities' walls, others

lay inside or else far outside the walls, deep in the hinterlands; moreover, while some sanctuaries of Demeter and Kore were located on hills, other examples were found in plains or other flat areas.

Cyrene's sanctuary of Budaraj is situated on the west slopes of the area known as Baggara Hill, which is bordered by Wadi Bel Ghadir to the east and Wadi Bu Nabeh to the west (Fabbricotti 2000, 181). The sanctuary of Ain Hofra is located east of the ancient site of Cyrene, and is bordered by Wadi Ain Hofra to the west and Wadi Bu Miliou to the east. The remote location of these rocky sanctuaries is still a matter of debate, as is whether they constructed suburban or rural sanctuaries. This issue has been discussed by several researchers, including Parisi (1985), Bacchielli (1994), Fabbricotti (2002), Menozzi (2002, 2007) and Fossataro (2010).

Both the sanctuary of Apollo and the sanctuary of Demeter were located very close to the urban area of Cyrene and can be considered today as elements of the urban complex. Meanwhile the positions of the sanctuaries of Ain Hofra and Budaraj are relatively isolated and far from the urban area. The size difference might be due to the use of the large nearby sanctuaries of deities such as Apollo and Demeter by larger numbers of townspeople and by those living around the city, especially when they gathered for the celebration of religious and social events. On the other hand, the location and overall size of both the Ain Hofra and Budaraj sanctuaries suggest that they were used primarily by rural dwellers. These remote and small sanctuaries were probably used for certain specific rituals which did not require a large area and did not gather large crowds.

We have little information about the sacred places of the ancient Libyans or their locations, with the exception of the site of **Slonta Temple**, also known as the Libyan Temple. This site is a small cave located c. 24 km south of Cyrene on a high hill in the village of Lasamisis (now Slonta). It consists of a semi-circular entrance on the east side with cylindrical columns in the middle. However, its roof has collapsed. The most striking thing about this site is the reliefs which were engraved directly onto the rocks on the temple's interior sides (Haimann 1886, 143-4). For instance, there is a large snake with a human head surrounded by a group of human heads, in addition to reliefs of four pigs and

a cow or goat without horns along with many human figures standing on a table. According to Herodotus (IV, 173), the temple was most likely built and used by a tribe called the Psylloi Ψυλλοί, which lived west of Slonta. According to the Elder Pliny (VII, 12-4), the tribe was immune to snake bites, and it was the custom of the men to expose new-born babies to snakes to test the faithfulness of their wives. When the cave was in use is unknown, but it has been identified as a temple or religious site related to fertility or the worship of the dead dating to the Hellenistic period (Goodchild 1968b, 40), or perhaps earlier.

According to Alcock (1994, 217), the existence of a natural spring is a feature often associated with sanctuaries. This relates to the importance of water for the community at large, as well as the importance of water for religious rites. In general terms, the correlation between the locations of the rocky sanctuaries in Cyrene and water springs is high, as can be clearly seen in the natural caves of all the sanctuaries within and around the core site of the city, as is the case with the sanctuaries of Apollo, Demeter, Budaraj and Ain Hofra. This implies a common base of religious behaviour at these locations. However, the plan is very different at the Apollo and Demeter sanctuaries as they are bigger and located closer to the city's urban core, and they contained several more buildings for different purposes than the other sanctuaries.

5.7.2 Types of buildings and chronology

The core element of the sanctuary of Apollo was the rock-cut cave of the Fountain of Apollo. This sacred place dated to the city's early period, and is mentioned in myths about the founding of the city, which took place around the end of the seventh century BC. The area around the cave was later extended as more buildings were constructed over time. The oldest buildings in this zone are the Temple of Apollo and the Temple of Artemis, which were built in the centre of the sanctuary and date to the early period when the Greeks first settled in the city. The Greek theatre on the west side and the Greek baths to the south were also added in the fifth century, after the two temples. The sanctuary expanded further when buildings such as the Strategheion and the Propylaeum were erected in the fourth century and across the Hellenistic era.

It seems that the sanctuary of Apollo was originally a suburban sacred place located in the area below the Acropolis of the city. The sanctuary was first associated with the spring of Apollo and the cult of this deity. This led to the erection of more temples related to Apollo, and then to other deities, as mentioned above. However, the diversity of the buildings and their functions in this area of the city reflect the significant role played by the sanctuary throughout the Greek and Roman eras.

The sanctuary zone extended further in the Roman era, particularly during Trajan's reign when the huge Roman baths were built at the northern end of the sanctuary. Other contemporary buildings include the Temple of Hecate to the west of the baths, the Propylaeum in front of the Strategheion, and the arch of Marcus Aurelius at the southern end of the sanctuary. The amphitheatre was separated from the other buildings of the sanctuary by a wall known as the Wall of Nikodemus (no. 19 on Fig 5.2) (the name of its builder was recorded in an inscription found on the wall). This wall possibly dates to the end of the second century or the beginning of the third century AD (Goodchild 1981, 86-7).

By the Byzantine era, the area was very crowded with different buildings and there was likely limited space for additional structures. This may explain why the Byzantine baths are the only big buildings added in that time, in addition to the reuse of the Temple of Apollo as a church. The nature of the sanctuary's location on a narrow terrace also did not permit expansion to the north, as the ground fell away sharply. The Northern Necropolis located on the steep slopes of Wadi Haleg Shaloof marks the northern limits of the sanctuary, while on the west side the sanctuary was delimited by the Wall of Nikodemus and the theatre.

This large sanctuary with various buildings dating to the Greek, Roman, and/or Byzantine eras was clearly used for other purposes in addition to its religious function. The theatre, for instance, is evidence that people in both Greek and Roman times gathered together to watch various performances. Baths were important social structures, especially for the Romans: they were places for bathing as well as to meet and talk to other people about social, political and economic issues, and also to take a massage and

take part in physical training. The altars usually located in front of ancient temples and other places of worship, were also important structures at which animal sacrifices were made for religious purposes within the sanctuary. These buildings within the sanctuary thus give us a clear picture of the important religious, social and political role of the sanctuary from the sixth century BC to the fourth century AD.

The sanctuary of Demeter and Kore at Cyrene originally dated from about 600 BC. It was greatly enlarged and embellished until at least the third century AD (White 1984, 11, 21; Luni 2005, 72). The evidence obtained from buildings in this zone suggests that the sanctuary was used as a sacred place associated with the cult of Demeter for more than 800 years. All the different buildings so far discovered in this zone were originally constructed in either Classical or Hellenistic times. They were subsequently reused during the Roman era, most likely for the same purpose they were originally constructed for.

The presence of a sacred sanctuary dedicated to Demeter and Kore is understandable given the importance of the two goddesses to Cyrene and their agrarian festival, the Thesmophoria. Cyrene's economy was heavily dependent on livestock in tandem with the production and export of different kinds of grain, including wheat, legumes and certain fruits (SEG 1923, 2; Applebaum 1979, 96; Bresson 2011, 66, 92). In addition, a now-extinct herb called Silphium was used in antiquity as a medicine (White 1992, 7). Its image was engraved on the coins of Cyrenaica, which may reflect the significance of this plant in the region.

The rites of the Thesmophoria were known to have been celebrated at Cyrene, as well as at other contemporary Demeter sanctuaries in at least 50 cities throughout Greece, Asia Minor and Sicily (Deborah 2013, 185, 190). The Thesmophoria lasted for three or four days, and was held in honour of Demeter just before the sowing season in the autumn. It was a strictly female-only festival, and only married women could participate (Alcock and Osborne 1994, 202-3; Deborah 2013, 189-90). However, it seems that in Cyrene the festival was of interest to the people of both the city and the countryside, as well as to the local Libyan tribes who both farmed and pastured animals (Kane 2009).

There is only a little information on the Thesmophoria at Cyrene and whether it took place every year or only when it was needed. The celebration of the Thesmophoria included a procession in Cyrene. The route probably began at the small circular Temple of Demeter in the Agora (see no.1 on Fig 5.27), passed through the city to reach the southern gate, and after about 1 km entered the extramural sanctuary through the monumental propylaea (no. 2 on Fig 5.27). It likely ended at the Doric Temple of Demeter or the building sacred to Demeter and Persephone (no. 3 and 6 on Fig 5.27), where there was a second propylaeum (Luni 2001, 1549).

After the procession entered the sanctuary zone, we can assume that people started doing different activities and several rites. For instance, they may have gone to the theatre (no. 5 on Fig 5.27) to watch some performances related to the festival and the cult of Demeter and Persephone. They also may have visited the Demeter temple and the southern temple, as well as the sacred building to practise some religious rites and to leave gifts.

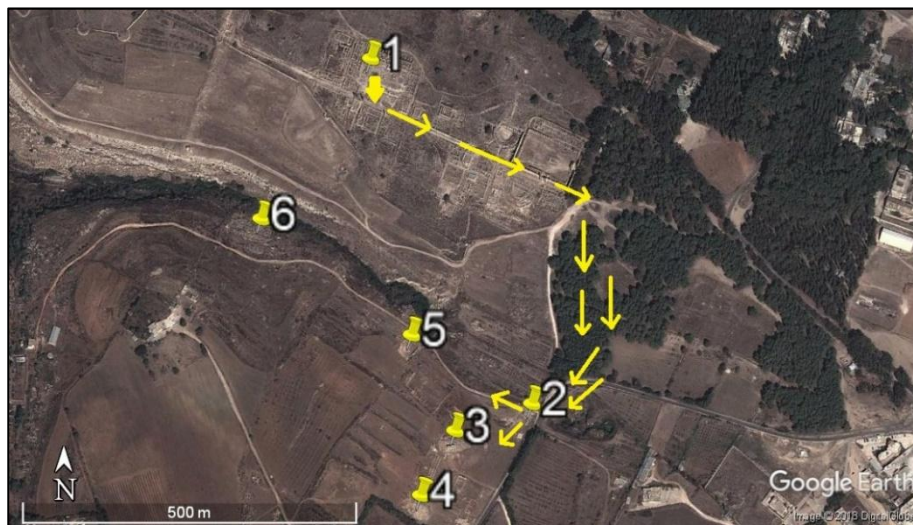


Fig 5.27: The possible route of the procession during the Thesmophoria festival (Author).

Finds of animal bones confirm that animal sacrifices were made (mainly) at the sacred building and upon the altar in front of Demeter temple. The animals most likely were brought with the procession and taken directly to the altar to be sacrificed immediately in front of the crowds, or they may be previously brought and kept in a

special nearby place till the time of the sacrifice. This was carried out upon the altar in the open air and probably included other different practices.

While the other sanctuaries at Cyrene have caves or rock-cut chambers, the buildings of the sanctuary of Demeter were mostly built on the ground level (though the theatre was cut into the rock). All the buildings here were situated on flat areas, with the exception of the theatre and the sacred building of Demeter, although some cliffs on the north side of the deep wadi housed several rocky chambers. The overall size of the Demeter sanctuary zone suggests that accessibility to the sanctuary for large crowds during the celebration of the Thesmophoria was an important factor.

The sanctuary of Budaraj is noticeably smaller than the other sanctuaries at Cyrene. Although its date is not precisely known, according to the sporadic finds it most likely dates to the Classical period. An inscription on one of the inner walls has been interpreted as indicating the presence of a cult for chthonian nymphs (Fabbriotti 2000, 181). However, it was transformed into a Mithraeum during the Roman era; cult activities would have continued, but the nature of the rites would have changed (Menozzi 2015, 60).

As mentioned above, the remains of the sanctuary of Ain Hofra date from prehistory to the late Roman period. Some large caves in this sanctuary date back to the Palaeolithic era, but many chambers, niches, and other caves are related to the Classical and Hellenistic periods. This is especially the case on the south-western slope of Wadi Ain Hofra, where many votive terracotta figurines have been found. Menozzi (2015, 62) stated that more than 500 different types of archaeological remains have been found in the area of Ain Hofra, a number which is certainly not definitive. The scale of dedications may be beyond what we expect for a purely rural shrine, so perhaps it was also used by certain town dwellers.

According to Renfrew et al. (1986, 16), a community's most sacred rituals and ancient cult sites were in certain special natural locations, such as natural caves, valleys or areas rich in trees. These outlying sanctuaries of Cyrene were probably places of

attraction for funerary areas and a suitable location for the tombs of cultists. They were also centres of votive representation of a mixed pantheon, well known to Greek and Libyan devotees (Menozzi 2015, 60). Cyrenian society was a complex mixture of peoples, most notably native Libyans, Greeks, Ptolemaic Egyptians and Romans. The distribution of these rocky sanctuaries tells us that all these different groups living within and around Cyrene's urban core interacted with one another. There is no doubt that these sanctuaries also played an aggregative role for the population living in scattered farms and villages in the chora. With regard to Christian monuments, we still uncertain how quickly all these sites and cults disappeared after the 4th century.

Chapter 6 – Olive Oil, Wines and Farms

6.1 Introduction

As well as built areas, the suburbs were productive spaces, with features connected to the economy of the city and province. My survey identified a number of these and accordingly highlights their presence and significance thus, this chapter investigates olive oil and wine production, in addition to qsur and farms located around ancient Cyrene. Section 6.2 covers olive and wine presses, describing their types and the evidence of their distribution around Cyrene (Fig 6.1). While Section 6.2.1 gives information on olive cultivation and types of grape in Cyrene, Section 6.2.2 explains how olive oil was produced, while Section 6.2.3 provides examples of olive presses located in my surveys in the suburbs of Cyrene. Section 6.2.4 demonstrates the process of wine production, and Section 6.2.5 gives some examples of wine presses recorded at Cyrene.

To understand the farms involved in these economic/agricultural activities, Section 6.3 deals with qsur and farm both buildings. It clarifies what the term ‘qasr’ means and provides a detailed description of qsur and farms located around Cyrene (Sections 6.3.1-6.3.6) with producing sketch plans of all of these newly identified buildings for the first time. Finally, Section 6.4 discusses all these structures and their features and chronologies, noting also threats to their survival.

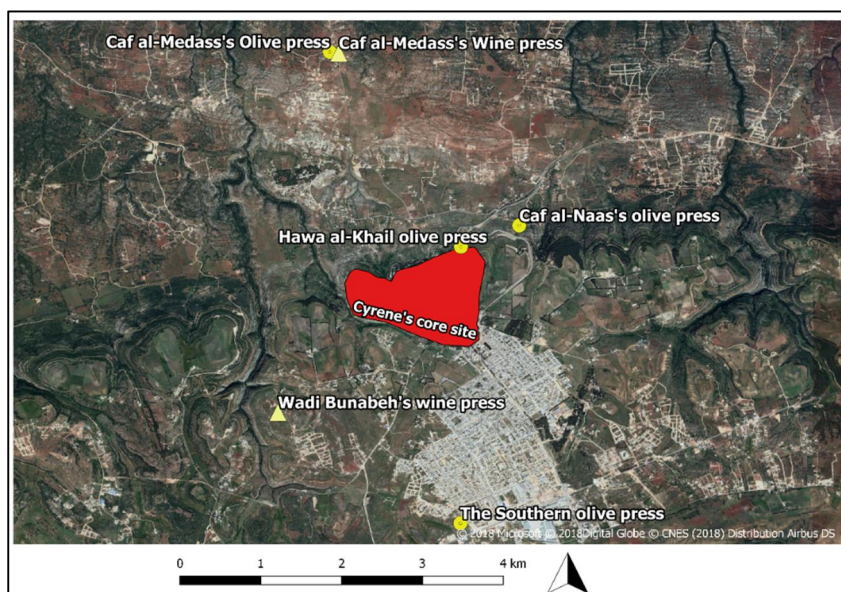


Fig 6.1: A map showing the distribution of olive and wine presses around Cyrene.

6.2 Olive oil and wine production

Olive oil and wine were very important in antiquity. Pliny (XV, 3, 5) stated that the two liquids were extremely agreeable to the human body: wine inside and oil outside. However, the value of oil and the various products and by-products of the olive made it economically more important than wine (Frankel 1999, 36). This can be clearly seen from the different uses oil was put to, and its crucial economic role in the present as well as in the past.

Olive production, processing and consumption were key aspects of Mediterranean economics and life (Mattingly 1988d, 153; (Pecci et al. 2013, 4491). In addition to its importance as a staple of the Mediterranean diet, olive oil was used for many industrial purposes. For instance, it was prime lighting fuel and a fundamental element in many other products; for example, several kinds of medicaments, perfumes, soaps, skin oils and cosmetics (Mattingly 1988a, 33; 1988b, 22; Hitchner 2002, 72). Moreover, olive oil was vital in many ritual acts and rites: Frankel (1999, 44) stated that kings and priests were anointed with olive oil; olive oil was used in purification ceremonies and was an integral part of several meals in the temple, such as with a sacrificed animal. Olive wood, meanwhile, was used as a building material, especially in the temples.

The cultivation of olive trees goes back to at least 2,500 BC, and was known in Syria and Palestine before spreading around the western Mediterranean. After this it reached Greece, from where it went to Italy in the sixth century BC (Brothwell and Brothwell 1998, 154-7). Oil was replaced by animal fat in countries which lacked olive trees (Brothwell and Brothwell 1998, 153). For instance, in Egypt most olive groves were grown in oases, not the Nile valley. Therefore oil was sometimes made from radish seeds and/or extracted from sesame, as in Mesopotamia, or was produced from flax, which also was grown for its value as a textile material (Brothwell and Brothwell 1998, 153-4).

6.2.1 Olive cultivation and types of grapes in Cyrene

In Cyrenaica, the three basic fruits grown were olives, grapes and figs (Laronde 1987, 328). Grapes and wild olive trees belong to the Mediterranean area. However, while

the grape vine is mostly a cultivated plant, the olive and the fig can be either planted or else grow wild in the natural environment of North Africa.

Olives and olive oil were key products of the region (Goodchild 1968b, 24). The number of olive trees, in addition to the spread of the olive presses, strongly supports the great significance of olive oil production in Cyrenaica, and shows that the area was rich in olive trees both today and in the past. Historical statistics regarding the number of olive trees in Cyrenaica highlight this fact. For instance, the Ottoman census in Derna and its environs contained upwards of 111,480 olive trees (Camperio 1881: 70), and in the year 1882 there were 200,000 olive trees found in the area between Benghazi and Derna (Haimann 1882; Laronde 1987, 328). Olive groves have remained till modern times and can be seen in many different areas around Cyrene, especially on the high plateau between (al-Qubba) c. 40 km east of Cyrene and the coastal village (Ain Mara) c. 35 km east of Apollonia.

Pacho (1927, 146) referred to a 'forest' of olive trees to the east of the ruins of the mausolea of Snibat el-Awila, on the road from Lamluda c. 25 km east of Cyrene and Ras el- Hilal c. 23 km east of Apollonia. The wadi known today as Wadi al-Zeitoun (the Wadi of the Olive) is also a location where a high number of olive trees are grown. This wadi is situated south of Cyrene, and extends to the village of Maraua c. 50 km southwest of Cyrene. The slopes of Wadi al-Zeitoun are lined with terraces of stones intended to retain the soil and moisture necessary for the trees (Laronde 1987, 328).

Three types of grapes were known in Cyrene and its surrounding area (Laronde 1987, 328). The first type was suitable for making wine after having been dried in the sun, while the second, which had small yellow grapes and a very sweet taste like honey, was also used to produce certain kinds of wine. The third type was only used for making raisins. Modern grape farms still produce several types of grapes, including these three main types. It seems that while grapes have been cultivated in many parts of Cyrenaica, they are particularly suited to Cyrene and the surrounding area.

6.2.2 The olive oil extraction process

While there are some differences in the size and shape of olive and wine pressing facilities, these installations are commonly made up of three main parts (Burn 1987, 86; Frankel et al. 1994, 35-6; Pecci et al. 2013, 4492) (Table 6.1)). Olive pressing begins with crushing the fruits to smash the pulp, usually using a mortar and pestle or in mills while the olives were fresh (Brun 1987, 42; Frankel et al. 1994, 31). The second and third stages involved extracting and separating the oil from the other by-products. The second process, pressing the pulp, enabled producers to extract different qualities of oil. This involved a large timber beam which was secured at one end to the press room wall, and attached by its free end to a windlass mechanism mounted on a large monolithic stone block at a lower level of the press area. This technique for bearing down on the free end of the beam is known as the windlass and counterweight type (Mattingly 1988c, 182; Mattingly and Dore 1996, 136). The main function of this element was to apply strong pressure to a stack of baskets of crushed olives in order to extract as much oil as possible (Frankel et al. 1994, 35).

The third main stage of olive oil production involved settling and refining the oil in adjacent tanks at a lower level, where oil was collected during the pressing via channels engraved in the floor of the pressing area. Separating the oil from heavier elements, such as dark and watery lees, involved separating and skimming in vats (Laing 1934, 363; Klöner 1997, 28; Frankel 1999, 46-8). The quality of the olive oil could be affected by several factors, such as the environment, the quality of the olive groves, the freshness of the olives and the time of picking, how the olives were treated when they were picked and how they were stored, in addition to the method of pressing and the quality of the press itself.

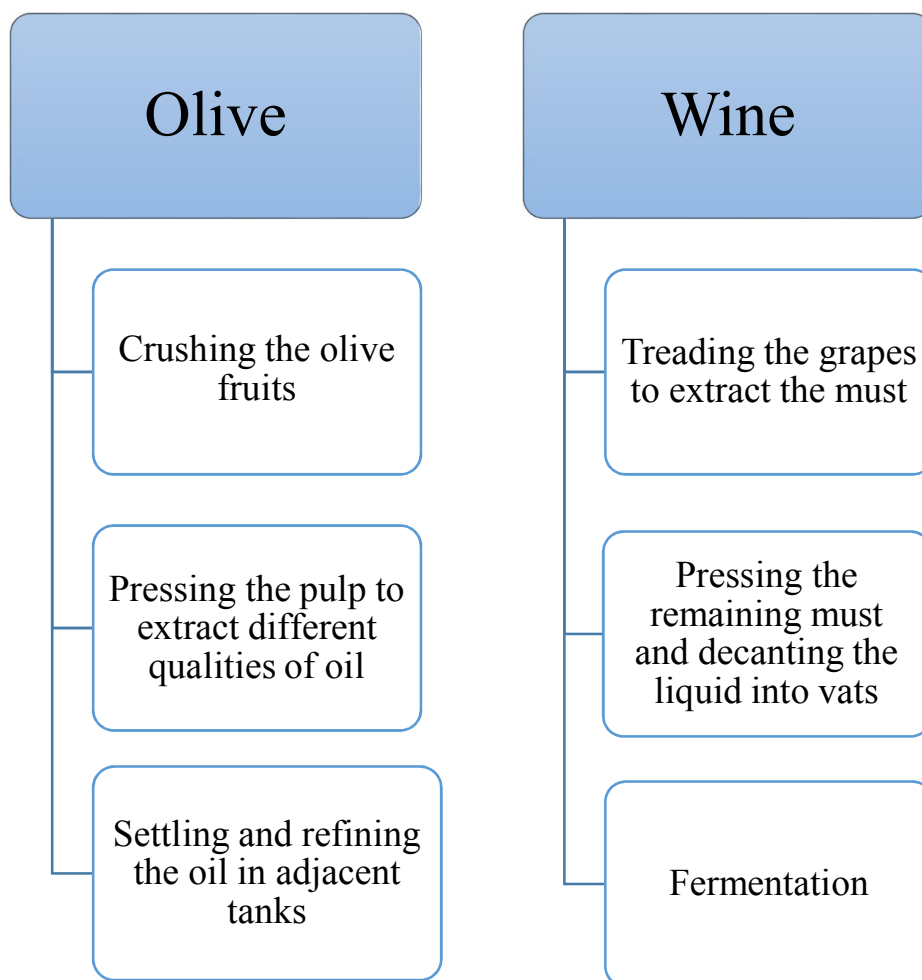


Table 6.1: The three main stages of olive oil and wine production (Author)

6.2.3 Examples of olive presses in the urban periphery of Cyrene

The olive oil presses in Cyrenaica were located either in the open air or within rocky chambers, and many of them can still be seen in several sites in the hinterland, as well as on the coastal plains. A considerable number of these presses have been found in rural settlements around Cyrene, including Mgarnis, Jubbra, and Lamluda, which lie c. 28 km west Cyrene. More than 50 olive oil mills dating to the Roman and Byzantine periods were recorded in these locations (Wilson 2004, 149). Other examples of mills and presses have been found in Balagrae, about 9 km west of Cyrene, and in the village of Messa, 9 km west of Balagrae (for more on these sites, see Menozi et al. 2014, 65-83; Bentaher and Buzaian 2010 31-5; Buzaian 2009, 47-54).

Olive and wine presses occur also within and around the urban core of the ancient city of Cyrene, and on both sides of the road between Cyrene and Apollonia. In 2010 approximately 25 olive oil production sites were recorded in this region (Akab 2010, 25) a number which has increased as more sites have been discovered in Cyrene and its suburbs. Some of these presses remained well-preserved and were even used until about forty years ago (Laronde 1987, 328).

Below I discuss olive oil presses at Cyrene, considering their distribution and the topography of their locations.

6.2.3.1 Hawa al-Khail olive press

This olive press is situated on the north-east side of the Northern Necropolis of Cyrene, about 1 km north-east of the sanctuary of Apollo (For its location and more information see A6.001 in the Gazetteer). The area in which it is located is known locally as Hawa al-Khail. The site was discovered by chance when the area was bulldozed by the landowner in March 2014 (Fig 6.2). In April of the same year, rescue excavations were done on the site by a team from the DoA of Cyrene, who excavated the site and recorded all its details (Archive DoA, 1-4).



Fig 6.2: Entrance to the Hawa al-Khail olive press, looking north (Author).

The site consists of two funerary chambers cut directly into the rock which appear to have been converted into a pressing facility. The first is the main chamber, which measures 9.10 x 6.20 m and contains most of the fundamental elements of the olive press (Fig 6.3). The second chamber was cut in the north-west corner of the first one, measured 2.55 x 1.85 m and contained two small basins (Fig 6.4). The entrance to the olive press was through a doorway on the north side 1.72 x 1.25 m, which led directly to the first or main room. This contained various elements that were certainly used in the pressing process, including a round crushing basin approximately in the centre of the room which measured 1.15 m in diameter and 0.80 m in height. There is also a rectangular basin and a very well-preserved U-shaped basin in the south-west corner of the room.



Fig 6.3: A view of the olive press from inside, looking north (Author).



Fig 6.4: The entrance of the second chamber and the two basins inside (Author).

All these basins were cut in the bedrock, and were still very well preserved (Fig 6.5). Moreover, channels which directed the oil into adjacent sunken tanks can be clearly seen in the bottom of these basins, and there are four rock-cut niches (two circular and two T-shaped) in the rear wall. The T-shaped niches were probably used to anchor the beam.

The evidence indicates that it originated as a rock-cut tomb, possibly dating to Hellenistic times, which was then converted into an olive oil press, probably in late Roman times. In addition to the well-preserved olive oil press elements, a large number of pottery sherds were also found on the site during the excavation, including parts of dolia, amphorae and other types of vases which were used to carry and store oil (Archive DoA, 1-4).



Fig 6.5: A view of the basins and the three niches of the press (Author).

6.2.3.2 Caf al-Naas olive press

Caf al-Naas is the local name for a group of man-made caves located about 5 km north of ancient Cyrene (A8.001 in the Gazetteer). Most of these rock-cut caves and the surrounding area have been destroyed by modern agricultural activities and development, but one of the remaining caves contains a number of rock-cut installations, including a crushing basin and other pressing apparatus which are still well-preserved and were definitely used for olive oil production.

The olive press consists of three rooms cut one behind the other into the west face of a limestone cliff. The first room measured 10 x 8.30 m, and the crushing basin, which measured 1.70 m in diameter, was placed approximately in the middle of the room (Fig 6.6). Two niches were cut into the west wall above the pressing place in order to anchor the fixed end of the beam (Buzaian, forthcoming).

The second room measured 4 x 3.8 m and was accessed through a doorway 1.5 m wide and 2.2 m high (Buzaian, forthcoming). Two niches were cut into the walls to anchor the beam of a lever and windlass type press. The first beam socket on the north was located 0.8 m above the base of the pressing level, while the second niche near the south corner was 0.65 m above the pressing area.

The third room measured 3 x 3.25 m, which is small in comparison with the other two rooms (Buzaian, forthcoming). Though the room contained no olive pressing elements, its location just south of the first room strongly suggests that it was associated with the olive oil press and more likely served a related function, probably as a store.



Fig 6.6: The crushing basin in the middle of room 1, looking west. (Photo by Buzaian).

6.2.4 Wine manufacturing in Cyrenaica

In general, there were three stages involved in producing wine (see Table 6.1). Grapes were first trodden, then pressed and then the liquid put in vats or jars for fermentation. However, there are slight differences in the ways oil and wine were produced. For instance, olives were always pressed or crushed by mechanical means, and the olive oil was mainly extracted in the second stage. With wine, the must was mainly extracted from the grapes in the first stage by treading them, usually barefoot or sometimes with a wooden shovel or broom (Frankel 1999, 41).

Grapes were trodden by foot to separate the grape skins and stalks, and also to control the pressure of the grapes in order to avoid crushing the seeds and releasing

undesirable tannins into the wine. After the grapes were trodden, the must flowed through a channel into basins or large vats. The remaining must from the grape skins and stalks, which were pushed to the centre of the treading area, were usually pressed again. This generally involved lever and screw presses, particularly in the case of larger-scale production.

The last stage of wine-production is known as fermentation. This involves leaving the grapes to ferment at a temperature of 15°-20° for a period of between three and ten or sometimes twenty days (Frankel 1999, 42-3). The must was treated between the second stage and the fermentation step by boiling the must in water and adding certain substances. Sometimes this was done to produce sweet wine from raisins. The preferred method was to leave the grapes in vats, dolia or smaller jars for at least three days before subjecting them to the steps discussed above (Frankel 1999, 43). However, this technique produces less wine than when using fresh grapes.

6.2.4.1 Examples of wine presses in Cyrene's suburbs

As with olive oil mills, some wine presses in Cyrenaica were also cut into the bedrock. The elements of the wine presses discovered in and around Cyrene are very simple. They were commonly found in the open air and made up of two main parts: a sloping floor for treading grapes, and a lower sunken vat to collect the must. Both were cut in the natural bedrock.

One example of a simple wine press is located near Wadi Bunabeh west of Cyrene's ancient site (see F2.001 in the Gazetteer). This facility consisted of two main elements: a rectangular treading floor 1.5 x 1.5 x 1.18 m connected with a lower rounded tank about 0.58 m in diameter (Fig 6.7).



Fig 6.7: A view of the Wadi Bunabeh wine press, looking south (Author).

Another example is located about 4 km northwest of Cyrene, near a site known locally as Caf al-Medass. Some elements of an olive oil press were also found inside a cave in the area, within the walled garden of a modern farm (Fig 6.8). This wine press is similar to the one mentioned above in terms of size, but there are some slight differences in the shape of the two main elements. The lower collecting tank here was rectangular in shape 1.4 x 0.8 x 0.5 m, while its treading area was circular and measured 1.4 m in diameter and 0.2 m in depth (Buzaian, forthcoming). Both were coated with opus signinum, and were linked to each other by an outlet channel.



Fig 6.8: A view of Caf. al-Medass wine press, looking east (Photo by Buzaian).

Because many of these small installations in Cyrene are found in the open air, many of them are unfortunately neglected or have been reused for different functions. This is

why most of the wine presses around Cyrene have been completely destroyed or greatly damaged, and others remain at a high risk of destruction.

Some of the wine presses located in rural settlements in Cyrene's countryside are complex installations rather than the simple presses which are usually found within and around the city urban core. For example, in Limnias (**Lamluda**) c. 28 km west of Cyrene, a number of buildings were discovered during the limited excavations conducted on the site by Goodchild in 1956. They were then published in a preliminary report by Buzaian (2009, 47–54), before the site was completely excavated and recently published by a team from Chieti University (Menozzi et al. 2014, 65-83).

One of these buildings is associated with a press complex which possibly dates back to late Roman times. It seems to have had three main phases of use with some signs of a later fourth modification to the building, likely after the Arab conquest of the mid-seventh century (Menozzi et al. 2014, 72). The general plan of the complex is a rectangular building 25 x 12 m consisting of at least 7 rooms, including installations which were certainly used for wine production. (Fig 6.9).

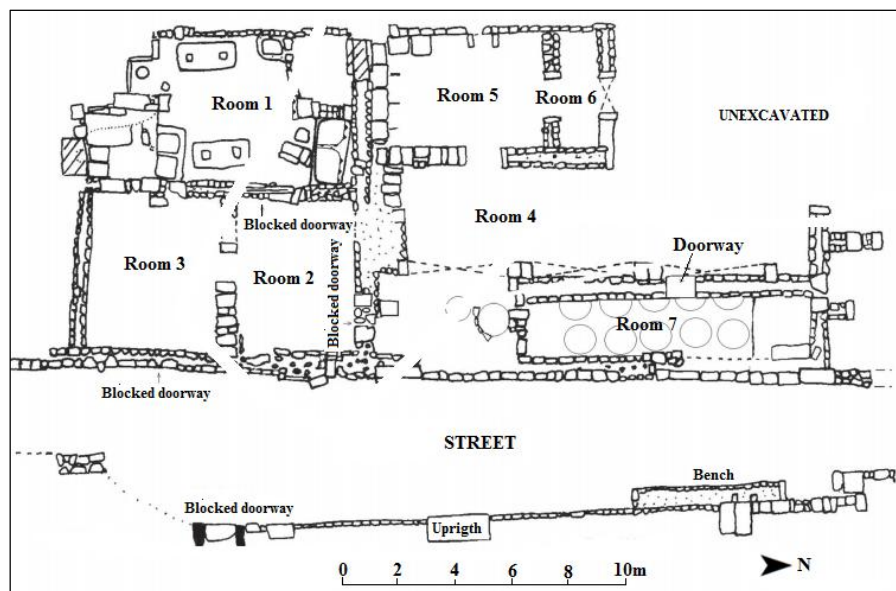


Fig 6.9: Plan of the complex of Lamluda (After Buzaian 2009, 49).

The evidence within these rooms revealed clearly that the site was used for producing wine rather than olive oil. This evidence includes treading areas, vats and

storerooms (Fig 6.10), in addition to more than 20 sunken dolia which were usually involved in the fermentation of grape juice (Menozzi et al. 2014, 72). No elements of olive oil presses, such as crushing mills, basins or pressing beds with grooves, were found in the complex.



Fig 6.10: A view of the storeroom in the wine complex of Lamluda (Manozzi et al. 2014, 72).

6.3 Qsur, Farms and Fortified Sites

6.3.1 Introduction

The term *qasr* (plural *qsur*) was traditionally used in Arabic to define a type of fortified site found in many regions of Roman North Africa (Mattingly et al. 2013, 2; Mattingly 1996, 127). Classic *qsur* are tower-like fortified buildings with one doorway and a courtyard or light well, and can have two or more storeys. However, these buildings in Cyrenaica are of varied types, and can be found either isolated or as part of a larger settlement. It should be mentioned that the term *qasr*, which is used by the local people

in Cyrene and the surrounding area, does not always refer to a specific type of building. The word 'qasr' can also apply to any large structure, such as a watchtower, fort, suburban villa, or any other large building regardless of its position.

The *qsur* in the region of Cyrenaica are dated mainly to the late Roman and late antique periods, and can be classified generally into two main types: the first is of military character, which usually comprise an internal courtyard with some defensive features such as strong thick walls and a single entrance, or a tower-like structure consisting of more than one storey; the second type is of civilian character, and is associated with agricultural and pastoral features (Emrage 2015, 143-4).

A number of farm buildings found in the urban periphery of Cyrene had thick outer walls and other fortified characteristics. They appear to be civilian in nature, as they are associated with evidence of economic activity, as seen in the following examples.

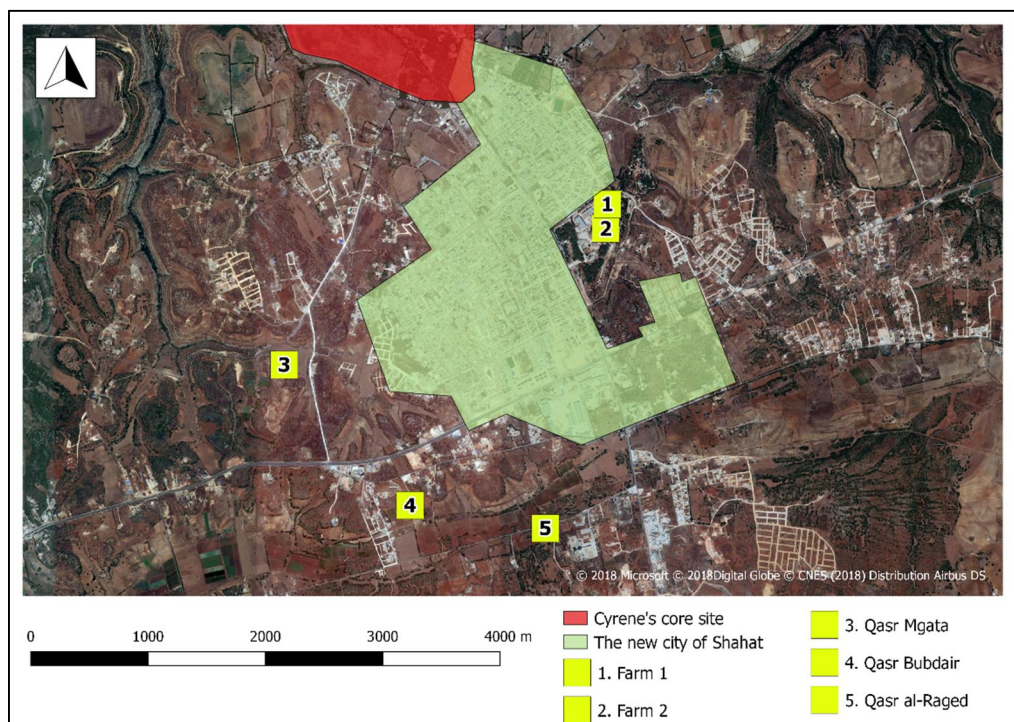


Fig 6.11: Distribution of the qsur and fortified sites around Cyrene.

6.3.2 Qasr al-Raged

This *qasr* is located on a plain about 4 km south-east of the ancient site of Cyrene, within one of the walled gardens of the modern cultivated lands which occupy most of the surrounding area of the *qasr* (see L8.001 in the Gazetteer). It can be noted, however, that the *qasr* is situated in an isolated position, since no other monuments have yet been discovered in the neighbouring area (Fig 6.12). The general plan of this *qasr*, as it appears from parts of its remains, is almost a square, about 24 x 23 m, consisting of several rooms (Fig 6.13).



Fig 6.12: A view of Qasr al-Raged, looking southwest (Author).

The *qasr* has been mostly destroyed and all its walls have collapsed, with the exception of a small part of the south-eastern wall which is preserved up to the sixth course. Most of the area around the *qasr* is covered by fallen slabs and wild plants, including many parts of its foundations. Consequently, the inner arrangements cannot be identified due to the fallen material, and therefore there is a need to conduct excavations in certain parts in order to make a more accurate plan.

This *qasr* has two water cisterns. One of them is of the open-air type, sunk into the ground and rectangular in shape, measuring 5.80 x 5.30 m and located at the northern side. The other cistern is cut into the rocky ground measuring 3.50 x 1.50 m and about 2.00 m depth, while its rectangular opening is no more than 0.60 x 0.80 m, set on the

western side of the *qasr*. It is noted that the roof of this cistern was not cut in the natural rock, but was covered by stone slabs set on a groove cut along the top sides of the cistern.

The function of this building and its date are not known for certain. However, when compared with similar buildings located in the area around Cyrene, such as farm no 1 and farm no 2 at the Katiba (see below), it is possible that it is a productive farm which dates back to the late-Roman/early Byzantine era.

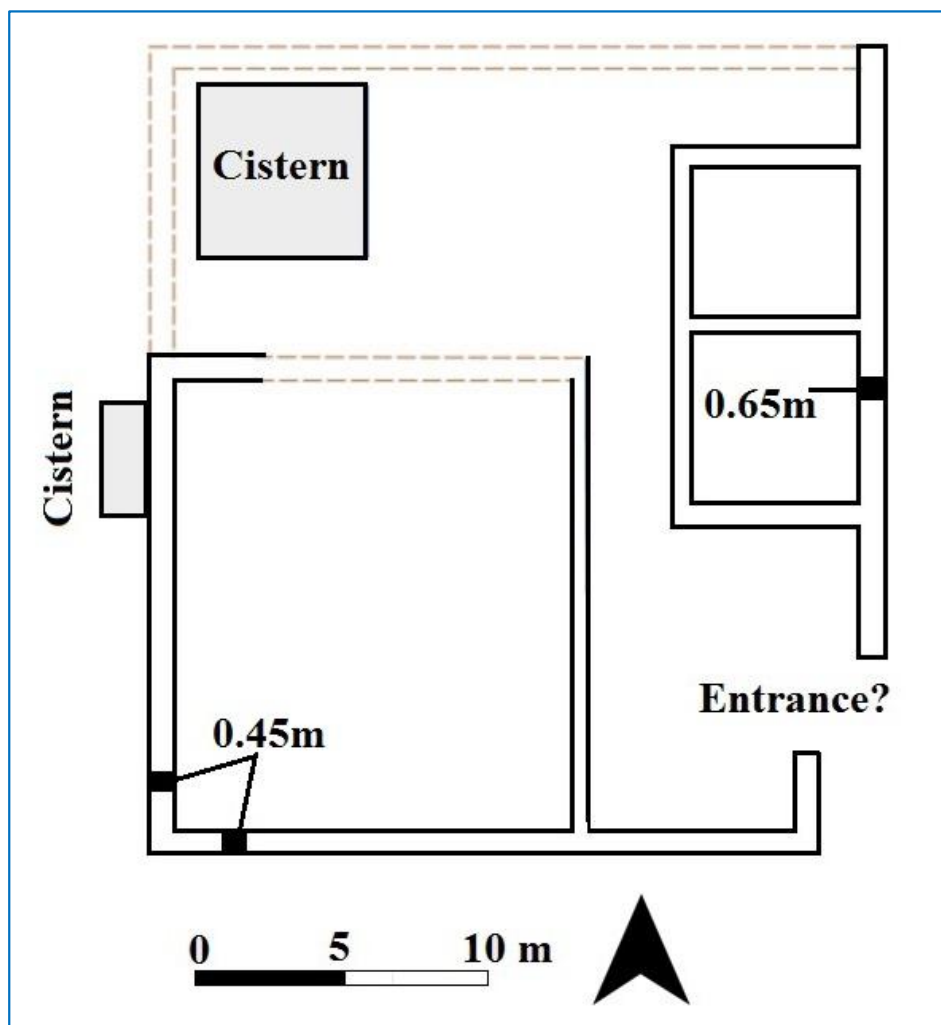


Fig 6.13: General plan of Qasr al-Raged (Author).

6.3.3 Qasr Bubdair

The so-called Qasr Bubdair is an ancient site located about 4 km south of the ancient site of Cyrene (K5.001 in the Gazetteer). The general plan is a rectangular building built on a platform with two rocky chambers on its east and south sides. The north-west wall of the building is about 5 m high, and in the middle of this building is a vaulted room visible under the rubble (Akab 2010, 26). This room may have been used earlier as a tomb in tandem with two rock-cut rooms.

It is thought that this *qasr* served as the core of an agricultural settlement because of its location overlooking a wadi floor and because part of an oil press was found here (Akab 2010, 26). This strongly suggests that the site was used for economic activity, probably in the late Roman era. Noticeably, the site is very close to a modern farm house, which puts it at high risk of destruction. The two caves, which I was told by a friend have already been cleared out and reused for other purposes, are especially in danger; this is likely the main reason why the landowner denied me access to the site.

6.3.4 Qasr Mgata

This qasr occupies a hill on the right side of the new road to Balagrae just before the final crossroads, and may be a fortified productive farm (see I3.002 in the Gazetteer). The general plan of this *qasr* is roughly rectangular, measuring 28 x 23 m, and consists of several small rooms and a cistern in the corner which is still in use by the modern landowner (Fig 6.14). The visible parts of the external wall show that it is an isodomic structure (Cherstich 2009, 224), and a part of the western side is still preserved up to the fifth course (Fig 6.15). Stucchi (1975, 525) suggested that this style of masonry in *qsur* building dates back to the first quarter of the 6th century AD.

Several elements were found in this farm which suggest productive activities took place here, most likely pressing. These elements include two small limestone vats (Fig 6.16), two slabs with sockets, and numerous pottery fragments including parts of dolium (Cherstich 2009, 224).

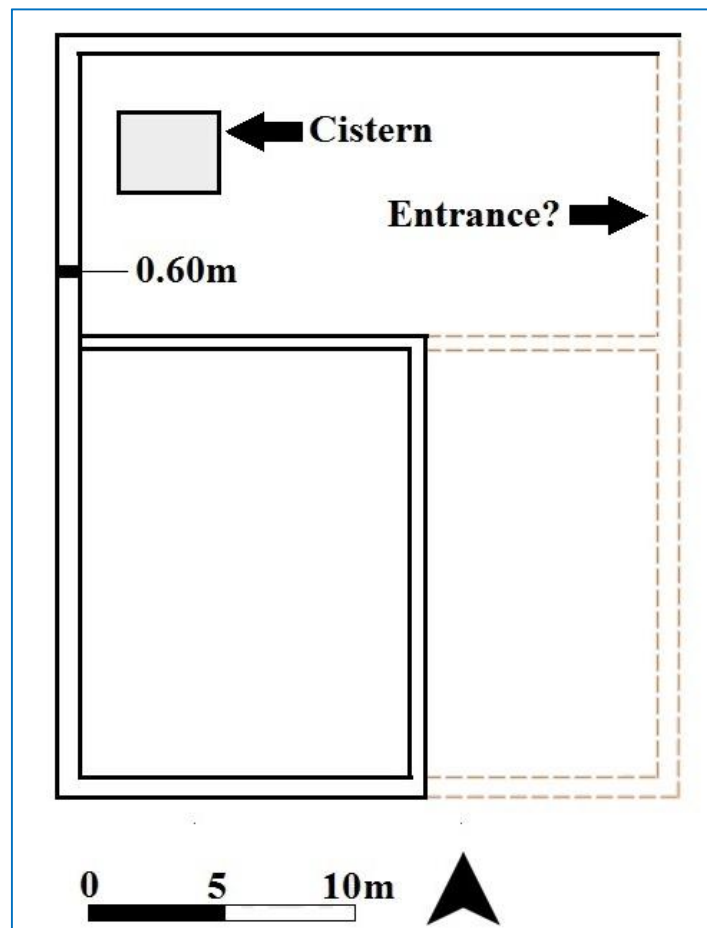


Fig 6.14: Plan of Qasr Mgata (Author).



Fig 6.15: A view of Qasr Mgata, looking southeast (Author).



Fig 6.16: One of the two vats found on qasr Mgata (Author).

6.3.5 Farm 1 within the Katiba area

This site is located within the area of the Katiba (on the south-east side of the modern city of Shahat) about 80 m east of the new DoA archive building (see F9.001 in the Gazetteer). The building could be identified as a fortified productive farm, and likely dates to the late Roman/Byzantine era (Fig 6.17). However, the remains of a small square courtyard suggest that the farm was built over a funerary complex, probably a Hellenistic hypogeum, which was probably used as a storeroom (AR UniCh, 18).

Farm no. 1 is a squared-rectangular measuring 28 x 20.50 m (Fig 6.18), and is completely surrounded by a wall built of large limestone blocks. These are laid horizontally and vertically, simulating the so-called *opus Africanum*. The external stone blocks are mostly regular, and measured 130 x 40 x 60 cm.



Fig 6.17: A general view of Farm 1, looking northwest (Author).

The internal plan of the farm is characterised by several differently-sized rooms and a corridor. One or more of these rooms had a productive function, and was most likely involved in oil production as a large stone mill (circular crusher) was found here along with parts of several rectangular basins, some of which are now reused within the walls (Fig 6.19). This reconstruction phase possibly happened after the building was partially destroyed by an earthquake.

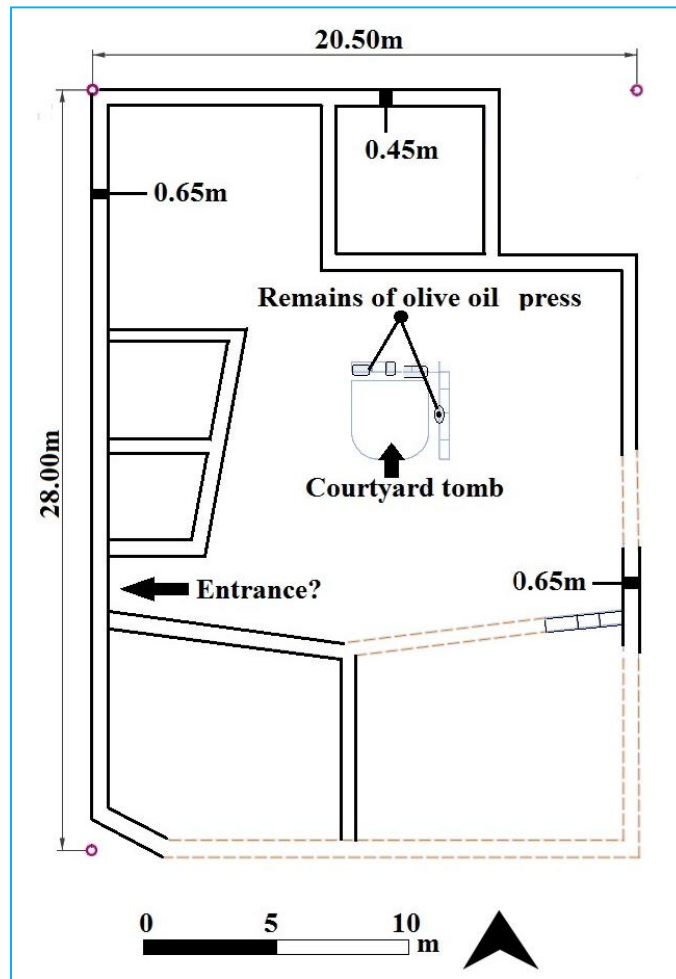


Fig 6.18: General Plan of Farm 1 (Author).



Fig 6.19: A view of some press elements on the site, looking east (Author).

6.3.6 Farm 2 within the Katiba area

Farm no. 2 is located north-east of the above farm at a distance of about 200 m (see F9.002 in the Gazetteer). Its layout is also similar to Farm no. 1, with a squared-rectangular plan about 24.50 x 21.50 m, consisting of several square and rectangular rooms surrounded by a strong wall built of large limestone blocks measuring 180 x 40 x 60 cm (Fig 6.20).

This building seems probably similar to the previous structure, and can be identified as a productive farm erected during the late-Roman/early Byzantine era (AR UniCh, 13). The building was also built on a Hellenistic funerary courtyard tomb, where some niches and a small funerary chamber are still partly visible, although they are now largely filled in. On the north side of the building is an open-air rectangular water cistern cut into the rock, which was clearly fed by a channel connected to it.

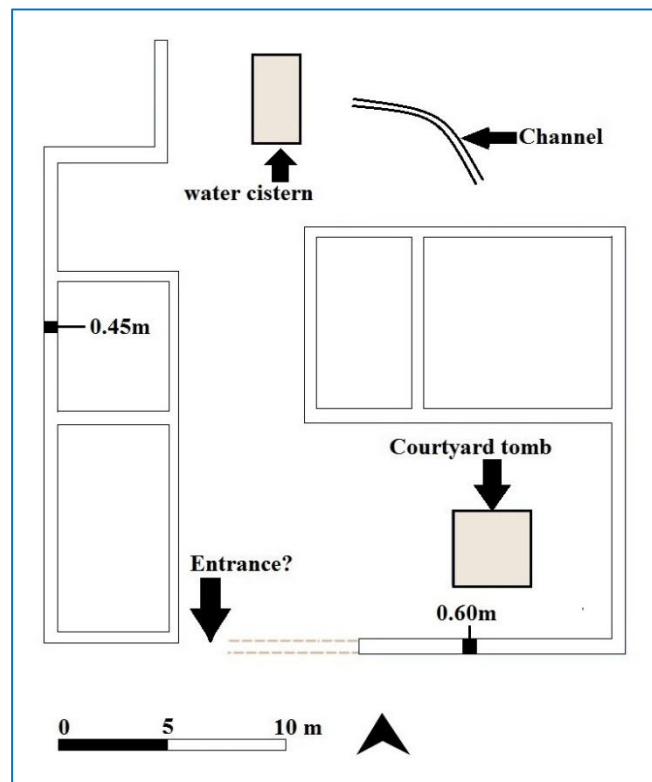


Fig 6.20: General plan of Farm 2 (Author).

Several holes and small niches, perhaps associated with pressing fruits to produce olive oil or wine, are still visible on the walls of the inner rooms. They are especially clear in the south-eastern room (Fig 6.21), which was linked with the original Hellenistic courtyard in a second phase when the courtyard was possibly reused as a storage space.



Fig 6.21: A general view of the southern room shows some niches on its walls, looking north (AR DoA).

6.4 Discussion

6.4.1 Features and date of olive oil and wine presses in Cyrene

The general features of the Cyrenaican olive presses reflect their location and the climate of the area. It is worth mentioning that while the vast majority of Cyrenaican olive presses were cut in the open air, most of the examples located in the suburbs of Cyrene were cut inside caves or rocky chambers and most possibly date to Greek era while some other Roman presses were inside normal farm buildings. This was likely because the pressing process needed a warm place to keep the oil fluid, since the mature olives were picked in November at the beginning of the winter season (Akab 2010, 25). Another possible reason was to keep the liquid away from rain water, since Cyrenaica and particularly Cyrene and its surrounding area were usually subject to heavy rains during the winter. It is therefore strongly suggested that even the olive and wine presses found in the open air were also sheltered during the stages of oil and wine production.

Some examples of Roman rock-cut presses were also recorded in Tripolitania. The size and shape of Tripolitanian olive presses are somewhat different from those of Cyrenaica. However, their technical systems and methods of pressing are similar. Most olive presses recorded in Tripolitania are lever and windlass presses (Mattingly and Dore 1996, 137). A large timber beam or tree trunk was suspended between two vertical stones that secured one end of the beam; Its free end was attached to a windlass mechanism mounted on a large monolithic stone block at a lower level of the press area, with two or more height positions specified by square holes cut in the two vertical stones. The technique which involved bearing down on the free end of the beam could only be used by the windlass and counterweight type (Mattingly 1988c, 182; Mattingly and Dore 1996, 136).

The features related to olive presses found in Cyrenaica consist of olive mill mortars, millstones or installations cut in the natural bedrock. These presses are also of the lever and windlass type. The only significant difference in the mechanisms of Cyrenaican and Tripolitanian olive presses is the technique used to secure the beam. Two vertical stones were generally used for this purpose in Tripolitania, while niches were cut in several levels in the rear wall to anchor the beam in Cyrenaican presses.

Although the wine industry was also crucial to the ancient Mediterranean economy (Pecci et al. 2013, 4491), most of the wine presses found around Cyrene were very simple in terms of their elements (with the exception of the complex presses found in some rural settlements in Cyrene's countryside, like Lamluda). Some of the open air oil and wine presses in Cyrene and its suburbs are similar with regards to their size and elements, and it is difficult in some cases to establish whether they were used for producing oil or wine. Perhaps both products were sometimes produced in the same press in different seasons.

On the other hand, grapes may have been trodden in a separate area of the same press facility. For example, the U-shaped basin in the olive press located in Cyrene's Northern Necropolis is similar to other wine presses found around the city. It was therefore probably used for treading grapes. This suggestion is supported by its position

in the southwest corner, which could have worked to keep it isolated from other elements of the olive oil press.

6.4.2 Features and date of Cyrene's fortified farms

The fortified buildings located in the immediate environs of Cyrene have some defensive qualities. However, there is no evidence that they were surrounded by ditches, unlike examples found in the countryside (Emrage 2015, 185; Goodchild 1953, 66-73). The presence of a single entrance and strong outer walls or revetments of large limestone blocks lying horizontally and vertically do support an interpretation of these farms as 'fortified'. However, these fortified farms were also of civilian character, with evidence of economic activity associated with agricultural or industrial features such as water cisterns, olive presses and wine production facilities. These kinds of activities can be identified via a number of features, such as blocks with holes for presses, basins and vats.

It could be argued that the *qsur* found around the ancient cities represent 'villas' and were originally built by rich citizens aiming to spend some of their time in their extensive lands. This could have been due to the relative lack of space within the urban area. The aristocrats who were living in such houses perhaps aimed to gain the advantages associated with a relatively quiet life in the suburbs.

Why did most of the fortified structures around Cyrene contain olive oil presses? We can perhaps assume that the position of these economic installations inside or nearby the fortified structures was to fulfill the needs of the locals while also assuring these important sites were defended and protected. This phenomenon is recorded in some places in North Africa, such as Sabratha and Lepcis Magna in Tripolitania, and in Zeugitania (or Proconsularis) and Byzacena in Tunisia (Leone 2003a, 21-9), where olive oil presses were found in different buildings during the late Roman period.

The distribution of the fortified farms and buildings associated with economic activity around Cyrene's urban core reveals that they benefited from the city in two main ways. Firstly, they benefited from the protection of the city since they were located

relatively close to urban areas. Secondly, their location outside the city's urban core and near to the cultivated lands in rural areas facilitated the transfer of various different crops, such as olives and grapes. Likewise, this would have simplified the delivery of their products to many places. This explains why these economic sites were often placed near the road network. There is no doubt that these sites provided the various products needed by the city population and those who lived around the urban sites. These rural production sites were therefore directly connected to both the urban and the suburban zones of the city.

The encroachment of many presses on funerary spaces suggests that some sites around the city were transformed into economic areas instead of being maintained for burials alone. For example, the Greek burial chamber mentioned in the Northern Necropolis of Cyrene was completely converted into an olive oil press, probably in late Roman times. The construction of an olive oil press in this area was likely intended to relocate some economic sites to defended areas close to the city walls. This may also explain why rock-cut and built tombs were added to the southern, eastern and north-eastern necropoleis more than the northern and north-western necropoleis during Roman times.

In general terms, the productive sites located close to Cyrene can be dated to the late Roman era. We may accept this date for two main reasons. Firstly, this type of building has been found in many regions throughout Roman Africa, and secondly by comparison with other similar buildings found in Cyrenaica which date back to the late Roman period (Mattingly et al. 2013, 3). However, some of these buildings cannot be accurately dated due to a lack of precise archaeological evidence, largely because they have been mostly destroyed.

One must be careful about the dating of these buildings, especially these located close to the urban area. These are usually surrounded by different types of tombs and other remains which date back to both Greek and Roman times. Furthermore, some materials were probably moved from other sites and reused in the walls, as noted in the case of Farm 1 within the area of the Katiba. The dating process is thus not simple, and

cannot be achieved in some cases without conducting systematic excavations and comprehensive studies directed to the site and its adjacent areas in order to give at least an approximate date.

Chapter 7 – Industry in the Suburbs: Pottery, Metalworking and Quarries

7.1 Introduction

This chapter will investigate some of the kinds of economic activity related to Cyrenaica cities, especially local pottery manufacturing, metalworking and stone quarries. I begin by investigating Cyrenaican amphorae in terms of their types and fabric, while Section 7.3 studies the distribution and date of the pottery kilns in the region of Cyrenaica overall. Section 7.4 inspects the possible evidence of pottery production and metalworking at Cyrene. The aim of my intensive survey, as stated in Section 3.2.3 was not to collect samples of pottery, but primarily to assess the density of material observed on the surface to attempt broadly to identify evidence of manufacturing activity such as furnaces and kiln debris. A discussion of Cyrenaica's local pottery products in terms of their kinds and chronology is provided in Section 7.5.

Moreover, this chapter will examine the quarries and building materials found in Cyrenaica in general and at Cyrene in particular (Section 7.7). As will be argued, this type of archaeology is much understudied yet adds much important data to the knowledge of the creation and development of towns in antiquity.

7.2 Types and Fabric of Cyrenaican Amphorae

First we consider ceramic, commencing with amphorae. Fabric analysis is recognised as a fundamental method for pottery production studies (Göransson 2007, 11), as it can help significantly to build an overview of the fabric types of provincial and local pottery products especially. In the following paragraphs I investigate the fabric and type of the Cyrenaican amphorae which were produced locally in several cities and some other sites in the region.

In general, amphorae can be defined as large capacity jars used for the transportation of several kinds of goods, but mainly liquids such as wine and olive oil (Göransson 2007, 7). They were also used as containers to store dried products like salted fish, resin and other such items. Some types of amphorae were produced in Cyrenaica,

most likely from the late Hellenistic to the late Roman period. A great deal of data and information have emerged recently due to excavations and studies at different sites in the region, particularly the ancient sites of Benghazi (Euseperides and Berenice) (Göransson 2007; Riley 1979a, 38-42).

The fabrics used in Cyrenaican amphorae have been classified into four general groups according to the fabrics recorded at Euseperides: Cyrenaican Fabric Groups A (CYR A), B, C and D (Göransson 2007, 45-50). Riley (1979a, 38-42; 1979b, 93-6) defined two groups of local fabrics for Tocra's pottery products and six fabrics for Benghazi based on the analyses of various assemblages found at the two sites (Table 7.1). While Tocra's fabrics cannot be distinguished visually, the shell-rich wares of Benghazi can be identified by their pale orange colour and softish surfaces. While it is not easy to distinguish between the fabrics of Tocra and Benghazi, it appears that Tocra's fabrics contained more chert, whereas Benghazi's contained more mica.

The more regular presence of chert in the Tocra samples may be due to a clay source derived from the nearby cherty limestone. Though the detailed fabric descriptions in the table below may seem complicated, it demonstrates some similarities between the two classifications (see Table 7.1). The most common identifiable fabrics were those in an orange-red, and shell-rich fabric. However, it is likely that the quality of production of local wares continued to be poor even at the beginning of the Roman era in Cyrenaica, before it developed rapidly around the middle of the second century AD (Wilson et al. 2005, 161-5).

	FABRIC NAME	DESCRIPTION
RILEY'S CLASSIFICATION	Benghazi 1	Orange brown but varies from buff grey through orange to grey, softish surface, can be scratched by the fingernails.
	Benghazi 2	Dark orange-brown, very similar to Benghazi fabric 1 but is better levigated.
	Benghazi 3	Radish purple to dull pink, fairly hard, contains large flakes of white, or greenish shell.
	Benghazi 4	Buff through red to grey, contains a moderate proportion of white lime specks.
	Benghazi 5	Close to Benghazi fabric 4, Buff and orange-brown through to radish brown; contains white lime specks.
	Benghazi 6	Softish grey or greenish cream; contains white lime specks.
GÖRANSSON'S CLASSIFICATION	CYR A	Comprises fabrics produced from marl clay rich in shell, its colour often reddish-yellow.
	CYR B	Composed of marl clay fabrics mixed with terrigenous red clay terra rossa, its colour also reddish-yellow.
	CYR C	Consists of terra rossa clays originating from terrigenous or pedogenic sediments, tend to light red colour.
	CYR D	Very rare and made from shell-rich probably from the local sebkha clay known as the Sebkah of al-Selmani near the ancient site of Benghazi.

Table 7.1: Fabric of the Cyrenaican amphorae according to classifications by Göransson (2007) and Riley (1979a).

The amphorae which were produced in Cyrenaica in the Hellenistic era can be generally divided into four types (Riley 1979b; Göransson 2007): Cyrenaican Amphora Classes 1, 2, 3 and 4, in addition to Cyrenaican amphora B, or Corinthian B amphora as it is sometimes known. These four types were classified based on the fabric and shape of the types recorded at the ancient Hellenistic site of Euesperides (Table 7.2). Local amphorae dated to Hellenistic times were also recorded at Berenice (Hellenistic amphora 1, and 2) (Riley 1979b, 119-22). It is noted that Cyrenaican Amphora 1 from Euesperides is similar in shape to Riley's Hellenistic Amphora 1.

In Roman times, especially during the middle Roman period, several different types of amphorae were produced locally (Table 7.3). In the early Roman period, three types of local amphorae were recovered at the ancient site of Berenice: Early Roman Amphorae 12, 13, and 14 (Riley 1979b, 168-71). The last type (14) was also found in Taucheira (Riley 1979b, 56). From the mid-Roman period, three types of these amphorae were also identified in Berenice: Mid Roman Amphora (MRA 1, 8 and 9) (Riley 1979b, 193-4), in addition to MRA 10 from Taucheira (Riley 1979b, 54).

In addition to Berenice, MRA 1 was recorded at sites in Phycus, Aptouchou, Mahel Mael, Erythron and Marmarica, while MRA 8 has been recovered at Taucheira and the Cape of Phycus (Mazou and Capelli 2011, 73; Riley 1979b, 54; Hesein 2015, 178-80; Hulin et al. 2009, 183-4). With regard to local amphorae from the late Roman period, only LRA 9 has been identified in Berenice (Riley 1979b, 228). Despite the lack of information on this subject, Riley's classification of the types of Cyrenaican amphorae is still used today by pottery specialists.

<i>Amphora Type</i>	<i>Fabric</i>	<i>Site Name</i>	<i>Description</i>
<i>Cyrenaica Amphora 1</i> <i>Hellenistic Amphora 1</i>	A, B & C Benghazi 2	Euesperides Berenice	Oval body ending in a knobbed toe, vertical and cylindrical neck, rolled rim and elongated handles that are oval in section. The shoulder to rim profile is very similar to Chian Amphorae, but differ in the body and toe.
<i>Cyrenaica Amphora 2</i> <i>Hellenistic Amphora 1</i>	A, B & C Benghazi 1, 4 & 5	Euesperides Berenice	The neck is slightly bulging, rolled and thickened rim, slender handles. Similar to Berenice Hellenistic Amphora 2 in its rim and handles.
<i>Cyrenaica Amphora 3</i>	A & B	Euesperides	Projecting rim with a marked step at the junction of the upper neck and the rim, short handles with pronounced dorsal ridges (oval in section). The neck and the form of the handles are reminiscent of Corinthian A.
<i>Cyrenaica Amphora 4</i>	A & C	Euesperides	Everted projecting triangular rim, slightly mushroom-shaped, with a bulge underneath, cylindrical necks, long and quite thin handles, oval in section. Very similar in shape to Greco-Italic amphorae (MGS IV, V & VI).
<i>Cyrenaican B Amphora</i> <i>(Corinthian B)</i>	A, B & C	Euesperides	Everted rim with handles immediately below, flat on top with a thick triangular profile and a groove at the top of the neck. Similar to Corinthian B Amphorae from Corcyra.

Table 7.2: Types of Hellenistic amphorae produced in Cyrenaica.

(Data from Göransson 2007; Riley 1979a; 1979b; Mazou and Capelli 2011).

<i>Amphora Type and Date</i>	<i>Fabric</i>	<i>Location</i>	<i>Description</i>
<i>Early Roman 12 Amphora</i>	Benghazi 2	Berenice	Triangular rim in profile, sharp ledge at the base of the vertical neck.
<i>Early Roman 13 Amphora</i>	Benghazi 2?	Berenice	Triangular rim in profile. The top is thick and flat.
<i>Early Roman 14 Amphora</i>	Benghazi 5	Berenice	The body is bag-shaped, thickened rim, thickened and short neck, short and round handles.
<i>MR Amphora 1</i>	Benghazi 1 & 2	Berenice, Erythron, Phycus, Aptouchou, Mahel Mael & Marmarica	Squat body (short and thickset), thickened rim, narrow neck, carinated shoulder, round handles.
<i>MR Amphora 8</i>	Benghazi 1, 2, 5, Tocras 2	Berenice, Taucheira & Cap of Phycus	Thickened flanged rim, short and vertical neck, oval handles in profile, corrugated shoulder.
<i>MR Amphora 9</i>	Benghazi 5	Berenice & Taucheira	Thickened and round elongated rim, cylindrical neck, oval handles.
<i>MR Amphora 10</i>	Tocras 2	Taucheira	Similar to MR Amphora 9 in the neck and handles but the rim is shorter.
<i>LR Amphora 9</i>	?	Berenice	Vertical or slightly everted rim, slightly thick handles.

Table 7.3: Types of Roman amphorae produced in Cyrenaica.

(Data from Göransson 2007; Riley 1979a; 1979b; Mazou and Capelli 2011; Hesein 2015; Buzaian, forthcoming).

7.3 Pottery kilns in Cyrenaica

Pottery kilns are considered to be conclusive evidence that pottery (from amphorae to cooking wares) was produced in that zone. At least 34 pottery kilns have been discovered across Cyrenaica, all near the coastline. In addition to the kilns, manufacturing debris including moulds and wasters have been recorded in most of the main cities and other settlements of the province. Below I discuss these kilns which prove the presence of pottery manufacturing in Cyrenaica.

Six of these kilns were discovered during the excavation conducted at ancient Berenice (Lloyd 1977, 211-4) (Fig 7.1). The high density of unfired pottery sherds found in this urban area confirmed that these kilns were used in pottery production. Two of these six kilns were dated to the Hellenistic period, while four were dated to the early and mid-Roman period (late 1st century BC to late 3rd AD). It seems that two of the four Roman-era kilns were mostly used in the production of lamps, based on the lamp fragments found around them both (Lloyd 1977, 212; Bailey 1985a, 195-204; 1985b).

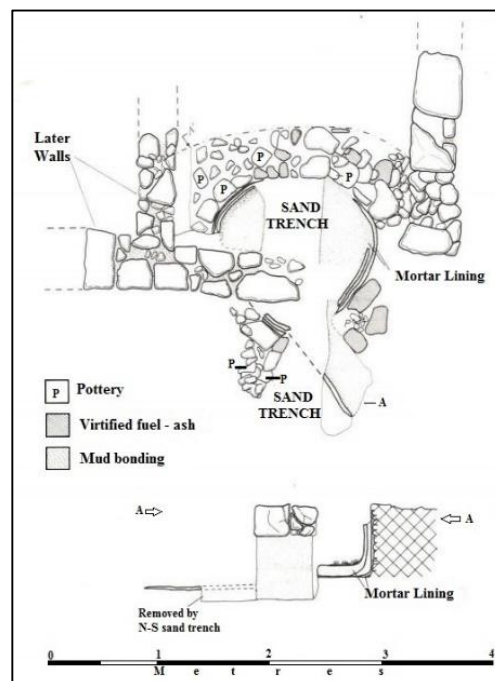


Fig 7.1: Plan of one of the kilns found in Berenice (Lloyd 1977, 215).

Remains of what was almost certainly part of a pottery kiln were discovered in the suburbs of the ancient city of Benghazi on the southwest face of Sidi Abeid hill (Hayes

and Mattingly 1995, 85). The relatively high density of rubbish deposits, ashy dumps and kiln waste collected from the area suggests that it was a significant site for pottery production (Hayes and Mattingly 1995, 90-2) (The stoking area of this kiln was infilled with kiln bricks and pottery when it went out of use).

Three kilns have been discovered at Tocra-Taucheira. The first was discovered by chance in 1954 while Wright was excavating a group of tombs located north-west of the city's West Gate in a suburban location (Wright 1963, 28); the kiln site is lay about 100 m from the city wall, in the area known locally as Howa al-Faquar (Riley 1983, 235). The other two kilns were uncovered during the excavations carried out between 1985 and 1992 within the city walls by the Department of Archaeology of the University of Garyunis (Benghazi) (Buzaian 2000, 59-100). One of these kilns is rectangular in shape (2.60 x 2.20 m) and was dated to the Hellenistic period (Fig 7.2), while the other is circular (c. 1.08 m diameter) and attributed to the Roman period (Fig 7.3). Dating the two kilns was based on the analysis of pottery found in and around the site.

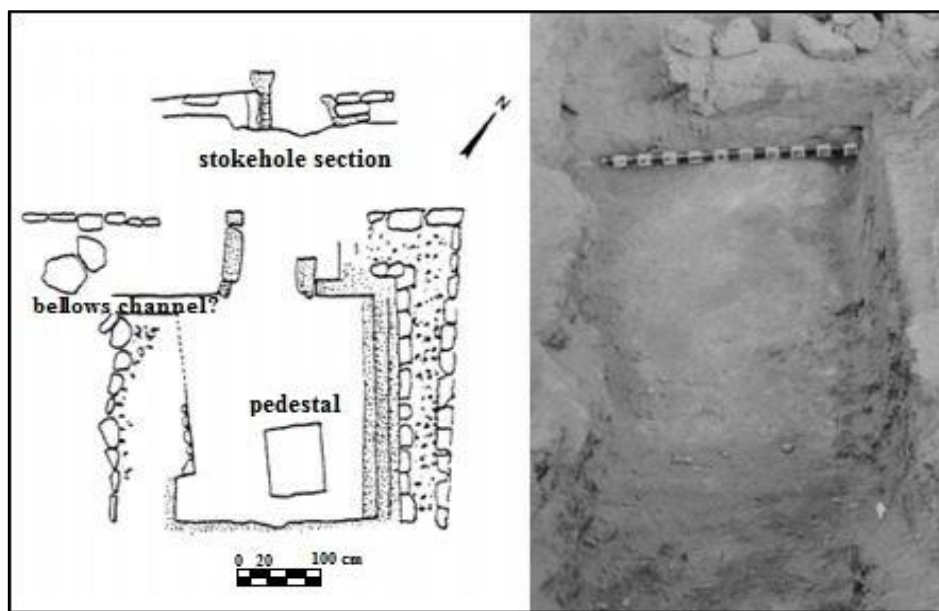


Fig 7.2: A plan and view of the Hellenistic kiln found at Tocra (Buzaian 2000, 63).



Fig 7.3: A view of the Roman kiln found at Tocra (Buzaian 2000, 70).

At Hadrianopolis, much damaged suburban pottery kiln site was discovered about 400 m to the south of the ancient city site (Jones and Little 1971a, 64). The kiln was circular in shape, with a diameter of 6.8 m (Fig 7.4).

Four rectangular pottery kilns were discovered in the suburbs of Ptolemais during the excavation carried out by the Polish Archaeological Mission between 2007 and 2009 (Nowakowski et al. 2011, 9-27) (Fig 7.5). These kilns date from the mid to late Roman period according to the analysis of associated pottery sherds, in addition to the date of nearby buildings.

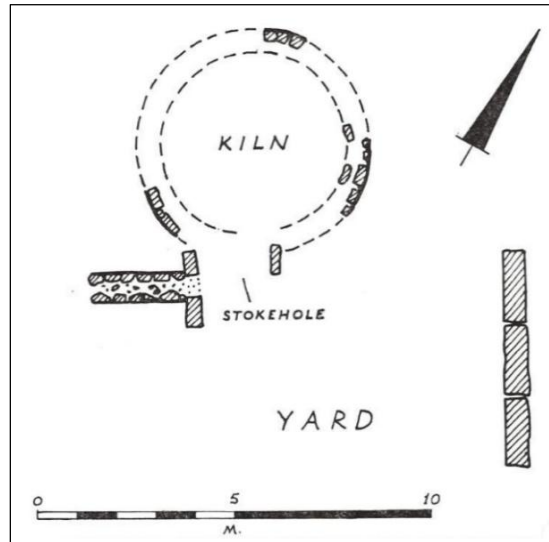


Fig 7.4: Plan of the kiln found in Hadrianopolis (Jones and Little 1971a, 65).



Fig 7.5: One of the four kilns found in Ptolemais (Nowakowski et al. 2011, plate 20).

On the coast between Apollonia and Ptolemais, ten kilns, likely used for the production of amphorae, have been identified in suburban locations (Hesein 2015, 172-7). Three of these rectangular kilns were found at the site of Aptouchou Hieron (now el-Haniyah) approximately 20 km northeast of Balagrae (al-Bayda) and 42 km to the west of Apollonia; four kilns (two circular and two rectangular) were uncovered at the coastal site of Phycus (now Zawiyet el-Hamama) about 32 km west of Apollonia (Fig 7.6).

Another three kilns (two circular and one almost rectangular) were recorded at the site known as (Mahel Mael) c.6 km east of the site of Phycus.



Fig 7.6: A view of two rectangular kilns found at the site of Phycus (Hesein 2015, 410).

A kiln found at the ancient site of Erythron on the north side of the Roman baths, is rectangular in shape and dated to the end of the third century AD, when the hot room of the baths was completely removed and reused as a pottery rubbish dump for the kiln (Mazou and Capelli 2011, 73-4).

Moreover, in the eastern part of Cyrenaica (Marmarica), eight suburban kiln sites (six almost rectangular and two circular) (Fig 7.7) were identified between 2008 and 2010. They were found near the coast, in the area between Kambut and Marsa Lukk and in the surrounding wadis such as the Wadi of Qseirat, the Wadi Gabar, the Wadi Rasafa and the Wadi el-Ayn (Hulin et al. 2010, 158-60; 2009, 182-6; Hulin 2008, 299-312).

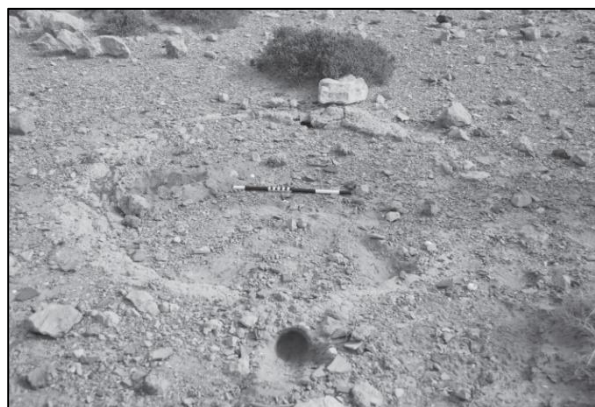


Fig 7.7: One of the Roman kilns found at Marsa Lukk (Hulin 2008, 310).

As shown in Table 7.4 below, while some of the discovered pottery kilns in Cyrenaica were located within the walled space of the cities, the vast majority of these kilns were in suburban locations. Siting pottery kilns away from the urban areas helped to reduce the risk of urban fires; in addition, establishing these in areas around the cities gave easier access to raw materials used for pottery production and also fuel supplies (charcoal wood).

<i>Site name</i>	<i>Number of kilns</i>	<i>Date</i>				<i>Shape</i>		<i>Location</i>		<i>Comments</i>
		H	ER	MR	LR	Rect	Circ	Urban	Suburban	
<i>Berenice</i>	7	3	2	2	-	5	2	6?	1	
<i>Taucheira</i>	3	1	1	1	-	2	1	2	1	
<i>Hadrianopolis</i>	1	-	-	1?	-	-	1	-	1	Date not confirmed
<i>Ptolemais</i>	4	-	-	2	2?	4	-	-	4	Date not confirmed
<i>Aptouchou</i>	3	-	-	3	-	3	-	-	3	
<i>Phycus</i>	4	1?	-	3	-	2	2	-	4	Further investigation needed
<i>Mahel Mael</i>	3	-	-	3	-	-	3	-	3	
<i>Erythron</i>	1	-	-	1	-	1	-	1	-	
<i>Marmarica</i>	8	-	2?	6?	-	6	2	-	8	Further investigation needed
<i>Total Number</i>	34	5	5	22	2	23	11	9	25	

Table 7.4: Record of pottery kilns discovered in Cyrenaica.

7.4 Possible evidence for pottery production and metal-working at Cyrene

7.4.1 Pottery sherds and wasters

Some important questions arise here regarding Cyrenaica's pottery industry. Pottery kilns have been found at all the main cities of Cyrenaica, in addition to a number of settlements and other smaller sites in the region, with the exception of Cyrene. Why have no pottery kilns been recorded until now in Cyrene or its suburbs? Since kilns are considered to be conclusive evidence of pottery manufacturing, does this mean pottery production was unknown at Cyrene? Or is this a case of absence of evidence? In my research I attempted to answer these significant questions and investigated the potential evidence of pottery production in Cyrene.

As explained in Chapter 3 (Section 3.5.2), three transects were investigated by the CAS intensive survey methods in certain selected areas around Cyrene. The main aim of this survey method was to assess the density of pottery sherds and of any other materials observed on the surface. The surface materials found in the target areas of the survey were varied, and included a relatively large number of possible pottery wasters, marble, terracotta and small pieces of slag (see Figs 7.8-7.12). However, the vast majority of the materials recorded in all three transects were pottery sherds (Fig 7.13). For this analysis, I have combined all 100 m recording units into each 500 m section of the three transects (for details of these units see Tables 7.5-7.7).



Fig 7.8: Possible Roman- period pottery wasters collected from T1.



Fig 7.9: Fragments of handles (possible wasters?) A1 and A2 collected from T3; B and C collected from T2.

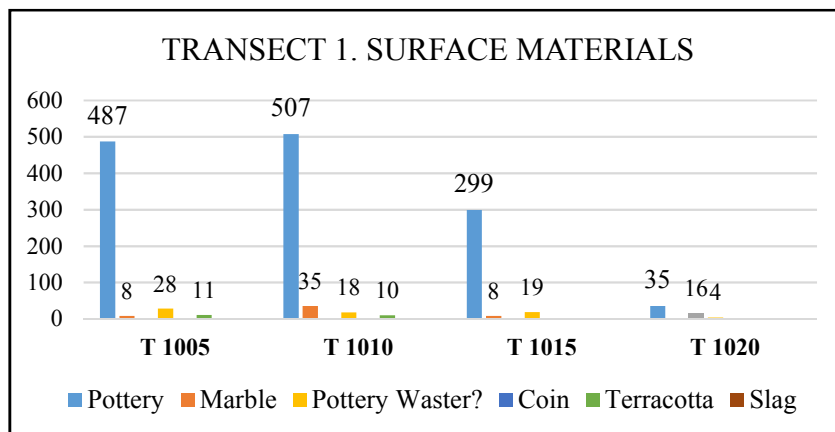


Fig 7.10: Density and types of the surface materials found in Transect 1.

(For locations of 500 m survey units - T1005, T1010, T1015, and T1020 - see Fig 7.14).

Section No.	Space of recording unit	Pottery	Pottery Waster?
T1005.1	100 m x 20 m	136	8
T1005.2	100 m x 20 m	118	6
T1005.3	100 m x 20 m	133	7
T1005.4	100 m x 20 m	55	2
T1005.5	100 m x 20 m	45	5
Total T1005	500 m x 100 m	487	28
T1010.1	100 m x 20 m	137	4
T1010.2	100 m x 20 m	116	4
T1010.3	100 m x 20 m	135	7
T1010.4	100 m x 20 m	63	0
T1010.5	100 m x 20 m	56	3
Total T1010	500 m x 100 m	507	18
T1015.1	100 m x 20 m	105	9
T1015.2	100 m x 20 m	62	3
T1015.3	100 m x 20 m	85	6
T1015.4	100 m x 20 m	23	1
T1015.5	100 m x 20 m	24	0
Total T1015	500 m x 100 m	299	19
T1020.1	100 m x 20 m	7	0
T1020.2	100 m x 20 m	11	2
T1020.3	100 m x 20 m	5	0
T1020.4	100 m x 20 m	8	2
T1020.5	100 m x 20 m	4	0
Total T1020	500 m x 100 m	35	4
Total	2000 m x 100 m	1328	69

Table 7.5: Number of pottery sherds and wasters in each 100 m recording unit of T1.

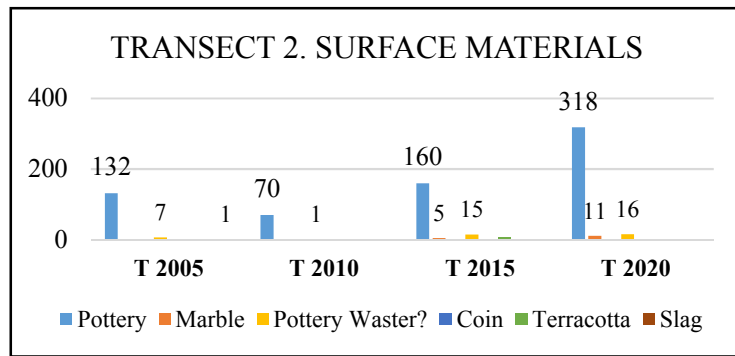


Fig 7.11: Density and types of the surface materials found in Transect 2.

(For locations of 500 m survey units - T2005, T2010, T2015, and T2020 - see Fig 7.16).

<i>Section No.</i>	<i>Space of recording unit</i>	<i>Pottery</i>	<i>Pottery Waster?</i>
<i>T2005.1</i>	100 m x 20 m	32	0
<i>T2005.2</i>	100 m x 20 m	9	0
<i>T2005.3</i>	100 m x 20 m	20	2
<i>T2005.4</i>	100 m x 20 m	31	2
<i>T2005.5</i>	100 m x 20 m	40	3
<i>Total T2005</i>	500 m x 100 m	132	7
<i>T2010.1</i>	100 m x 20 m	25	1
<i>T2010.2</i>	100 m x 20 m	10	0
<i>T2010.3</i>	100 m x 20 m	13	0
<i>T2010.4</i>	100 m x 20 m	11	0
<i>T2010.5</i>	100 m x 20 m	11	0
<i>Total T2010</i>	500 m x 100 m	70	1
<i>T2015.1</i>	100 m x 20 m	34	1
<i>T2015.2</i>	100 m x 20 m	35	2
<i>T2015.3</i>	100 m x 20 m	25	3
<i>T2015.4</i>	100 m x 20 m	38	7
<i>T2015.5</i>	100 m x 20 m	28	2
<i>Total T2015</i>	500 m x 100 m	160	15
<i>T2020.1</i>	100 m x 20 m	75	6
<i>T2020.2</i>	100 m x 20 m	39	2
<i>T2020.3</i>	100 m x 20 m	26	0
<i>T2020.4</i>	100 m x 20 m	75	4
<i>T2020.5</i>	100 m x 20 m	103	4
<i>Total T2020</i>	500 m x 100 m	318	16
<i>Total</i>	2000 m x 100 m	680	39

Table 7.6: Number of pottery sherds and wasters in each 100 m recording unit of T2.

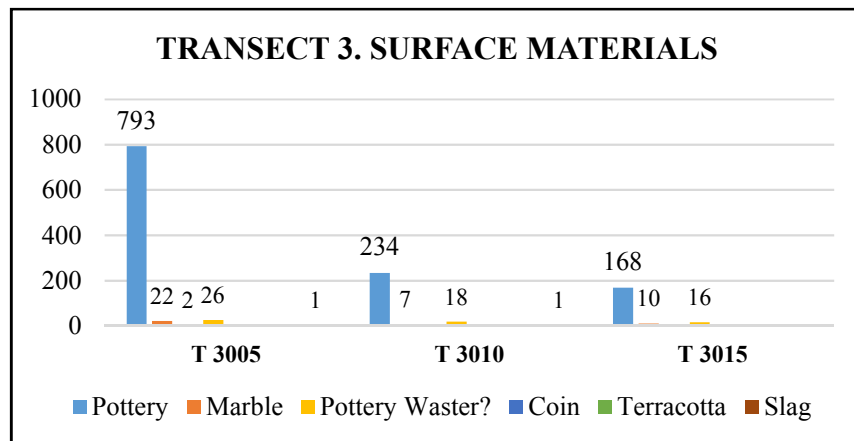


Fig 7.12: Density and types of the surface materials found in Transect 3.

(For locations of 500 m survey units - T3005, T3010, and T3015 - see Fig 7.16).

<i>Section No.</i>	<i>Space of recording unit</i>	<i>Pottery</i>	<i>Pottery Waster?</i>
<i>T3005.1</i>	100 m x 20 m	123	3
<i>T3005.2</i>	100 m x 20 m	159	7
<i>T3005.3</i>	100 m x 20 m	148	5
<i>T3005.4</i>	100 m x 20 m	235	7
<i>T3005.5</i>	100 m x 20 m	128	4
<i>Total T3005</i>	500 m x 100 m	793	26
<i>T3010.1</i>	100 m x 20 m	71	4
<i>T3010.2</i>	100 m x 20 m	31	2
<i>T3010.3</i>	100 m x 20 m	41	4
<i>T3010.4</i>	100 m x 20 m	34	2
<i>T3010.5</i>	100 m x 20 m	57	6
<i>Total T3010</i>	500 m x 100 m	234	18
<i>T3015.1</i>	100 m x 20 m	42	4
<i>T3015.2</i>	100 m x 20 m	69	8
<i>T3015.3</i>	100 m x 20 m	12	1
<i>T3015.4</i>	100 m x 20 m	15	1
<i>T3015.5</i>	100 m x 20 m	30	2
<i>Total T3015</i>	500 m x 100 m	168	16
<i>Total</i>	1500 m x 100 m	1195	60

Table 7.7: Number of pottery sherds and wasters in each 100 m recording unit of T3.

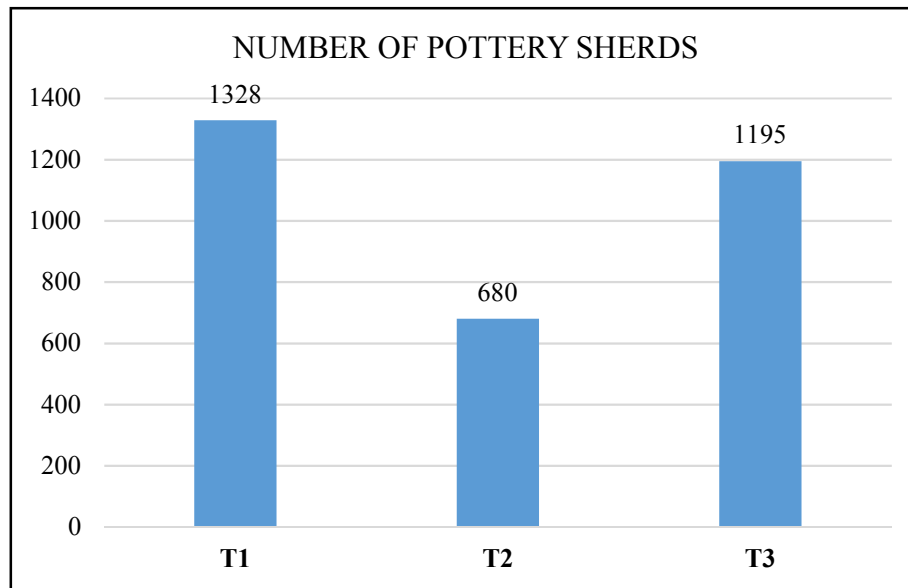


Fig 7.13: Total number of pottery sherds in the three CAS transects.

There is a disparity evident in the density of the pottery in the three transects; this variation can also be noted between one area and another within the same transect. The largest number of sherds were found in Transects 1 and 3. However, in Transect 1 the density of pottery decreased gradually to the east, and in some areas only a few sherds and other materials were recorded (Figs 7.14-16).

A low number of pottery sherds came from the west end of transect 2 near the eastern edge of Wadi Bunabeh (Fig 7.17). Although Transect 2 was the shortest, the density of pottery sherds and other various surface finds was low in each unit of all of its 100 m sectors.

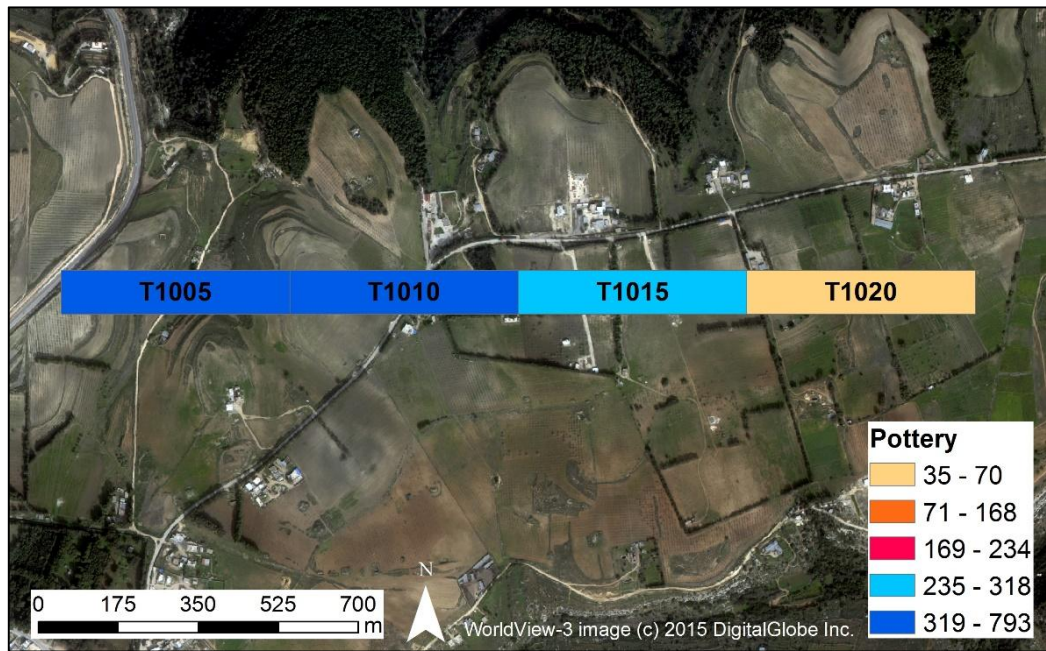


Fig 7.14: Density of pottery sherds in Transect 1.

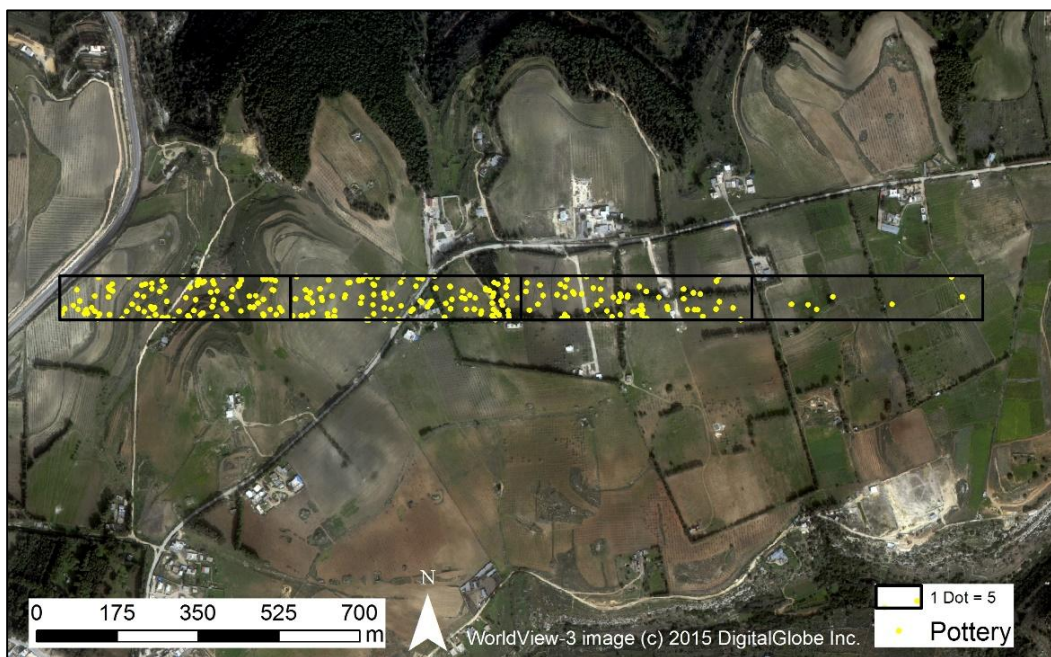


Fig 7.15: Distribution of pottery sherds in Transect 1.

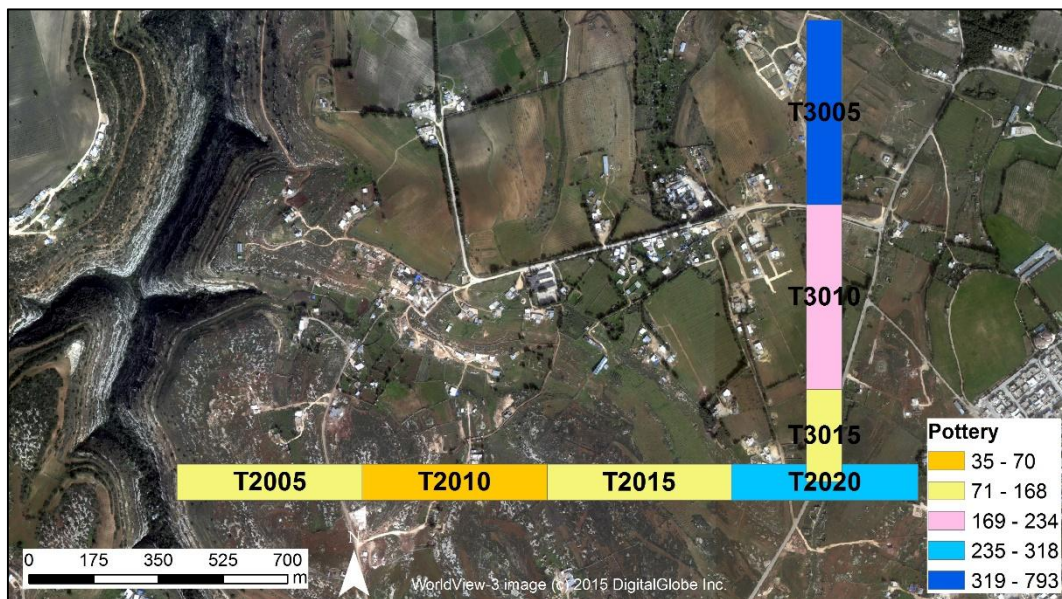


Fig 7.16: Density of pottery sherds in Transects 2 and 3.

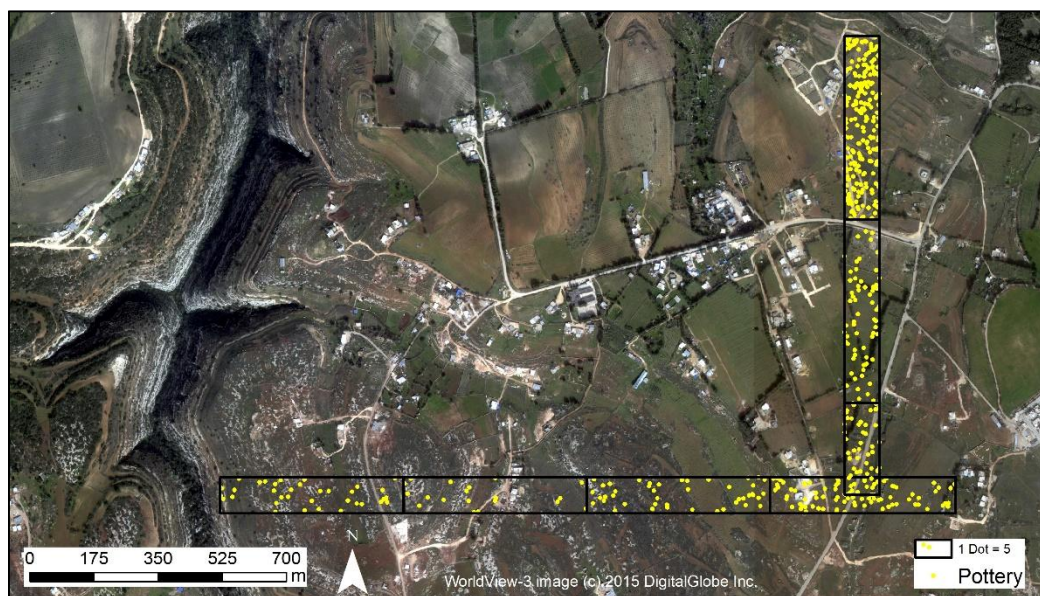


Fig 7.17: Distribution of pottery sherds in Transects 2 and 3.

In the second phase of the CAS field survey, as noted in Section 3.5.3, two circles, each circle with an area of 10 m² with a radius of 1.78 m were chosen randomly within each of the three transects in the areas where the highest densities of pottery sherds were recorded (Fig 7.18). As shown in Table 7.8, each circle was then given a code according to its location within each transect; for example, C01T1 is circle number 01 in Transect 1, and so on. While pottery sherds were recorded in all the chosen areas, small slag pieces were found only in T2 with 4 pieces and T3 with 6 pieces, whereas no slag was recorded from T1.

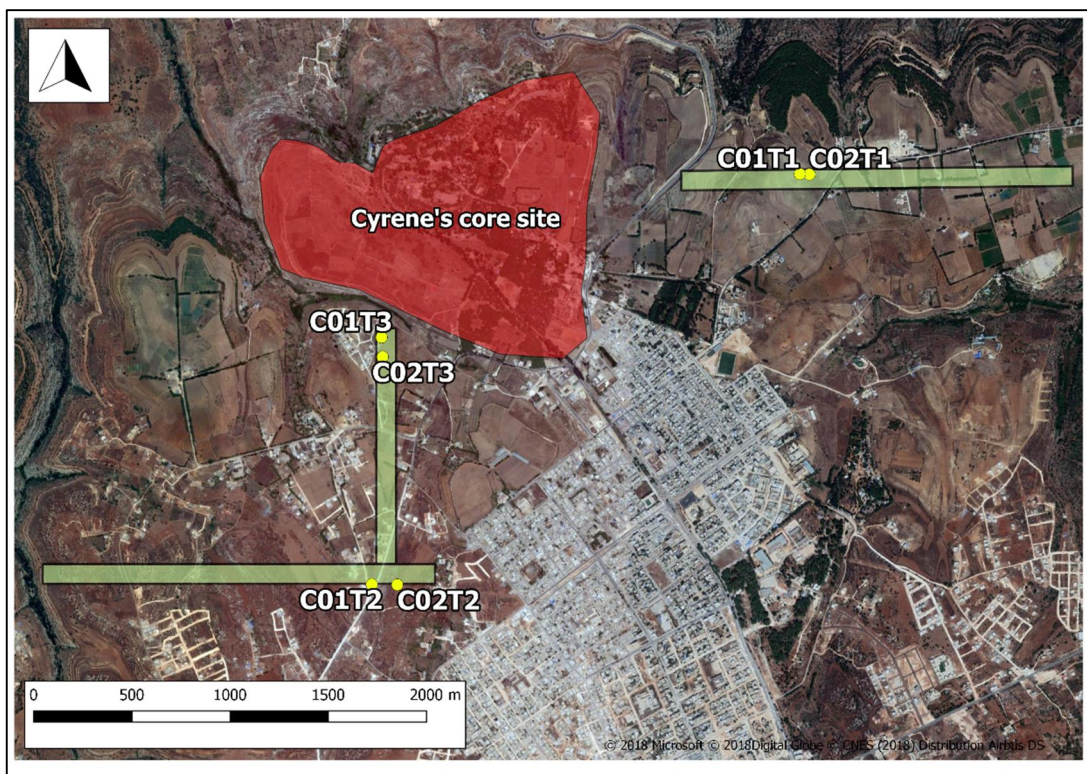


Fig 7.18: Locations of the highest densities of pottery sherds in the three transects.

Some chosen areas of the three transects, particularly in T2 and T3, were negatively affected by the construction of new private houses, walls and other buildings still under construction. Consequently, it was not possible to collect surface samples from some of the target areas initially selected, and therefore the survey had to be carried out in other adjoining areas which had lower densities of sherds.

<i>Category</i>	<i>C01T1</i>	<i>C02T1</i>	<i>C01T2</i>	<i>C02T2</i>	<i>C01T3</i>	<i>C02T3</i>	<i>Total</i>
<i>Number of surface finds</i>	13	14	20	29	17	26	123
<i>Weight</i>	0.400 kg	0.290 kg	0.700 kg	0.800 kg	1.300 kg	0.800 kg	4.290 kg
<i>Coarse pottery</i>	9	9	16	19	12	14	80
<i>Fine pottery</i>	3	5	3	6	4	5	26
<i>Handle</i>	1	1	3	3	3	4	15
<i>Foot</i>	-	-	-	-	2	1	3
<i>Lip/Neck</i>	2	2	1	-	3	3	11
<i>Shoulder/Body</i>	10	11	15	20	7	9	72
<i>Slag</i>	-	-	-	4	-	6	10
<i>Pottery Waster</i>	1?	-	1?	-	1?	1?	4?
<i>Total number of materials</i>							344

Table 7.8: Types of materials collected from the six circles of the three transects.

In general terms, the relatively small amount of pottery collected in my CAS survey is not classified and not enough to offer dates for the finds. Furthermore the evidence from my survey collection is not overwhelming as the densities of the ceramic materials from the total collection units seem comparatively low. There is no doubt that this could lower the possibility of the existence of kilns and pottery production at Cyrene. However, a further application of systematic collection could yet prove their existence in future study. Even though not conclusive, my combined survey evidence does suggest that there was some local pottery production at Cyrene and that intensive survey may be able to locate it within the suburbs of the city.

7.4.2 Slag

Slag is a by-product that usually contains a mixture of metal resulting from the smelting process. At least 13 small metallic objects were found during the CAS of the study area (Fig 7.19). These pieces of slag might be related to a metal-working workshop that could have operated somewhere within or around Cyrene's core site. However, it is unknown what type of metal production they relate to.

No furnaces have been found in Cyrene or its suburbs up to this date, and the number of metal materials recorded in the survey is small. However, since these metal pieces were found only in Transects 2 and 3 (see Fig 7.20), this may be seen as encouragement to conduct additional field surveys to investigate the possible presence of ancient metalworking, especially in the western and south-western areas of the ancient site of Cyrene where the samples were found.



Fig 7.19: Slag found at the survey area around Cyrene.

As with pottery production, it is inherently probable that a city of Cyrene's size was a centre of metal-working activity. The few scattered finds recorded in my survey may provide clues to the locations of activity in parts of the city's suburban zone. However, further intensive survey work is needed to demonstrate this conclusively. My preliminary

survey work has at least shown the potential of this sort of survey to help identify metalworking activity.

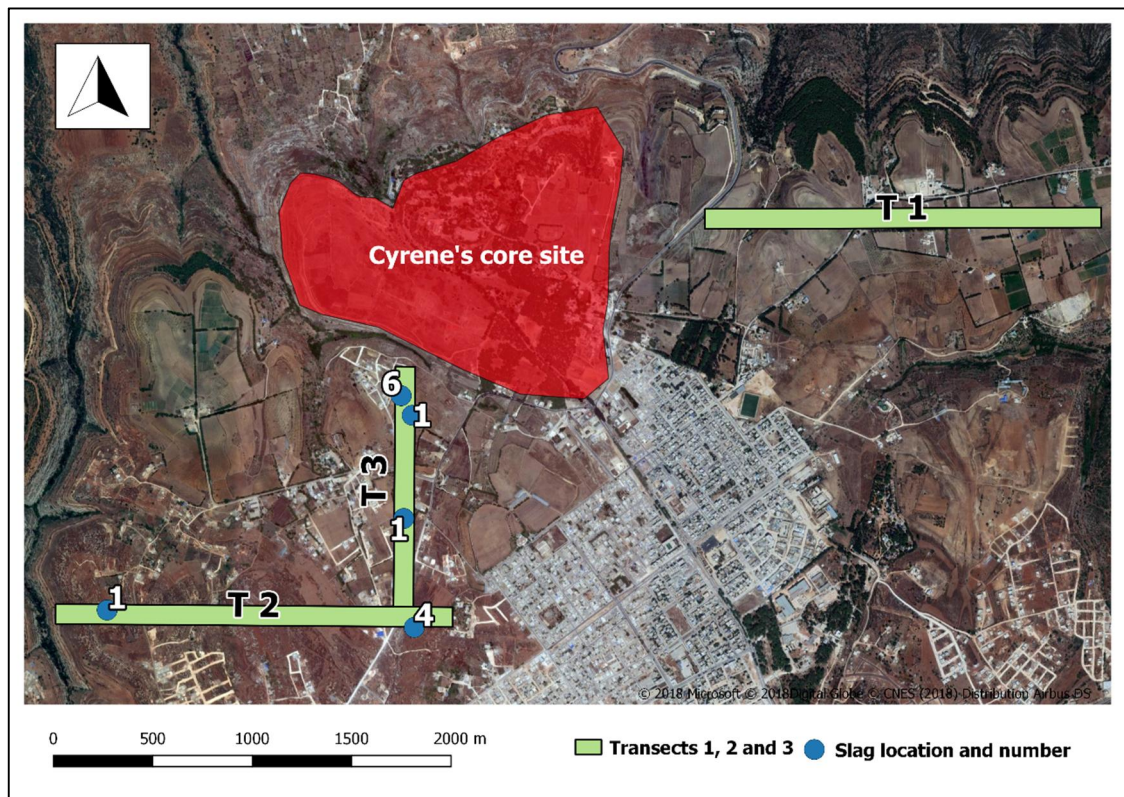


Fig 7.20: Distribution of slag pieces found at the survey area.

7.5 Discussion on Local Pottery Types and Chronology

Considerable quantities of Greek and Roman pottery in Cyrenaica have come to light as a result of archaeological studies and systematic excavations (Riley 1979a; 1979b; Kenrick 1985b; Dore 1986; Wilson et al. 2005; Göransson 2007; Hulin et al. 2009). This has highlighted the importance of pottery for providing chronological information, and also partly helped to improve our understanding of the core economic activities of Cyrenaica and the region's historical commercial relationships with other territories.

There is as yet no evidence for a pottery factory in Cyrenaica during the Greek Archaic and Classical times (Göransson 2007). These goods were imported during these periods from the eastern and western Mediterranean, mainly from Athens, Asia Minor, Italy, Spain, Sicily, Tripolitania, Tunisia and other areas (Riley 1979b; Kenrick 1985b;

Elrashedy 2002). From Hellenistic and Roman times, various types of fine and coarse pottery were produced in Cyrenaica primarily to fulfil the demands of the local markets. In particular this includes certain types of transport amphorae, liquid containers (*dolia*), cooking wares, in addition to lamps (Riley 1979b, 112-236).

For example, the ancient sites of Benghazi (Berenice and Euesperides) produced pottery products dated from the late Hellenistic to the late Roman eras (Kenrick 1985b; Lloyd 1989, 84; Dore 1986, 165-8). A considerable number of coarse pottery objects, finewares, wasters and lamps were found during excavations at the site of Sidi Khrebish in Benghazi. Moreover, several types of amphorae dated from Hellenistic to late Roman times come from Berenice and Euesperides (Riley 1979b, 91-467). It is thought that a relatively high number of the ceramics recorded during these excavations were produced locally.

In Hadrianopolis, a high density of pottery sherds and wasters was recorded at the site previously mentioned, which was identified as a kiln, confirming that pottery was produced locally in the area, possibly during the Mid-Roman period (Jones and Little 1971a, 64). In addition, the discovery of four pottery kilns at Ptolemais suggests strongly Mid-Roman pottery production was an important activity at the city (Nowakowski et al. 2011, 9-30). Furthermore, at least 12,000 pottery sherds and lamps were found at the ancient site of Tocra, in addition to a number of finewares including four rim fragments of African Red Slip Ware. These materials are believed to be dated mostly from the middle of the first century AD to the fourth century AD (Riley 1983, 238-46; 1980a, 53-64; 1980b, 74; 1974, 25-6; Wright 1963, 28, 30).

A group of ceramics were also discovered in Apollonia in 1978 by the French archaeological mission, and were studied by Davesne and Garlan (1987, 199-226). According to their results, this collection dated probably to the end of the fourth century AD, and was most likely produced locally based on its similarity to the local fabric.

Such finds confirm that pottery production was widely known in the province especially in Hellenistic and Roman times and that this activity was mostly located in the

suburbs of the cities. However, pottery production also occurred in several smaller towns and suburban sites especially along the coastline. For instance, some types of local amphorae were produced at the sites of the Cap of Phycus, Aptouchou and Mahel Mael, located on the coast between Apollonia and Ptolemais. The kilns (Table 7.9) discovered at these sites most likely produced two types of Cyrenaican amphorae: the mid-Roman Amphora 1 and mid-Roman Amphora 8 (Hesein 2015, 178-80).

Pottery sherds at the ancient site of Erythron (now Latrun) about 25 km east of Apollonia seem compatible with local production. In addition, the high volume of rubbish, including large quantities of fineware, coarseware and lamps confirms that these kinds of pottery were produced at Latrun, such as the mid-Roman Amphora 1 which formed a full 88% of the rubbish deposit (Mazou and Capelli 2011, 73-6).

A high density of pottery sherds has been encountered in several sites in the eastern part of Cyrenaica (Marmarica), especially in the area between Kambut and Marsa Lukk (c. 55 and 70 km to the east of Tobruk). The recorded materials were slightly mixed chronologically from the early to the late Roman period (the 5th–6th century AD), and are a mixture of fine and coarsewares, including Cypriot, African Red Slip Ware, Mid-Roman Amphora 1, in addition to some fragments of later glazed Islamic jars (Hulin et al. 2009, 183-4).

<i>Ancient Site Name</i>	<i>Cooking wares</i>	<i>Fine Pottery</i>	<i>Wasters</i>	<i>Lamps</i>	<i>Terracottas</i>	<i>Amphorae</i>	<i>Date</i>
<i>Berenice and Euesperides</i>	√	√	√	√		√	H-LR
<i>Hadrianopolis</i>	√		√				MR
<i>Taucheira</i>	√	√	√	√		√	ER-LR
<i>Ptolemais</i>	√	√	√				MR
<i>Phycus, Aptouchou and Mahel Mael</i>	√		√			√	MR
<i>Apollonia</i>					√		LR
<i>Latrun</i>	√	√	√	√		√	MR
<i>Marmarica</i>	√	√	√			√	MR-LR

Table 7.9: Types of pottery products made in Cyrenaica.

H: Hellenistic (4th to late 1st century BC); ER: Early Roman (late 1st century BC to late 1st century AD); MR: Mid Roman (early 2nd to late 3rd century AD); LR: Late Roman (4th to 7th century AD).

The discovery of pottery kilns in most cities of the region, as mentioned above, along with the similarity of the pottery fabrics identified in coarse pottery and some kinds of fineware, strongly suggests that they were produced locally. However, these products were generally made of poor-quality fabrics (mostly shell-rich and lime-rich fabrics) (Riley 1979a, 38), implying mass-production and low cost availability for consumers.

There is no doubt that the discovery of pottery kilns at most Cyrenaican cities confirms that pottery manufacturing took place in the region from at least the Hellenistic era to the late Roman period. In addition to the kilns, several types of local amphorae and

many examples of fine and coarse pottery wares have been found in these sites. Along with the large number of wasters, this proves that pottery was produced in the Cyrenaican region from at least the Hellenistic period at several sites, particularly along the region's coastline.

For example, while mid-Roman 1 amphorae (MRA1) were thought to have been produced mainly in Sicily, the new discovery at Erythron makes it evident that this type of amphora was also produced in Cyrenaica. This was confirmed after several archaeometric (thin section) analyses were conducted on samples from the site (Mazou and Capelli 2011, 73). Noticeably, most of the pottery kilns uncovered in Cyrenaica were located at the coastal cities, manufacturing various types of transport amphorae. Since the amphorae were essentially used for storing and transporting different liquid and dry products, the coastal position of these sites near to ports surely reflects the use of these products for export purposes.

In Cyrene, during the excavations within the Sanctuary of Demeter, a large number of imported and local fine wares and other objects dating mostly to the Hellenistic and Roman eras have been recorded (Kenrick 1987, 1-13). Among these, at least 16 pieces of fine ware were dated to the Hellenistic era, including plates, bowls, dishes and cups. These wares are believed to have been made in the region due to their poor quality and the fabric of the vessels (Kenrick 1987, 5-6); however, since no evidence has yet confirmed that they were produced in Cyrene, they were most likely made in another Cyrenaican city, possibly Berenice or Taucheira.

Although no pottery kilns have yet been discovered in Cyrene or its suburbs, the relatively high number of pottery sherds found in my own CAS survey transects around the city may suggest the presence of pottery manufacturing here. However, the vast majority of the possible pottery wasters recorded were non-diagnostic pieces which are difficult to identify due to the destructions during the manufacturing process.

It is anomalous that no pottery kilns have been found at Cyrene, given that it was the biggest and most important city in Cyrenaica and was the regional capital during

Greek and Roman times. One can question whether the complete lack of kilns identified at Cyrene is absence of evidence rather than evidence of absence. A pottery manufacturing industry may have operated in the suburban area, where kilns are usually located. However, in the case of Cyrene, as this thesis demonstrates, this area has changed significantly in recent decades because of the rapid extension and development of the new city of Shahat. This has led to comprehensive topographical changes due to deforestation and land reclamation in the surrounding areas. The relative lack of systematic survey of the suburban zone is another factor that has perhaps hindered recovery of evidence of manufacturing activities.

These substantial changes may be the main factors behind the complete disappearance of pottery kilns and many other important archaeological sites, especially those located far from the urban areas. This area would therefore benefit significantly from more field surveys and excavations; such studies could help us to obtain more data and information on this subject, and could, in the future, lead to the discovery of the physical traces of pottery kilns or other conclusive evidence related to pottery manufacturing in the city.

7.7 Quarries

7.7.1 Overview of the quarries at other Cyrenaican cities

The building materials extracted from Cyrenaican quarries are believed to have mainly consisted of Eocene limestone, since the region's geological structure consists of layers of Eocene limestone topped with Oligocene and Miocene limestone (Gimingham and Walton 1954, 507). Sandstone is also found in the Cyrenaican region along the coastline, particularly in the plain of Benghazi and in the southern areas of the province.

Although quarries were mostly located in the suburbs, they were directly related to the urban areas. These quarries served the cities by providing building materials required for different types of buildings located within and around the urban areas. Moreover, since burial places were generally often located outside the walls of the cities, these suburban

quarries could also provide suitable locations for burial places in the form of rock-cut tombs. The quarries located on the escarpments, in particular, were extensively used to cut different types of tombs and burial chambers with facades which were in many cases decorated with some architectural elements.

The quarries of Benghazi provided two types of stones: calcareous limestone and sandstones (Lloyd 1977, 39). The first type of stone was extracted from the inland quarries located in the plain of the city; they are typically heavy, soft and white stones, and were generally used for heavy-duty masonry. The second type was generally used for more delicate work, and its sources are found along the coastal plain of Benghazi.

The sandstones required for ancient buildings in Benghazi came mainly from the quarry near the south of the Hellenistic walls, at the site of Sidi Khrebish (Fig 7.21). The date of the quarry is uncertain, but it is thought to have been in use from around the 3rd century BC (Wilson 2012, 131-4; Göransson 2007). A number of chiselled blocks still exist in the bedrock of this site, awaiting final removal.



Fig 7.21: The quarry of Sidi Khrebish (Lloyd 1977, Plate I).

At Hadrianopolis, two main quarries are known. They would have supplied the city with limestone for construction work during both the Hellenistic and Roman eras, and are located about 1 km south-west of the city's core on the two sides of the road to Benghazi

(Jones and Little 1971b, 62). The largest of the pair is an angular crescent in shape, occupies an area of rising ground on the southern side of the road, and covers an area about 600 sq. m.

The smaller quarry lies at a distance of about 70 m to the north-west of the previous one; it is rhomboidal in shape and had been excavated from above. The quarry was also later used for burial purposes, since four tombs dated to the Hellenistic era were cut into the bedrock on its main sides (Fig 7.22). Greek inscriptions were engraved above the entrances of these tombs; three of them refer to the original occupants, while one relates to the freedmen of the city of Hadrianopolis (Jones and Little 1971b, 62).

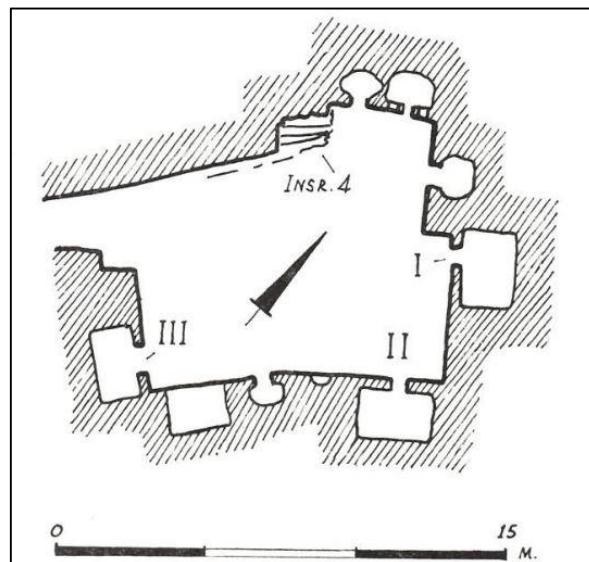


Fig 7.22: Plan of the small quarry at Hadrianopolis (Jones and Little 1971b, 63).

It is noticeable that the quarries of Benghazi and Hadrianopolis were located within or very near to the city walls. Their number was not large and they were concentrated only at certain positions. However, they probably occupied a relatively large area, unlike the quarries of Cyrene which were scattered in many places within and around the urban area and vary in size.

At Taucheira, the quarries lie mainly along the coastline of the Benghazi plain, spreading in consolidated dune deposits to the east and west of the city (Fig 7.23). At

least 30 quarries were found on these two sides and near the ancient city nucleus (Kenrick 2013, 52; Rekowska 2016, 61). These quarries targeted a fine grained stone with minute shell fragments and calcite. They supplied Taucheira with building stone from Classical times (Kenrick 2013, 52). As with quarries in other Cyrenaican cities, rock-cut tombs were also found in most of the quarries of Taucheira, especially those located close to the city walls (Fig 7.24).

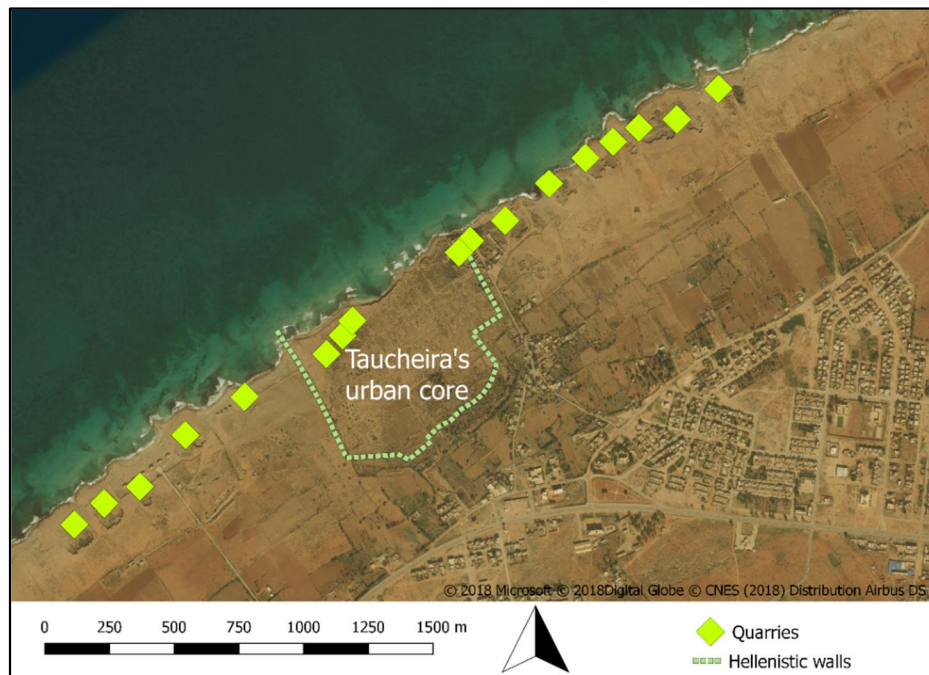


Fig 7.23: The distribution of quarries at Taucheira.



Fig 7.24: A view of a quarry with tombs at Taucheira. (Rekowska 2016, 70).

Four main quarries and a number of smaller ones have been discovered within and around the ancient site of Ptolemais, which would have provided limestone for the city in both Greek and Roman times (Kraeling 1962, 107-15) (Fig 7.25). Most of these quarries were recorded for the first time by Beechey and Beechey (1828, unnumbered page between 404 and 405). The first quarry is located on the northern side of Wadi Ziwanah, and is relatively small and narrow; it appears to have been shallower than the city's other quarries, and it seems that transferring stones from this area was very difficult. The materials from this quarry were therefore likely used first to construct two bridges found in the area (Beechey and Beechey, 379), which will of course have facilitated the process of transporting stone to other places.

The second quarry lies to the west, near the city walls, and is likely to be the city's oldest due to its location close to the harbour, which is thought to have been founded in the sixth century BC (Kraeling 1962, 108). The third quarry lies to the side of a slight eminence in the coastal plain about 1 km west of the city. This quarry is the biggest, and includes one large work area about 500 m long along with several smaller ones. The fourth quarry at Ptolemais lies about 1 km, between the coast and the road to Taucheira. It is worth mentioning that large parts of the last three quarries are now under the sea due to their location close to the beach.

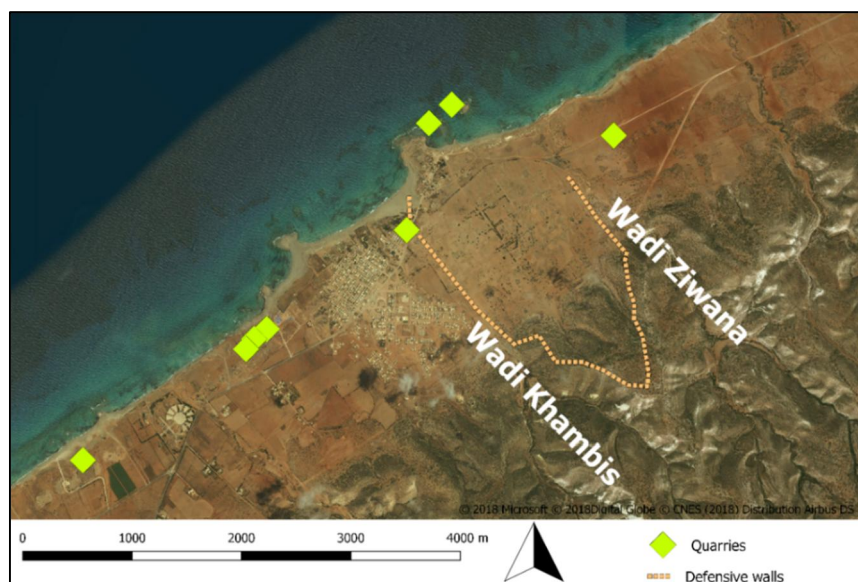


Fig 7.25: The distribution of quarries at Ptolemais.

Although the vast majority of ancient tombs in Ptolemais are located in the plain areas around the city, some tombs were cut into the sides of these quarries, particularly the largest quarry. The facades of some of these tombs imitate the style of Doric temples. For instance, the Tower Tomb (sometimes called the Royal Tomb) is positioned on a cube of solid rock in the largest quarry (Fig 7.26). This massive structure is a square (12 x 12 m, and 14 m high), and possibly dates to the Hellenistic era according to its architectural features (Kraeling 1962, 113; Kenrick 2013, 100-1). A number of Roman tombs were also cut into this quarry during the early Roman imperial period, or slightly later when it became again a source of building materials for construction work in the same period.



Fig 7.26: The large west quarry and the Tower Tomb at Ptolemais (Kraeling 1962, plate xix).

Furthermore, several quarries as well as areas of submerged blocks and rock-cut tanks were discovered during the marine survey carried out in 1972 at the harbour of the Hellenistic city of Ptolemais (Yorke 1972, 3-4; Yorke and Davidson 2017, 1-24). The survey involved a comprehensive underwater visual survey of the whole harbour area, where many structures that formed important parts of the harbour installations have been discovered.

This survey also revealed that the two small islands of Ilus and Islet in the bay to the east of the promontory have obviously been used for extracting stones (Yorke and Davidson 2017, 21). The eastern island (Ilus) shows signs of three small quarries, parts of which are now submerged underwater (Fig 7.27). This island seems devoid of other man-made structures, except for two small cisterns or tanks that contain opus signinum

mortar. This indicates that they had been waterproofed and used for storing liquids. It is most probable that their bases would have been above sea-level in antiquity.



Fig 7.27: A view of a Hellenistic quarry on Ilus (Yorke and Davidson 2017, 57).

The western island (Islet) was connected to the mainland by a wide quay built of ashlar masonry. The remains of what appears to be a small slipway at the north-western end of the quay could have been used to pull smaller boats onto the quay for maintenance. The main use of the headland, however, appears to have been as a large quarry whose stone was used to build the town and harbour. While some commentators have described slipways or shipsheds on the western side of the headland, it has been concluded that these are in fact just rock-cut quarries (Yorke and Davidson 2017, 21).

The sandstone required for construction work in Apollonia came from two main quarries to the east and west of the ancient city, in the area where the ancient cemeteries are also found (Laronde 1985, 95). While the quarries and cemeteries located on the west side of the city are now almost completely covered by modern buildings, those on the eastern side of the city are much better preserved (see A and B on Fig 7.28). The eastern quarries are located on a slightly higher area east and west of the Acropolis, and were formed at the same time as a ditch around the eastern end of the Acropolis (White 1966, 263). However, most of these tombs were probably destroyed during late dating times, when the Byzantines reused their stones as building materials (Goodchild 1981, 117-20).

It is worth mentioning that the tombs of Apollonia are fewer in numbers and types and are different in architectural styles in comparison to the tombs of Cyrene.

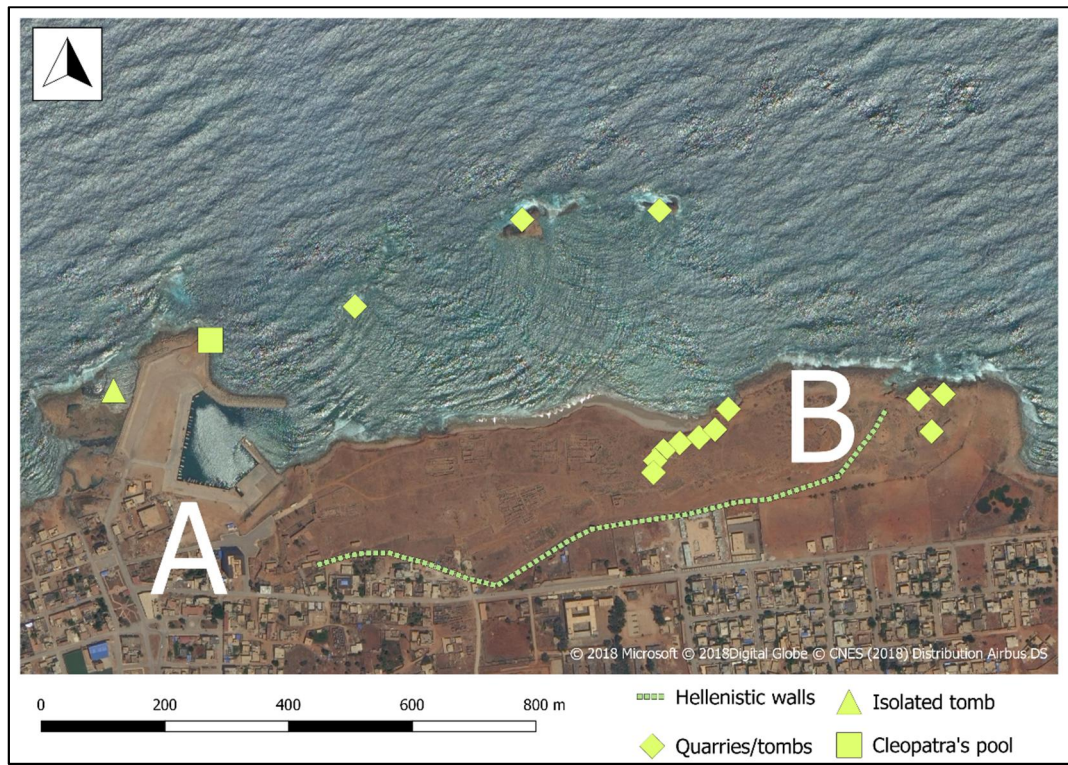


Fig 7.28: The distribution of quarries at Apollonia.

Recent studies and underwater explorations have revealed that a great part of the ancient site of Apollonia has sunk beneath the water, especially the inner port which was probably the original Greek harbour (Pizzinato and Beltrame 2012; Laronde 1996; White 1966; Lauer 1963; Flemming 1961). Several quarries and a number of ancient cuttings of obscure purpose are today completely underwater. This includes the building which was discovered in the south side of the eastern island, in a place which was clearly originally a quarry. Nevertheless, remains of the quarries are still visible in the rocks adjacent to the sea, and also in the two islands located at a distance of about 300 m from the ancient city's site (Pizzinato and Beltrame 2012, 220).

Only a few ancient remains still exist in the north-west side beside the sea, such as the so-called Cleopatra's Pool (locally known as the 'Guliba Pool'). This pool is a type of L-shaped dockyard of 13 m x 6 m, and is surrounded now by water on its east, north and west sides (Pizzinato and Beltrame 2012, 220). It is evident that the pool was

originally a quarry but later served as a slipway for repairing boats (Goodchild 1981, 119). To the north-east of Cleopatra's Pool is another submerged quarry, which occupies an area of about 1000 m² and consists of several regular cuts into the rock forming a rectangular shape. There is also a notable rock-cut chamber standing isolated to the south-west of the previous pool which is surrounded by seawater on all sides. Clearly this rocky chamber was left isolated there after the surrounding rock was quarried away (Laronde 1985, 98).

7.7.2 Quarries at Cyrene

Like tombs, the quarries of Cyrene are scattered across many places and can be found within and around the ancient city. My own field survey around Cyrene recorded at least 45 quarry sites which would have provided limestone to the city at various times (Fig 7.29). These sites varied in size, and some were relatively large since they were sometimes composed of a group of quarries near to each other, whereas others were small or isolated.

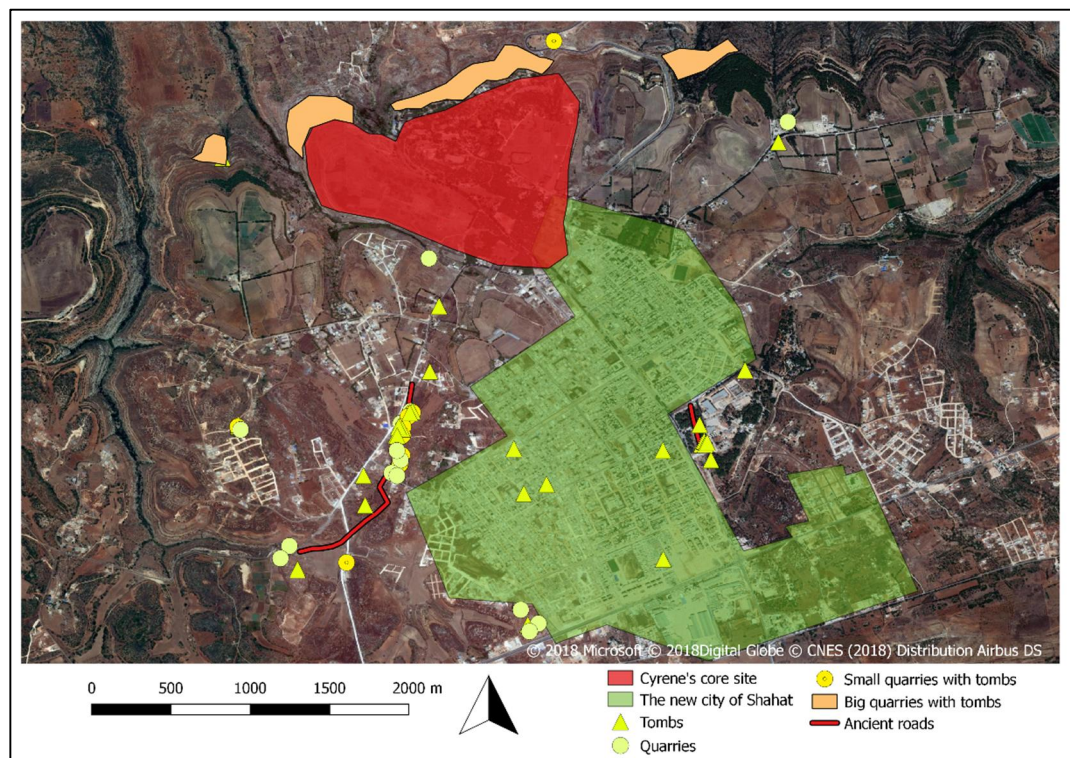


Fig 7.29: Map of Cyrene's quarries.

In some cases, it is difficult to identify whether an area was originally a quarry or a cemetery. However, as with all the other cities of Cyrenaica, abandoned quarries were often used to house many different types of funerary monuments, particularly pits which were left after all the stone had been extracted. These open holes were usually expanded and reused as tombs, as well as exploited for other purposes such as water cisterns. They may also have been used as large vats to store liquid and dry products.

In Cyrene's Northern and Western Necropoleis, in addition to the north-east side of the Eastern cemeteries, sarcophagi and other types of burial chambers were secured by lids and doors of stone (Rowe 1959, 2; Cassels 1955, 10). These heavy slabs have been removed from the surrounding area, because remains of some quarries still exist in the Northern Necropolis, especially along the southern side of the road to Apollonia. Several burial chambers and tomb facades, mostly from the Classical and Hellenistic eras, have also been cut into the bedrock (Cassels 1955, 3).

It seems clear that this area of the Northern Necropolis in particular attests to changes which occurred during Roman times (Cassels 1955, 21; Cherstich 2009, 75-6; 2008, 84). Here the remains of quarrying activity are still visible, which indicates the partial use of the area for quarrying purposes. This was probably carried out by the Romans, possibly for the buildings within the nearby Sanctuary of Apollo.

Although the position of the Southern Necropolis was likely unsuitable for quarrying purposes owing to the topography of its location on flat areas, a significant concentration of quarries is found in this area. The escarpments were more suited for quarrying than flatter locations, because of the need to develop a working face and the ease of extraction of blocks along terraced levels. Furthermore, quarries on the flatter land were relatively small in size and not easy to develop on a large scale. In addition, removing stones from sunken quarries in flat locations will have been much more difficult.

However, most of the quarries in the Southern Necropolis were aligned along the ancient road which facilitated movement of the quarried slabs and stones that were

extracted from both sides of the road. This may be the reason why a larger number of small quarries was found here more than at any other flat area around the city (Fig 7.30). Some of these quarries measured 25 m in length and 10 m in width, while the depth of most of the pits left after the stones had been removed is between 1.50 m and 2.00 m.

The road from Balagrae on this side was cut into the bedrock of previous quarries, which had probably existed since the late sixth century BC (Weld-Blundell 1896, 135; Cherstich 2008, 78) (see F5.001, F5.002, G4.002, G4.003 and I3.001 in the Gazetteer). Furthermore, many of the rock-cut tombs located on the two sides of this road date to the Hellenistic era (Fig 7.31). These were therefore probably designed and dug into the quarries which were already there.

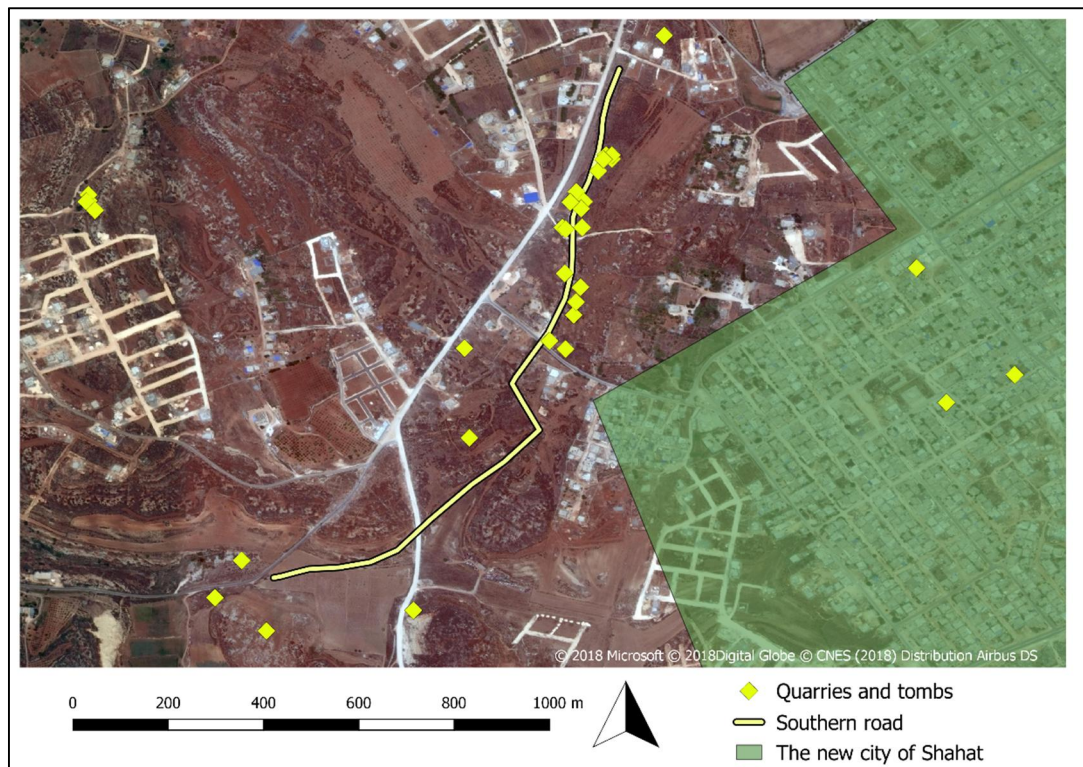


Fig 7.30: Map of the road and quarries in the Southern Necropolis.



Fig 7.31: Quarry with tombs south of Cyrene, looking north-west (Author).

Potentially, the southern quarries supplied building materials for the structures within the Sanctuary of Demeter. Although the relatively large quarry located in front of the southern temple in the sanctuary is thought to have been the main source for building materials, it seems too small to have provided all the stone required for all the construction work within the sanctuary (Cherstich 2008, 78). However, the quarry in which Theatre 5 stands also produced building materials for the sanctuary; this theatre, which is located within the sanctuary zone, most likely was an extremely significant source for stone slabs.



Fig 7.32: A view of a small quarry south-west of Cyrene, looking west (Author).

On the eastern side of Cyrene, especially within the area called the Katiba, several archaeological sites including quarries, different types of tombs, farms, water cisterns and other monuments were found and are still well preserved (for more details about these sites see Chapters 4 and 6).

The best example of quarries east of Cyrene could be those located on the eastern and western sides of the ancient road within the Katiba. The eastern quarry seems to have been transformed into a large courtyard tomb which measured 10 x 7 m after the stones were used to build a mausoleum dating to the Late Roman era (G8.005 in the Gazetteer); its south-east corner is directly linked with the northern side of the quarry (Archive UniCh) (Fig 7.33). The western quarry in this area dates possibly to the Hellenistic period. Several grooves from cut are still visible, along with the remains of some of the quarrying blocks (Fig 7.34).



Fig 7.33: A view of the quarry within the Katiba which was converted into a large courtyard tomb, looking east (Author).



Fig 7.34: A view of the Hellenistic quarry (AR UniCh).

The south-east side of Cyrene was less suitable for quarrying due to the lack of exposed bedrock. Consequently, more built tomb types occur there than tombs of the rock-cut kind, as previously mentioned (see the Southern Necropolis in Chapter 4, Section 4.3.3). Most of this area today is covered by new buildings, which has led to the destruction and disappearance of many archaeological sites.

7.7.3 Discussion

The local quarries have clearly been used to house different types of tombs in Cyrenaica as seen in most of the quarries of the region. The sites of the large abandoned quarries were probably reused for other purposes which required a large space. It can be assumed that the site of the Greek Theatre in Cyrene started as a large quarry in the city's early period. The quarry in which this theatre stands has produced building materials, most likely for the monuments situated in the neighbouring Sanctuary of Apollo. Only a small portion of the theatre was built, and instead most of the tiers of the early seats have been carved into the bedrock (Stucchi 1975, 36; Goodchild 1971, 125). Some of these seats, particularly on the eastern side, were completely built since they could not be formed in the quarry itself.

The slopes of the wadis on the lower escarpment of Cyrene very much facilitated the cutting of burial chambers and tomb facades. However, there is no doubt that the stones were extremely heavy, and transferring the stones to the upper areas would have been a significant challenge. The mountainous topography of the site of Cyrene played a key role in choosing the site of the quarries in both Greek and Roman times. On the other hand, it seems clear that the Romans took advantage of the exposed bedrock in some flatter areas, particularly on the south side of the city which boasts a higher concentration of quarries.

The quarries served the cities mainly by providing blocks for different types of public and private buildings. However, the stones were also involved in several economic and manufacturing activities. For instance, the elements of wine and olive presses were cut into the rock, and most of the moving elements in these installations were made of stone, particularly in the olive presses. In addition, different sizes of slabs were used in the construction of aqueducts and water cisterns. Some ancient roads, especially in Roman times, were constructed and paved using a thick layer containing pieces of stone mixed with mud and other materials.

It is noted from the location of the quarries around the cities of Cyrenaica, especially at Cyrene, that they mostly lay near ancient roads. This was probably due to the mountainous location of Cyrene which makes transferring stone much more difficult. In some cases, if a potential quarry was positioned in a difficult location, a road to that site was constructed from the outset, as previously mentioned in the case of Ptolemais, where some of the quarried slabs from the northern side of the city were firstly used to build bridges in that area to facilitate transferring the materials from the quarry to other places.

No doubt the removal of the required stones from their original locations and transporting them to their destinations demanded much labour. The traces of chiselling still visible on the quarries reflect the great effort needed to extract these stones. Linking the quarries to the roads thus undoubtedly facilitated the process of transferring the stones from their original location to their destinations. However, unlike Cyrene and Ptolemais, the positioning of Benghazi, Hadrianopolis and Taucheira in flat land helped the process of transferring stones. The quarries at these cities were also aligned along the coastline. Therefore, roads were most likely needed to be constructed to connect the quarries with the required destinations either within or around the cities.

Combined, the above evidence- from ceramics to metal to stone quarries- add much to our understanding of suburban spaces as important productive zones in Cyrenaica, exploited and adapted from Greek classical times onward. My data are not substantial, but sufficient to highlight the need for future study of these productive spaces and the products themselves to better understand suburban activity.

Chapter 8 - Urban Infrastructure

8.1 Introduction

Water supply was key to the functioning of cities in the classical world. In this chapter, I examine water supply systems and road networks in Cyrenaica during both the Greek and Roman eras, but also look to other city infrastructure, namely the defensive walls of ancient Cyrene. Section 8.2 deals with water supply system, first providing some general information on water supply systems in Cyrenaica's other cities in Greek and Roman times (Section 8.2.1), before describing aqueducts and types of water cisterns around Cyrene in Section 8.2.2. This section explains how water was stored and delivered to the city of Cyrene in both Greek and Roman eras.

Section 8.3 is devoted to Greek and Roman roads. It investigates the ancient Greek and Roman road network across Cyrenaica (Section 8.3.2) and explores roads and their possible routes around Cyrene (Section 8.3.3). Section 8.4 inspects the remains of the defensive walls around Cyrene and provides an overview of how the urban core of the city grew up through time. The final section offers a wider discussion on water distribution in Cyrene in the Greek era (Section 8.5.1) and how water supply system developed through time in Cyrene, particularly under the Romans (Section 8.5.2).

8.2 Water Supply

8.2.1 Water supply systems in Greco-Roman Cyrenaica

During Greek times the Cyrenaican cities received their water mainly from natural springs and rainwater, especially in winter (Gregory 1916, 334). Water was transferred from the springs via channels built or cut into the rock to different areas and buildings in the cities. This accounts for most of the cities being founded near or around natural water resources. For instance, the Ain Shahat or the Fountain of Apollo is one of the chief springs in Cyrenaica and was a fundamental water resource at Cyrene, this was particularly vital for the Sanctuary of Apollo.

Apart from springs and rainwater, the region of Cyrenaica had no permanent water sources. The area contains no rivers, and its water supply in ancient times was most likely scanty (Goodchild 1968b, 23). One can therefore assume that water was collected and stored primarily to fulfil essential needs during the Greek period in Cyrenaica, notably a reliable and regular supply of fresh drinking water, manufacturing activities such as pottery manufacturing and olive oil and wine production, in addition to religious rites that required the use of water.

Cyrenaica's water supply system received more attention with the rise of the Roman Empire (Gregory 1916, 322). Several studies have been conducted on this, especially on the aqueducts of Berenice, Hadrianopolis and Ptolemais (Lloyd and Lewis 1977, 36; Jones and Little 1971b; Arthur 1973; Fadel 1997). For example, in Berenice there was a channel aqueduct dating probably to the Augustan period which consisted of a central mortar channel with a flattened U-shape carried between two parallel walls of roughly hewn blocks. The channel's maximum preserved dimensions were 20 x 20 cm, and its daily discharge rate was 3,136,802 litres at full flow.

The Hadrianopolis aqueduct was probably constructed to serve the newly founded city. This was smaller than the example at Berenice, with channel dimensions of 12 x 12 cm, although both were similar in structure (Jones and Little 1971b, 53-9). The aqueduct at Ptolemais was the largest of the three, with channel maximum dimensions of 35 x 40 cm. However, its date of construction is not exactly known, although the large storage tank into which it flowed has been dated to the early Roman period (Arthur 1973, 7-8; Lloyd and Lewis 1977, 36). In addition to the aqueducts, some studies and excavations of Roman townhouses at Berenice and Ptolemais have found that these contained at least one water cistern, and sometimes two in large houses. Such rock-cut cisterns were used to collect rainwater from roofs and courtyards (Lloyd and Lewis 1977, 38; Ward-Perkins et al. 1986, 118).

8.2.2 Aqueducts and water cisterns at Cyrene and its environs

8.2.2.1 Aqueducts

To the south of Cyrene's urban core are the remains of a ruined Roman aqueduct. This extended from the south and carried water to the city's huge reservoirs from a number of cisterns in the area known as Safsaf, c. 9 km south-east of Cyrene. The cisterns of Safsaf measure 350 m in length, 5 m height, and 5.50 m in width, with openings in their tops for ventilation (see Figs 8.1 and 8.2). They have a capacity of more than 10,000 m³ of water (Fadel 1997, 190), and would have provided c. 4.5 litres a day for three months to 15,000 people (Gregory 1916, 327).

Stucchi (1975, 484-5) argued that the cisterns of Safsaf were possibly only used to irrigate and supply the area surrounding Safsaf itself, and not to provide water to Cyrene's reservoirs. But Fadel (1997, 190) questioned Stucchi's opinion using a variety of evidence. He stated that most of the water collected by these cisterns came from an area known as Agabis (now al-Qaieqab), located c. 20 km to the south of Cyrene; he added that this area and its surroundings contained crucial water resources, and that it was chosen to supply Cyrene due to the high amount of water available from neighbouring catchments, especially during the winter.



Fig 8.1: The known cisterns of Safsaf (Author).



Fig 8.2: A general view of the cisterns of Safsaf, looking north-west (Author).

The natural slopes in these areas helped collect the water into the reservoirs of Safsaf. The water from these reservoirs and from a number of cisterns which had been dug in a limestone hill at Safsaf was transferred by aqueduct to a similar cistern complex at Cyrene, which then supplied the city. Remains of this channel, which was cut into the rock, can still be traced in several places in the area between these reservoirs (Fig 8.3), while many parts of the channel were destroyed and/or are buried under the modern buildings. The high location of Agabis and the feasibility of flow from Safsaf helped the water to flow to Cyrene via gravity.

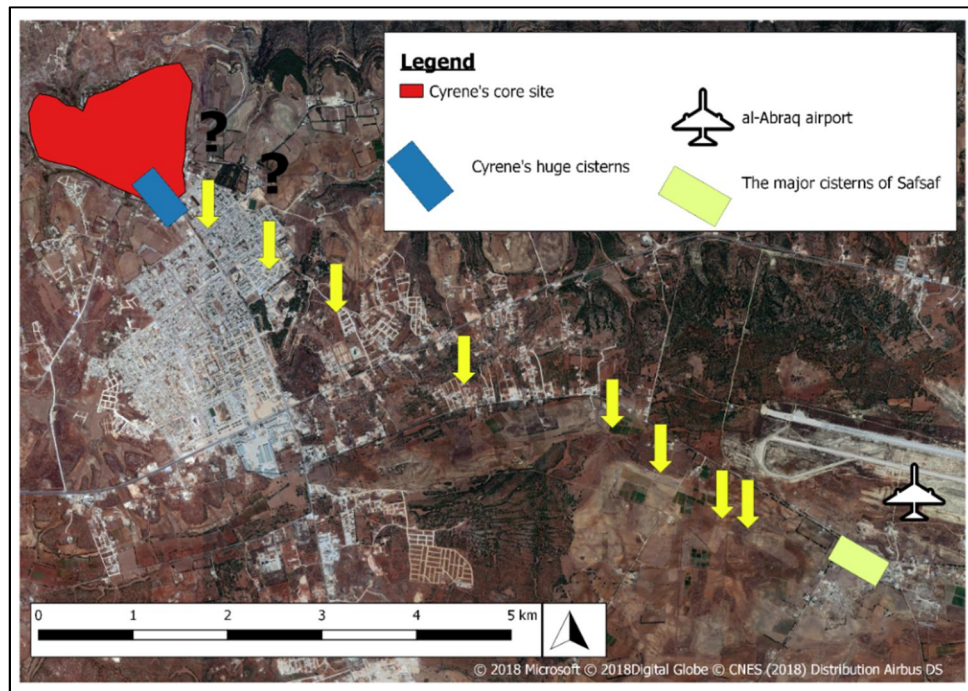


Fig 8.3: The course of the aqueduct between the cisterns of Safsaf and Cyrene (Author).

8.2.2.2 Water cisterns

Cyrene's cisterns can be classified into three main types. The first is a set of major tanks of public cisterns with barrel-vaulted roofs. In addition to the Safsaf example, the only prominent examples of this type in Cyrene are the big cisterns in the south-eastern part of the city (For their location see D6.002 in the Gazetteer). A total of seven oblong cisterns were built in this area. Six of them are located beside each other aligned east-west and one north-south (Rekowska 2016, 132-33), though only two can be clearly seen today, both with barrel-vaulted roofs (Fig 8.4). The other cisterns can only be traced by the foundations of their walls (see Fig 8.5). The existing parts of the two vaulted cisterns and traces of the ruined parts reveal that each one of the seven cisterns was about 65.50 m in length and 7.20 m in width.

It is estimated that these cisterns had a capacity of 6.8 million litres, and provided roughly 45.47 litres per head per day for three months to 18,000 people (Gregory 1916, 327; Stucchi 1975, 484). However, the amount of water used per person cannot be reliably estimated, and at the same time aqueduct capacity is not the key to calculating the

population size of a Roman-period city (Lloyd and Lewis 1977, 39; Duncan-Jones 1978, 51).



Fig 8.4: A view of the two huge cisterns south-west of Cyrene, looking south (Author).

These cisterns were part of a huge complex enclosed by a wall. The complex was trapezoidal in plan and its sides measured W: 120 m; E: 108 m; S: 175 m; N: 180 m (Fig 8.5). It seems that its plan was dictated by the lie of the land and the need to adapt the structure to the existing city walls, which were built in the third century BC (Rekowska 2016, 133; Stucchi 1975, 137). The location of this huge complex outside the city walls suggests that it was a caravanserai, a place where visiting merchants could make camp and gather together their travelling parties and beasts of burden before entering the main gate of the city (Rekowska 2016, 133; Kenrick 2013, 153).



Fig 8.5: Seven large cisterns and the huge complex south-east of Cyrene.

The second main kind of cistern found at Cyrene is the rock-cut type with no specific shape. The third type is open-air, sunk into the ground and generally rectangular in shape (Cherstich 2009, 225).

The second type can also be split into two sub-groups. The first sub-group were often cut at the mouth of the wadi, had flat roofs supported by rock-cut pillars, and possessed interior walls coated with a layer of waterproof material (Fig 8.6). Typically, these cisterns are 3.50 x 2.80 m and 3.10 m in depth, and while they are not associated with public buildings or individual houses they are spread through the suburbs sporadically.

The second sub-group of the second type includes underground cisterns with relatively narrow openings, possibly intended to reduce water evaporation (Fig 8.7). The cisterns of this type, which formed the majority of the second type, were dug either in the wadis or slopes to collect and store rainwater. Some were associated with different buildings such as private houses, qsur, fortified farms, churches, and other to collect water from their roofs and courtyards. These cisterns were typically 3.50 x 1.80 m and 2.50 m

in depth, and most of them in fact continue to be used by the modern landowners for their original purpose.



Fig 8.6: A view of the first type of rock-cut cistern, looking north (Author).



Fig 8.7: A view of the second type of rock-cut cistern with a narrow opening (Author).

The cistern located during my CAS survey in the area of the Katiba is a good example of an open-air cistern, or the third main type of cisterns (Fig 8.8). It measures 5.50 x 4.80 m and 3.00 m in depth. The four internal sides of this cistern were built-up

courses of stone slabs covered by a thick layer of waterproof material. The outer borders were also regularised by at least one course of slabs. Several steps were cut at the south-western corner, and these may have used to inspect and clean the cistern. This type of cistern appears linked to several different types of private and public buildings, including houses, qsur or fortified buildings, and churches.



Fig 8.8: A view of the open-air cistern type, looking north (Author).

These water cisterns were especially useful during the period of profuse rainfall in the winter, from the wadis, springs, as well as from the roofs of the different buildings (Gregory 1916, 327). If the winter flows were stored then more use could be made of the water in the summer, but the total amount of water from all these resources was most likely not enough to supply the needs of extensive irrigation.

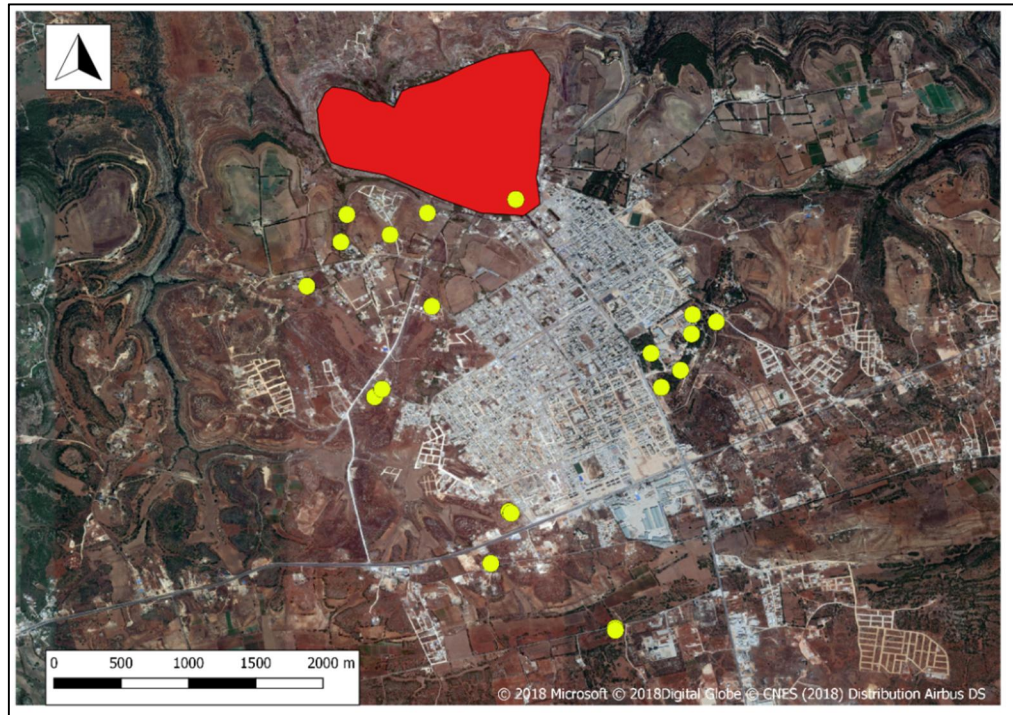


Fig 8.9: Distribution of water cisterns around Cyrene.

8.3 Greek and Roman Roads

8.3.1 Introduction

Ancient Greek and Roman roads were primarily constructed to connect the principal cities in every province, as well as the forts and defensive castles around the cities (Salama 1951, 38-9; Goodchild 1968c, 155). These roads served a variety of military, civilian and commercial purposes, such as efficiently transferring news and reports in addition to the delivery of administrative and military orders. The Romans had the greatest foresight in this respect, and spent more energy on constructing and maintaining roads than the Greeks (Pritchett 1980, 151).

Two crucial Roman road itineraries have survived which cover the whole area of North Africa (Salama 1951, 15-6; Laronde 1987, 261). The first is the Antonine Itinerary, which dates to the era of Emperor Caracalla, the eldest son of Septimius Severus, who ruled from AD 211 to 217. This itinerary consists of a list of roads and road-stations, and shows the distance between different places (Bagshawe 1979, 18). The second is the so-called Peutinger Map, which was first discovered and published by the German scholar

Konrad Peutinger (1465-1547) (Bagshawe 1979, 18; Albu 2014, 1). This map, now housed in the Austrian National Library in Vienna, has a total length of 6.80 m and a height of just over 0.34 m. It is a schematic map of the Roman Empire which depicts towns, seas, rivers, forests, mountain ranges and about 115,000 km of roads (Pritchett 1980, 197; Albu 2014, 4), although with significant geographic/spatial distortion. Distances between many places along the roads were also recorded.

The Romans placed milestone columns on the side of the roads, in theory at each Roman mile (1.482 m) (Goodchild 1950, 83-91; 1953, 66-75). These bore inscriptions providing information about the distance to the next important city as well as specific points along the roads. They also served to record and promote the name of the emperor who created or renewed the road. Milestones were normally made from local stones, measuring approximately 2.50 m in height and 0.65 m diameter. They possessed cubical bases intended to be sunk deep into the ground to give the columns greater stability (Goodchild 1968c, 156).

8.3.2 Greek and Roman roads in Cyrenaica

Archaeological traces of many of the Greek and Roman roads in Cyrenaica have been recorded and described by a number of travellers and scholars. These individuals have left vital information about the roads that they encountered on their way around the region (Beechey and Beechey 1828, 422, 447, 489-490; Weld-Blundell 1896, 135; Gregory, 1916, 322; Goodchild 1968c, 155-71; Mattingly 2000, 558-69).

The majority of main roads in Cyrenaica were originally created during the Greek period, and were primarily intended to link the cities between Berenice (Benghazi) and Darnis (Derna). The Romans generally reused these roads but likely added several other roads and minor routes to link the major roads and to approach a number of new sites. Most of these roads outside the cities were not paved, although some can be identified by wheel ruts where they crossed over areas of exposed bedrock.

The most important road in Cyrenaica in the Greek period can still be traced between Berenice and Cyrene, and which linked the five main cities of the region (Fig 8.10). After Ptolemais (Tolmaita), this coastal road curved inland because of the interruption of the edge of the Jabal al Akhdar (Mattingly 2000, 559); it then ran eastward to Cyrene, after passing through a number of sites such as Messa and Balagrae (al-Bayda) (Goodchild 1950, 83).

Another major road ran northward to Apollonia, since communications were vital, especially between Cyrene and its port. This road was about 20 km long and built originally in Greek times. However, it was greatly damaged, particularly as a result of the impact of heavy rains and torrents in the winter (Goodchild, 1968c, 163). A number of milestones were found along this road, some bearing inscriptions that record a first rebuilding of the road during Roman times in the reign of Claudius I (Roman emperor from AD 41 to 54) (Goodchild 1950, 89). It would later be reconstructed again under Trajan, by soldiers of a military cohort in AD 100 (SEG IX, 251). An inscription engraved on a road milestone records that the road was repaired one more time in AD 118 in Hadrian's era (Goodchild 1950, 86; Smallwood 2001, 410; Walker 2002, 48) (Fig 8.11); this happened after this important road was greatly damaged in the Jewish revolt of AD 115.

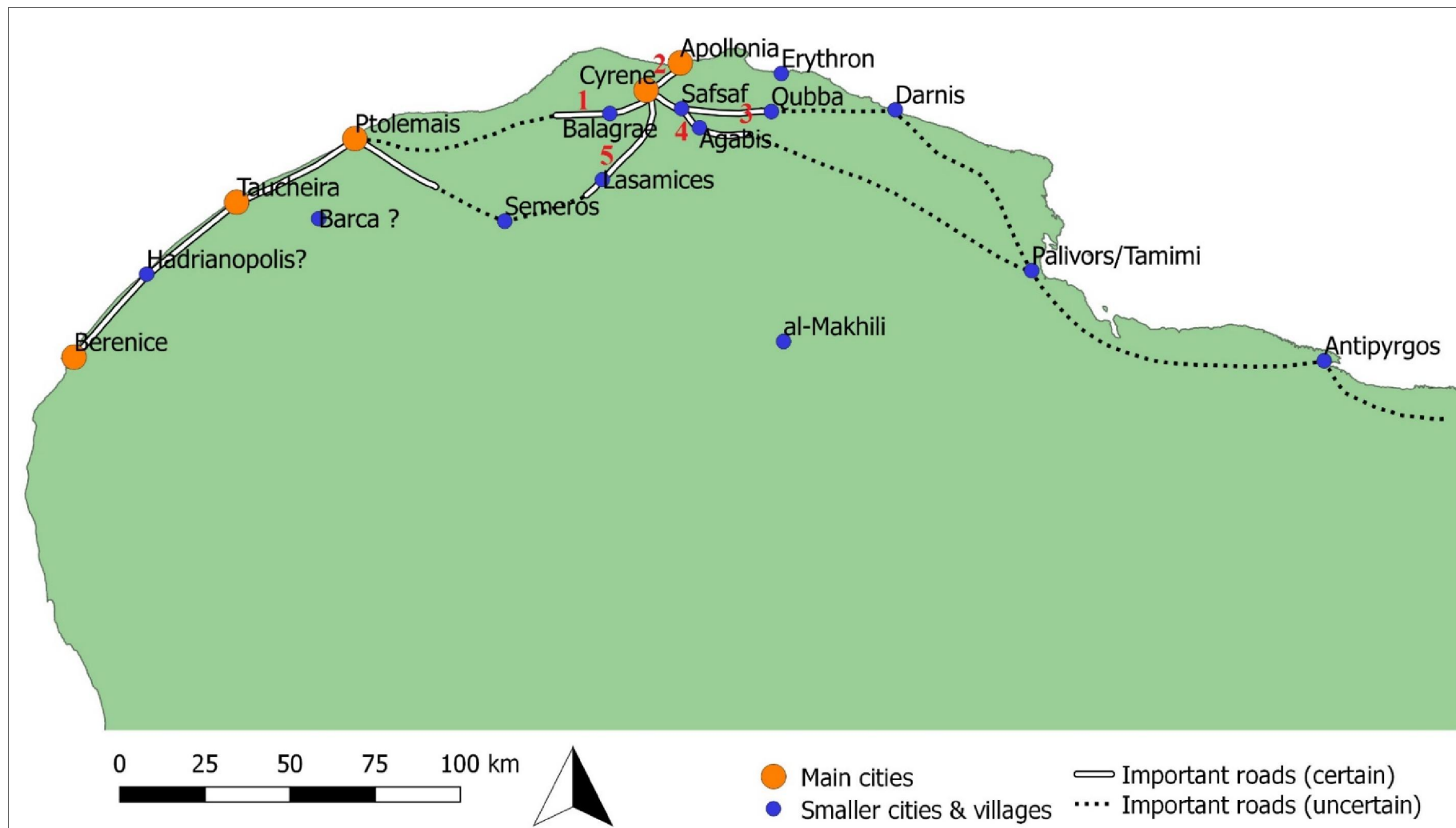


Fig 8.10: A map of the major Greek and Roman roads in Cyrenaica shown on Goodchild's map (1968b, 29).



Fig 8.11: A milestone recording repairs to the Apollonian road in Hadrian's reign (Abdrbba 2007, 271).

8.3.3 Greek and Roman roads in the urban periphery of Cyrene

Five major roads have been recorded leading towards or away from Cyrene (see nos. 1, 2, 3, 4 and 5 on Fig 8.10). These roads most likely had some minor branches and were connected to the region's main roads, making Cyrene an important part of the road network. In addition to the two previously-mentioned roads from Cyrene to Balagrae and Apollonia, there were three major roads (3, 4 and 5) which extended from Cyrene to the south, south-west and south-east.

The third road appears in the Antonine Itinerary. It ran eastwards, passing Limnias (Lamluda) and Derna, and possibly extending as a minor route to *Paliuros* (Tamimi c. 120 km south-east Cyrene) in the area known as the Gulf of Bomba (Goodchild 1968c, 163). This road is thought to have linked to minor route extending south-east to Tobruk and then further to the south, making it a desert route serving the oases of Jaghub and Melfa and then Siwa (the famous site of the Oracle of Ammon). However, any traces of

this possible road have disappeared, and no milestones have yet been found on its long course.

The fourth road ran through Safsaf to Agabis, and is recorded on the Peutinger Map. This road most likely also extended east of *Paliuros* (Tamimi) on the coast to *Antipyrgos* (Tobruk), and then to Alexandria after passing *Paraetonium* (Marsa Matruh). The fifth road ran south from Cyrene, and then possibly south-west to Ptolemais through *Semeros* (Marawa) and *Lasamices* (Salonta) (Goodchild 1950, 83).

The roads around Cyrene also extended across the plateau supporting a network of villages and farms and linking a number of the surrounding cities, rural settlements and ports (Jones et al. 1998, 286) (Fig 8.12). Many ancient structures can be found along these roads, in particular from Roman times, such as the remains of terraced cultivation, irrigation channels, wells and aqueducts (Beechey and Beechey 1828, 422; Gregory 1916, 322).

Traces of these roads are still visible in some places in the countryside, especially where these roads were cut down into the natural bedrock, and deep cart-wheel marks in several places demonstrate that these roads were subject to heavy use.

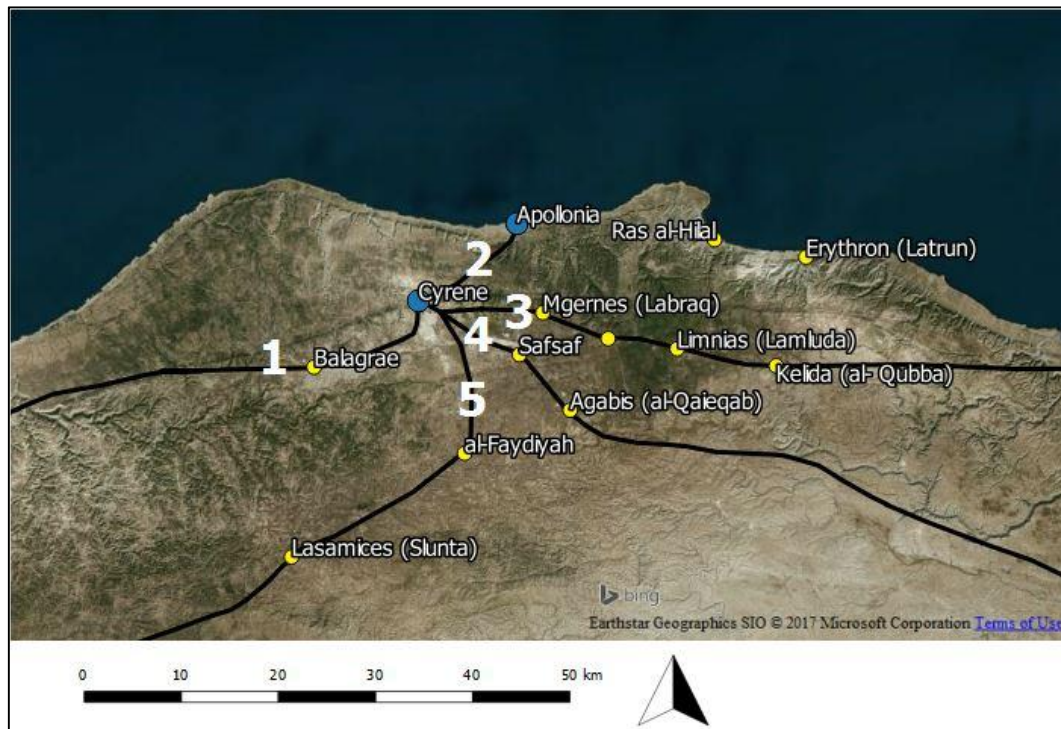


Fig 8.12: Map of the road network in the outskirts of Cyrene as they appear on Laronde's map (1987, 286).

One example of the roads recorded during my own field survey is located to the east of Cyrene, in the area between Wadi Ain Hofra and Wadi Bu Miliou (C10.001 in the Gazetteer). The summary sketch of the road is about 250 m in length and 2.80 m in width (Fig 8.13). This road extends from south to north and is interrupted on its north side by modern roads and houses, then disappears under new farms on both the north and south sides. Physical traces of this road show visible wheel ruts on the ground. However, the many stones scattered on both sides of the road and sunk into the ground suggest that sections of this road were probably paved. Some remains of its course can also be traced on the lower plateau, suggesting that the road led to the lower areas of the city and possibly into the coast.



Fig 8.13: A general view of the road (C10.001) located east of Cyrene, looking south (Author).

Another example is located south-east of the city's urban core within the area of the Katiba (G8.002 in the Gazetteer). This road is 4 m in width, runs north to south, and possesses well-preserved deep cuts made by carts (Fig 8.14). The wheel ruts are 0.28 m in width and 0.15 in depth, and the distance between them is 1.50 m. The extant part of this road today is only about 130 m long, with the road to both the north and south completely destroyed and buried underneath new buildings. One reason that the course of this road is clear is that in this extant section it crosses shallow bedrock.

To the south-west of Cyrene is another road which probably dates to the late sixth century BC (Cherstich 2008, 78; Weld-Blundell 1896, 135) (G4.001 in the Gazetteer). This road possibly marks the line of the major road from Cyrene to Balagrae, and passes through Cyrene's Southern Necropolis. The remaining part of this road is today about 1.5 km long and up to 4 m wide (Fig 8.15). As with most of Cyrene's roads, many rock-cut tombs, sarcophagi and quarries in which subterranean tombs have been dug appear on both sides of this road.



Fig 8.14: A view of the road (G8.002) within the Katiba (Author).

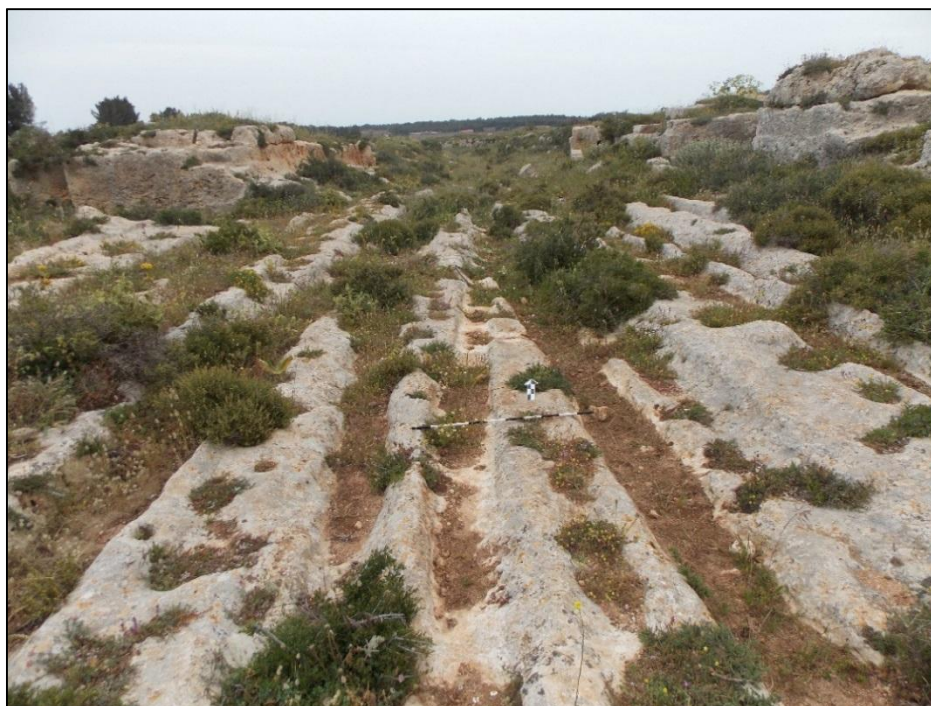


Fig 8.15: A view of the Southern Necropolis road (G4.001) (Author).

There are further remains of a road west of Cyrene near Wadi Bunabeh (F1.001 in the Gazetteer). The traces of this road in this section are greatly damaged, and the wheel

ruts cannot be traced properly or accurately here (Fig 8.16). However, its direction suggests that it most likely led to the western part of the Northern Necropolis (see Fig 8.17). It was probably also used to transfer stones cut from the quarries located west of the city, especially from the eastern side of Wadi Bunabeh.

Several routes were also recorded in the area known as Ghot Sidi Omran. This occupies a large flat area on the lower plateau near al-Mansura village c.2 km north-east of Cyrene, which is thought to have been an important agricultural settlement. The routes extended in a number of different directions, linking the site with Cyrene and its port (Apollonia) (el- Mayer 2017, 373-6). Due to its strategic location between Cyrene and Apollonia as well as the richness of its fertile red soil, this site was probably a waystation to collect and store goods and agricultural crops before they were exported via Cyrene's port.



Fig 8.16: A member of the survey team tracking the road (F1.001) near Wadi Bunabeh, looking south-east (Author).

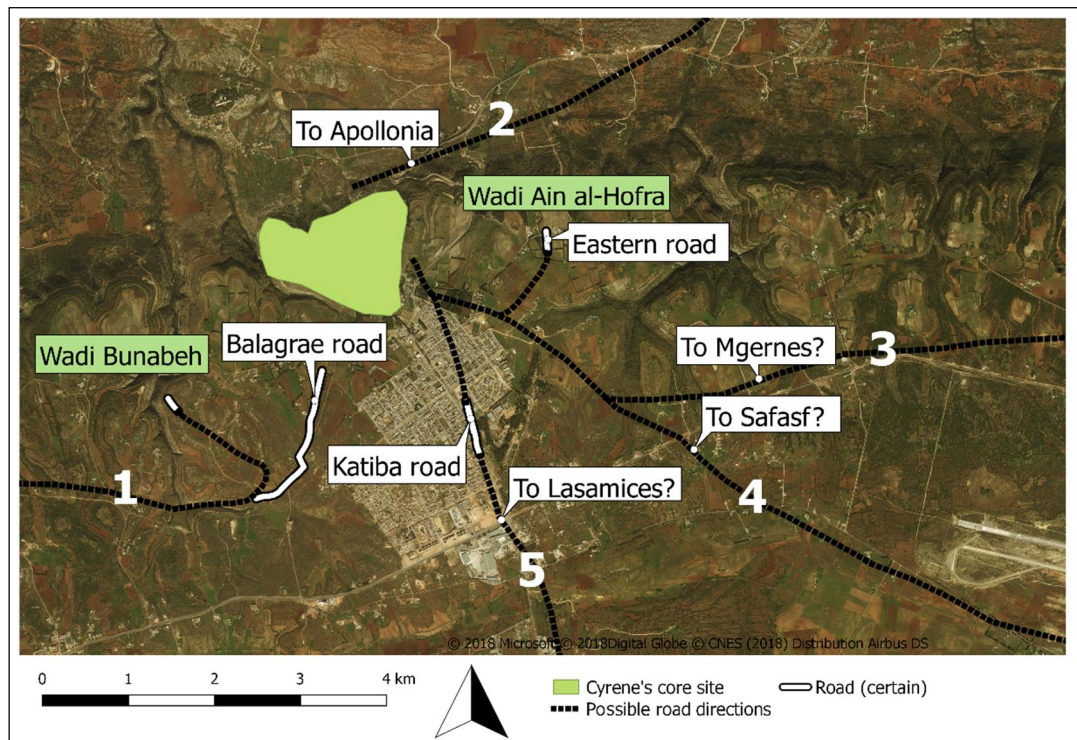


Fig 8.17: Roads around Cyrene and their possible courses.

8.4 Defences

It seems evident that no defensive walls or fortifications were built around Cyrene during the Archaic or Classical periods (Abu-Alnaja 1994, 36) with the exception of the defences of the acropolis. However, Cyrene has natural defences in being surrounded by deep wadis, especially Wadi Bel Ghadir in the south-west and Wadi Bu Turkiyah in the north-east. The city's mountainous location also provides strong natural protection, which may explain why no evidence has been found till today of walls built around the ancient city. In addition, the absence of city defences during the early periods might result from the city's peaceful relationship with the tribes and locals in the region. However, walls were not always essential for ancient Greek cities; some cities, such as Sparta and Elis, were founded and remained without defensive walls (Wycheley 1967, 39).

The Italian archaeological missions in Cyrene attempted to trace the early defences, and started this project in 1924 (Rowe et al. 1956, 29; Goodchild 1970, 52; Abu-Alnaja 2005, 96). However, no new information came to light during this work, and the project

was stopped after a short period of time because it was not possible to determine the accurate locations of any defensive features.

According to Goodchild (1953, 65-7), defences were built in all Cyrenaican cities during the Hellenistic era, as can be seen most clearly at the coastal cities (Apollonia, Teuchira, Ptolemais and Euhesperides). The extant parts of Cyrene's defences also date back to the Hellenistic era, according to a comparison with materials used in Alexandria (Rowe et al. 1956, 29).

The defensive walls may provide some information on how the urban core of the city grew up through time (Fig 8.18). In the early period, it seems that the walls were built only around the Acropolis. But with the expansion of the urban site of the city in Hellenistic times, particularly to the south and south-east sides, walls were constructed to cover a much more extensive area, including the Agora and its surroundings and the Sanctuary of Apollo. These walls extended southward to merge the major water cisterns into the urban area and stretched to the temple of Zeus on the eastern side of the city. However, a full plan for these defences at Cyrene cannot be made accurately, due to lack of information and poor preservation.

The Romans likely were satisfied with the Hellenistic walls and the Roman city remained without new additional defensive walls since there is no clear evidence that walls were built around the core site of the city then, with the exception of the remains of the middle imperial walls, which extended south and south-east of the Forum.

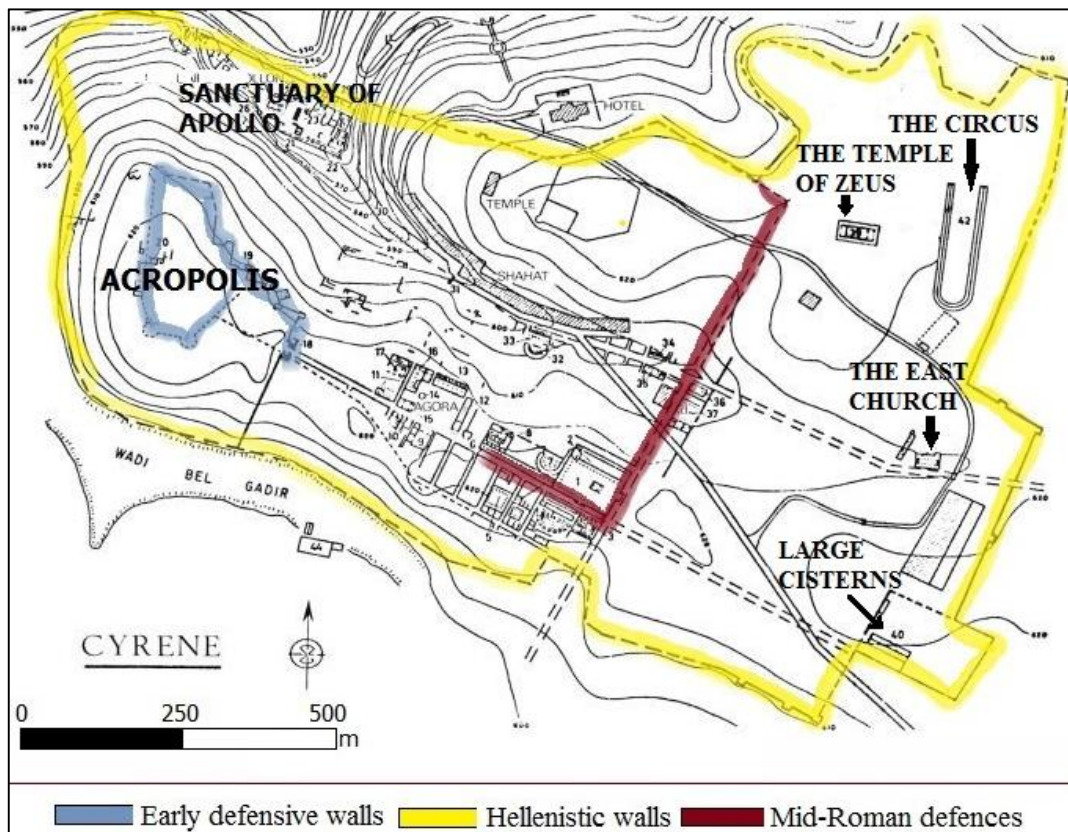


Fig 8.18: Map of the defensive walls of Cyrene (Adapted from Goodchild 1971, 37).

The location of the Mid-Roman walls in Cyrene indicates that the city's urban area possibly became reduced in size, most probably due to the decrease of the population after the outbreak of the Jewish rebellion in Cyrenaica in AD 115. According to Dio Cassius (LXVIII, 32), tens of thousands of Greeks, Jews and Christians lost their lives by the foulest means during the rebellion. In addition, many of the buildings located within and around the urban cores of the Cyrenaican cities were burned and destroyed, especially in Cyrene such as the temple of Zeus, the Forum and most of the temples and the buildings at the sanctuary of Apollo. The remains of the burning and destruction can in fact still be observed on most of these buildings (Walker 2002, 45-56).

Another possible reason for these Roman walls on the south side is that the city needed more protection from this side because it has no deep wadi which provides the sort of natural protection compared with the other three sides. The major water cisterns, the East Church, the temple of Zeus, the Circus (or Hippodrome) and some other adjacent buildings, were not located within the limits of the Mid-Roman walls. These buildings

should thus be considered as suburban monuments after their position lay outside the walls in that period.

Some archaeological evidence also indicates that the Hellenistic walls of Cyrene were strengthened in some places by the Romans, shown by remains of opus quadratum. But it is unclear whether they were constructed as part of the repairs to the previous defences, or if they were related to new walls.

8.5 Discussion

8.5.1 Water distribution in Cyrene in the Greek era

Water was mainly delivered to the city of Cyrene via aqueducts and channels, whose function was to supply fountains and public baths as well as to provide relatively drinking water. Water was also supplied by cisterns and wells in many different places around the city. Some public buildings were supplied with water directly from the local natural fountains, such as the Fountain of Apollo; this provided water to most of the buildings located within the sacred sanctuary by aqueduct mostly dug into the bedrock. However, although the presence of the Fountain of Apollo was an advantage for Cyrene, its location below the escarpment was a disadvantage. Its running water supplied only a limited area, and it was not possible to transfer the water via channels to the upper areas of the city. It was also not abundant enough to meet the needs of water-intensive activities, such as crop cultivation and livestock farming.

Cyrene, especially in the Greek times, depended mainly on nearby natural springs. Rainwater was also important, and was stored in cisterns and basins cut into the ground of many buildings. In addition to the fountain of Apollo to the north of Cyrene, Weld-Blundell (1896, 127-7) states that the only sources of water in the neighbourhood were four springs: Ain Lebueda, Ain Bilghadir, Ain al Agara, and Ain el Legrain. He adds that these four springs lie roughly to the north-west and south-west of the western hill, and were used to supply water to channels and fountains. However, these springs were also too weak to meet the needs of intensive cultivation and livestock farming.

8.5.2 Roman water supply in Cyrene

Vitruvius (viii. 6. 1-3) explained how water was distributed via an aqueduct system. He stated that once the water reached a town, it was transferred from the central tank by pipes to supply three main parts of the city: basins and fountains, public baths, and private houses. However, no clear evidence has been found to confirm how water was divided within Cyrenaica's cities (Lloyd and Lewis 1977, 37).

With the expansion of Cyrene across its agricultural lands in the Hellenistic and Roman periods, the city needed more water. Thus, the Romans built a huge complex of distribution tanks in order to store both rainwater and water brought from more remote sources. The so-called Square of the Cisterns in Ptolemais is a prominent example, measuring approximately 60 x 70 m. Indeed, the Romans used every available source of water to promote the prosperity of the region, which why they had to provide and transfer water from distant places.

In Cyrene, the Romans constructed the huge cisterns located south-east of the city to store water brought from Safsaf. It is thought that the huge complex in which the previously-mentioned seven public cisterns were situated was probably unfinished, and if so it is possible that more cisterns originally existed; this may explain why the eastern part of the complex is empty while seven oblong reservoirs occupy the western part (Rekowska 2016, 133).

Water cisterns were thus constructed underground in different places in both Greek and Roman times in order to collect and store as much rain water as possible. Some water cisterns have also been found inside or near to the sacred sanctuaries, for example, the underground cistern discovered within the sanctuary of Demeter (Cherstich 2009, 225), and were possibly involved in rituals that required the use of water.

Some buildings, particularly the qsur and farms, usually had one or two cisterns inside or outside their walls for water storage; for example, qasr al-Raged has two cisterns

(one rock-cut and one open-air). In some cases, these were fed by an outer channel such as the cistern linked to the Farm 2 (see F9.002 and L8.001 in the Gazetteer).

In general terms, Cyrene's aqueduct dates to the Roman era. However, it is not possible to determine which emperor ordered its construction. The only accurate source for this information would be inscriptions, which usually convey information on the emperor who authorised the construction of any important civic buildings. Although some inscriptions have been discovered in Cyrenaica which record the name of the emperor who ordered construction, most of these do not give complete enough details about which aqueduct they refer to or where these aqueducts were built.

An inscription found at Cyrene during the Italian excavation before 1941 has been dated to 67 BC, and refers clearly to some of Pompey the Great's (Gnaeus Pompeius Magnus, 106-48 BC) reforms in Cyrenaica following his victory over the pirates (Reynolds 1962, 99-100). According to the inscription one of these reforms was his contribution to building aqueducts, but it does not reveal exactly where this work was done. Unfortunately, most of the other details have been lost as the text has been damaged. However, the fact that the inscription was set up at Cyrene, the leading city, is suggestive.

Another inscription, dated to AD 109, informs us that Trajan ordered the construction of new aqueducts in the cities of Cyrenaica to serve industrial activity (Lloyd and Lewis 1977, 37), but there is no information on where these aqueducts were built. A third inscription dated to AD 166 tells us that Marcus Aurelius and Lucius Verus commanded the city authorities at Cyrene to build aqueducts using public funds (SEG 18.740). This text was engraved on two faces of a marble stele of a funerary type, which was re-used as a threshold in the south-west entrance to the Cathedral. Although only one face is in good condition, it is also badly damaged and the rest of the information it contained has been lost, especially from the middle of the text (Reynolds 1959, 98-100).

One may suggest that the cisterns and aqueduct located to the south-east of Cyrene related to maintenance work in the second century AD, probably during the era of Marcus

Aurelius and Lucius Verus. The date of the original construction was most likely earlier, as the second century AD seems late for the city's first aqueduct and huge cisterns. However, this is only an assumption given the absence of conclusive archaeological evidence; this aspect would of course benefit from further study.

It is also difficult to date the smaller cisterns in Cyrene because they do not have any specific characteristics which could help to date them, and because they were cut and used in both Greek and Roman times. However, according to Stucchi (1975, 484-7), the second main type of cistern (the rock-cut type) most likely dates to the second century AD, or possibly after this date. The third type of cistern (the open-air type) can be dated to the Hellenistic era by comparison with nearby Hellenistic tombs (Cherstich 2009, 226).

8.5.3 Roads

The Greeks built a network of roads in Cyrenaica to link the main cities along the region's coast and to connect them with other settlements located in the hinterlands and countryside. The Romans constructed various new roads and developed and expanded most of the Greek-built roads. The inscriptions on the milestones found between Cyrene and Apollonia prove that the reconstruction of the road happened during Roman times (Fig 8.19). This would have occurred after the road was destroyed for the first time by heavy rains, and the second time following the Jewish revolt against the Romans in AD 115.

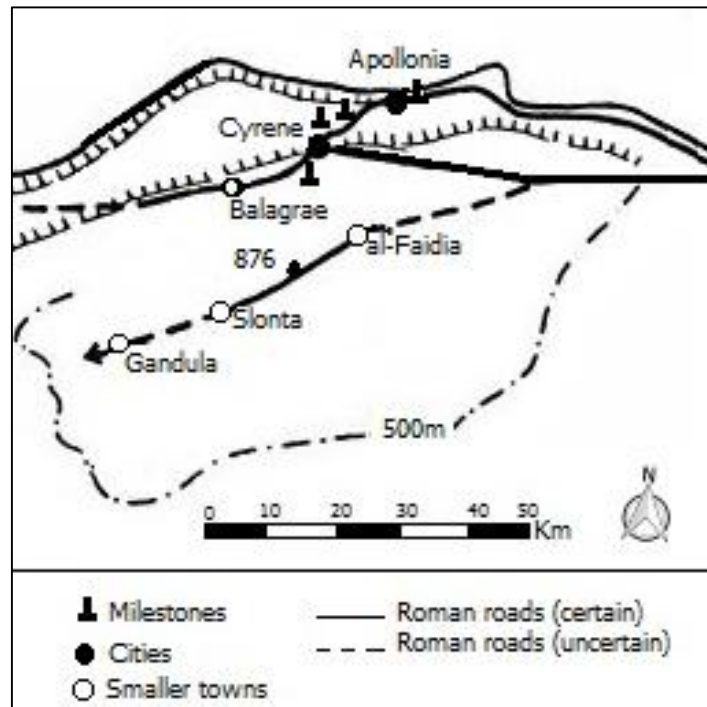


Fig 8.19: Map showing the locations of milestones between Cyrene and Apollonia. (Adapted from Goodchild 1950, 84).

The road in the Katiba possibly dates to the Roman era, because Cyrene grew towards the south-east during that time. Most of the archaeological sites discovered in this area in fact date to the Roman times, and it can thus be assumed that this road originated in Roman times, and was created to link this area with other sites along the south-east side of the city.

Since many of these roads and their milestones in Cyrenaica are located in the countryside around the cities, some of them have been completely destroyed or greatly damaged. Meanwhile, a number of other routes remain at high risk of destruction due to land reclamation and the development of new cities. My CAS survey has enabled mapping of some of these infrastructural features that were so important to Cyrene's economy.

Chapter 9 - Conclusions

9.1 Introduction

My thesis explored and drawn on diverse materials and investigated various types of Greek and Roman archaeological sites scattered around ancient Cyrene to improve our understanding of ancient city suburbs with a particular focus on the suburbs of Cyrene. This final chapter provides an overview of Cyrene's suburbs. It offers a discussion of wider implications for studies of ancient cities. The chapter also examines factors of deterioration of Cyrene's archaeology. Finally, it presents the future direction of this study with some suggestions regarding further archaeological work in my study area.

9.2 Overview of Cyrene and Wider Debates about its Suburbs

Cyrene was probably continuously occupied for over 1200 years, from the city's foundation in 631 BC until the Islamic conquest in the seventh century AD. However, it seems obvious that Cyrene's planning generally developed in an irregular way, and the original plan and the limits of the city changed between the Greek and Byzantine periods with many new buildings added. Several different structures and activities have been found in the area around the urban core of Cyrene and in its extramural extensions, showing that was a city was surrounded by a landscape filled with cemeteries, quarries, farms, aqueducts, with a network of roads of different dates.

The expansion of the ancient city to the north, west and east sides was evidently restricted due to the nature of the geographical location of Cyrene on the escarpments of the mountain, especially from these three sides. However, the slopes in these sides were suitable places to house different types of tombs and cut-tombs' facades. Therefore, the vast majority of the tombs of Cyrene, particularly in the Greek era, are concentrated on the north, west and north-east sides. The absence of the other types of suburban buildings on these three sides is also notable, with the exception of at least two towers.

The expansion of Cyrene focused more on the south, south-east and south-west of the city's urban core, especially, in Roman times. Although there are also a large number of tombs and cemeteries dating from the Archaic to late Roman times, many other

monuments in these areas belong mostly to the Roman era, such as qsur (fortified farms), roads and water cisterns. Some of these still exist today among the modern buildings of the new city of Shahat. Indeed, the location of these ancient sites between the new buildings proves that a big part of the archaeological site of Cyrene is buried underneath the new structures.

The location of the relatively remote sacred sanctuaries raises a question about their positioning far from the urban areas of the city. It seems that placing some of these religious sanctuaries away from the urban area was intentional, probably to make them much more suitable for practising different religions and also burial rites. Cult sanctuaries such as the sanctuary of Apollo, Demeter, Budaraj and Ain Hofra originated in the Greek period and continued in use in Roman times. It is also possible that the Greeks were aware of the possibility of their city expanding later to a wider area and, therefore, they positioned these sanctuaries from the outset in more remote locations so as to allow space for urban growth.

All of the sacred sanctuaries at Cyrene have almost the same specifications in terms of their location. They are mostly located on escarpments, and are associated with water resources since water was vital for practising some of the religious rites in these sanctuaries. However, the large area occupied by the Apollo and Demeter sanctuaries demonstrates the growth over time of these through the addition of many buildings. It is probable that both of these sanctuaries, or at least the Apollo sanctuary, over time came to form part of the core area of the city due to their proximity to the urban site, in addition to Cyrene's growth near and around it.

The increase of the population in Cyrene, especially in the Hellenistic and Roman eras, contributed greatly to its growth in area. Consequently, many buildings and facilities were constructed to meet the demands of the growing population. This is evident from the expansion of the area around the Acropolis and the increase in the number and type of the buildings here, as well as the construction of several qsur (fortified farms) associated with economic activities on the outskirts, such as Qasr al-Raqed, Mgata, and farms 1 and 2 in the area of the Katiba, in addition to the construction of the huge cisterns

and long channels to bring more water from relatively distant places such as Agapis and Safsaf, and to increase the number of other types of smaller cisterns to store as much rainwater as possible.

Later, the construction of the two churches in the urban core (the Central church and the Eastern church), plus the suburban basilica of Qasr Grescendi and Christian use of tombs reflects the continued expansion of the city also in the Byzantine both with the urban core and beyond, such as the southern suburbs.

Overall, therefore the nature of Cyrene's geographical location served to structure the spread of the city and contributed to the irregular form of its planning. Cyrene's Greek and Roman urban boundaries are still not in fact accurately defined due to the absence of the walls on some sides around the city and the existence of many buildings around the core site. It is not always clear where the limits between core and suburban zones in the different phases. However, the absence of the walls around Cyrene could be taken as absence of evidence rather than evidence of absence. Future systematic excavation and survey work may find some evidence of buried defensive walls in these zones.

The settlements and structures located in the hinterlands must be reorganised as important parts of Cyrene, especially as the city had a direct relationship with most of these settlements. For example, Lamluda was an important economic centre for olive oil and wine production, Safsaf and Agapis were important water resources, and the sanctuary of Asclepius (god of medicine in ancient Greek myths) at Balagrae was a medical and religious centre. Therefore, all these significant centres were linked directly with Cyrene through a network of roads to facilitate transportation from and to the city.

9.3 Discussion of Wider Implications for Studies of Ancient Cities

The city was one of the fundamental institutions of the Greco-Roman world. However, Greek and Roman definitions of a city differed slightly (Owens 1991, 1). This difference can be clearly seen in city's form, the selection of its location, and the purpose of certain principal buildings. Suburbs have formed around ancient cities throughout

history (Garnett 2007, 280) and function was important to the citizens and to the city itself (Owens 1991, 3; Osborne 1987, 9). Yes, it is often suggested that boundaries of ancient cities were places of burial, rubbish dumping, pollution and other activities that were often excluded from the urban core (Witcher 2013, 211). Nonetheless, positive activities could also take place on the boundaries of ancient cities. For example, here one would encounter artisans such as potters, as well as olive oil presses, quarries, water supply units, roads and transport links which provided highly visible locations for funerary monuments, in addition to arches and other structures.

Some buildings and structures are likely to have been built in suburban areas for more pragmatic reasons. For example, theatres, stadia, and later churches were sometimes constructed in the suburbs due to the availability of space or because of favorable topography. Such were located, for example, at the Campus Martius in ancient Rome in the Republican period (Palmer 1990, vii). Major and small-sized religious sanctuaries also were often located in suburban areas. The celebrations of several religious and social events were held at these sanctuaries particularly in major sanctuaries. These events usually included processions like the Thesmophoria festival at Cyrene previously mentioned. Thus, we must recognise how the suburbs of ancient cities were busy areas as they were suitable places to hold ceremonies and also preferred locations for many different economic and religious activities.

What my study of the suburbs in Cyrenaica has shown is that the location of the Cyrenaican cities and their geographical nature played a key role in the layout of the cities and the formation of their surroundings. For example, the main cities located on the Cyrenaican coast were generally founded in flat areas as at Apollonia, Taucheira, Ptolemais, and Euesperides; this facilitated the concentration of most of the buildings at these cities in a certain area surrounded by walls, which were mostly built in the Hellenistic period. The cemeteries and quarries, in addition to some economic and industrial activities such as olive oil and pottery production, were mostly located outside the walls of these cities.

With regard to my new case study of Cyrene, the situation was completely different, especially in terms of its urban plan. There is no doubt that the nature of Cyrene's geographical location had a direct impact on this aspect. The city is located on the edge of an upper plateau, and is surrounded by deep wadis on the northern, eastern and western sides. All these contributed to the lack of defining clear boundaries of the urban site.

Moreover, the discovery of new sites close to the city's urban core such as the sanctuary of Demeter and Persephone suggests that the borders of the city possibly extended out beyond the commonly assumed limits. These recently discovered sites have not generally been counted within the urban areas but the later work suggests they could be. This suggests that archaeological research may identify, in the future, other sites that may change the present concept of Cyrene and perhaps draw a different picture on both the limits of the urban areas and the suburbs of the city.

Comparative evidence from previous fieldwork could be very helpful in this respect. For example, the archaeological projects conducted both on the island of Jerba and at the ancient coastal city of Leptiminus (Lamta) in Tunisia have shown the importance of suburban manufacturing activity, especially pottery production (Mattingly 1992; Stone, Mattingly, and Ben Lazreg 2011; Fentress 2009, 21-36). In particular, the Leptiminus project aimed to investigate the city's urban zone and immediate hinterlands; It revealed that evidence for the suburban zone suggests a picture that does not agree with the standard view of Roman urbanism (for more details on this, see also Lazreg and Mattingly 1992; Stone et al. 1998, 304-317; Stirling et al. 2001).

On the other hand, it is insufficient to say that suburbs could be defined by urban exclusion, because the difference between a city and its suburbs is not always clear, especially when city walls are absent. Another reason for this is that some suburban areas were pulled into the urban core as the city grew, which caused significant changes in the character of an area. One example is the huge Republican Esquiline necropolis in Rome (Witcher 2013, 211-212), which was gradually regulated, and eventually levelled and landscaped as part of the gardens of Maecenas.

9.4 Factors in the Deterioration of Cyrene's Suburbs

My thesis and field survey also highlighted the threats to suburban archaeologies. Understanding these is crucial for ensuring that this clearly important heritage is not lost through negligence and deliberate removal.

The factors behind the deterioration of the archaeological sites identified and located in the suburbs of ancient Cyrene can be classified into two main types: Man-made factors and natural factors. Both of these can be split into several more defined factors. The following paragraphs will outline the most significant of these factors which are having an increasingly negative impact on and/or are threatening Cyrene's suburban archaeology.

9.4.1 Man-made Deterioration Factors

9.4.1.1 Urban extension/ expansion/ growth

Modern urbanisation is to be seen a real threat to archaeological sites as population and economic pressures mount to expand new cities and to construct buildings near or over the ruins of buried, or even visible, archaeological sites. At Cyrene, the construction of new buildings within and around the city's archaeological zones is a big challenge, with impact that started from the Italian occupation of Libya in 1911 (Efkyrin 2012, 111). Those a number of buildings were constructed on the ancient site of Cyrene in 1913 and many new installations built after that, such as a huge hotel and a number of shops, villas, houses and water facilities (Abdulkariem 2014, 116-117). Since 1962 the modern city of Shahat has expanded greatly due to huge construction projects responding to the increases in the city's population and its economic growth. Many ancient sites have been lost due to this unchecked expansion, while others remain between modern installations and now they are under a high risk of destruction.

Since the outbreak of the Libyan Revolution of 17 February 2011, the security situation of Libya has continued to be very unstable, and this has caused a notable lack of protection for archaeological sites from the construction of modern buildings. This is

especially so in Cyrene's suburbs: Since no new construction projects have been carried out by the government, plus the major need for local people to build houses, many new unauthorized buildings have been built randomly at several areas around Cyrene, particularly since 2014, and mainly on the west, south-west and south-east of the city (Figs 9.1 and 9.2). Numerous archaeological sites, such as tombs, quarries, roads and aqueducts have been destroyed due to this expansion. Although the DoA of Cyrene with the cooperation of the municipal council of the city of Shahat worked hard to stop the construction of more new houses at these sites, most of these attempts have failed to prevent ongoing damage and no real action has been taken against this threat, in the absence of effective means of enforcing the law.

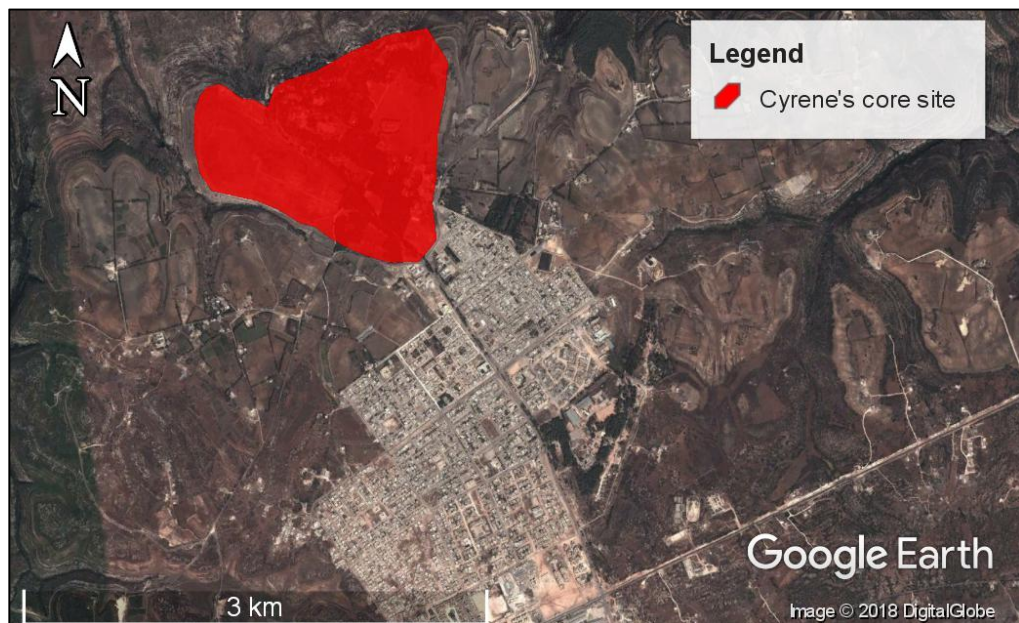


Fig 9.1: The expansion and growth of the city of Shahat till 2014.

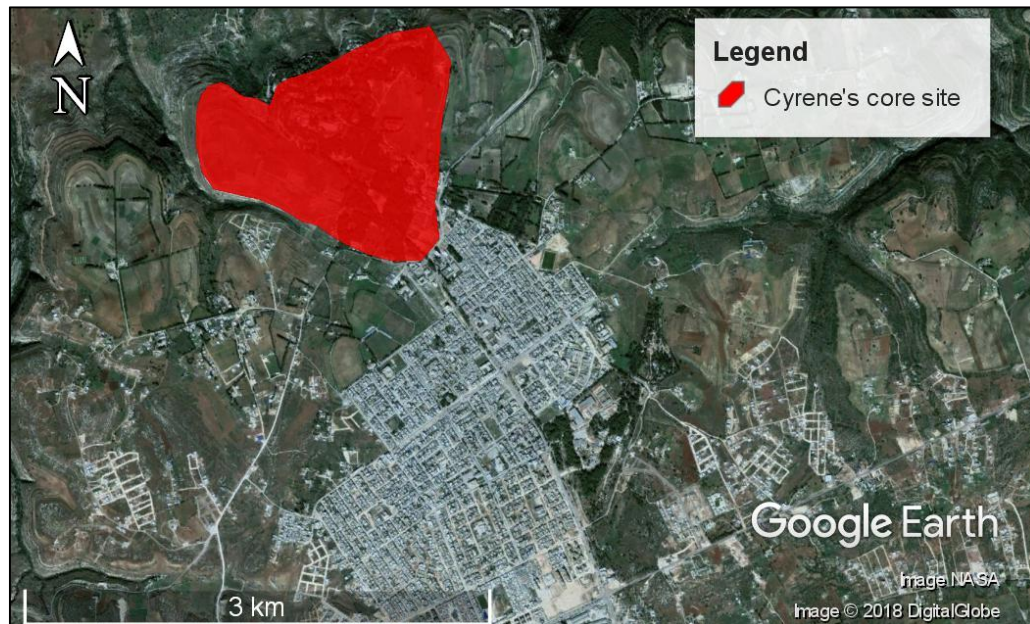


Fig 9.2: The growth of new buildings around Cyrene between 2014 and 2018.

9.4.1.2 Robbery and looting

Robbery and looting form another real threat that the ancient sites face, especially suburban ones, since these areas usually are not as well protected as they should be due to their (remote) location. Cyrene is an ancient city rich in terms of its monuments of Greek and Roman artefacts, and therefore, many kinds of portable antiquities have been looted either for their financial or cultural worth, such as small-sized marble and terracotta statues, coins and painted vases, etc. Most of these antiquities are not looted from the museum of Cyrene but from the archaeological sites by thieves who conduct illicit excavations, and many of them are illegally sent to other countries around the world through Libya's borders, especially via Egypt.

It is a big challenge at Cyrene and at all of Cyrenaica's other cities to provide security and protection to the archaeology located at the suburbs. The absence of guards on suburban sites and the lack of security protection systems contribute to the spread of illicit excavations and further looting of antiquities. During my own CAS survey, I found a number of random trenches and holes in the ground at several suburban sites (Figs 9.3 and 9.4). This proves that illicit excavations are continuing to spread extensively at the suburban area of Cyrene.

Unfortunately, the Department of Antiquities in Libya does not have an active and effective way as yet to follow up on looted artefacts and to stop the trade in antiquities and the problem is set to continue.



Fig 9.3: An example of illicit excavations against a Roman period wall in qasr Mgata in south-west Cyrene (Author).



Fig 9.4: Another view of the illicit excavations in qasr Mgata from the top line space (Author).

9.4.1.3 Armed conflicts

Conflicts, especially armed conflicts, are a real threat that both urban and suburban archaeological sites sometimes face. This can result in the destruction of damage to ancient monuments. These conflicts can cause irreparable damage to archaeological sites in several ways (Timothy and Nyaupane 2009, 28-29); monuments can be damaged by bullets and shells or the use of different weapons; artefacts also can be damaged or stolen even if they are inside museums and stores. In addition, wartime depletes economies and takes public monies away from conservation, as well as impeding access to sites that are in need of attention.

At Cyrene, the area known as the ‘Katiba’, which was a military camp during Gaddafi, who ruled Libya between 1969 and 2011, is a prominent example of the effect of armed conflicts on the archaeological monuments: this large military settlement is located on the south-east side of the new city of Shahat and was where the initial fierce battles of the 2011 Libyan Revolution took place (for more on this area, see Section 4.5.4). Some of the archaeological sites located within this camp were badly damaged as a result of the armed conflict.

Archaeological sites could also be used as stores for weapons or as military camps. An ancient example is the Roman Forum of Cyrene which was converted into a fort to defend against Barbarian attacks at the end of the 4th or in the early 5th century AD (Luni 2014, 209).

9.4.2 Natural factors of Deterioration

9.4.2.1 Agricultural and pastoral activities

Due to the pastoral nature of the land and population in Cyrene’s suburbs, some of the residents of the city and the surrounding villages own domesticated animals such as sheep, goats, cows and horses. These animals are often seen and tended in the suburbs of the city where we find natural corrals and pastures. These animals can cause several negative impacts on archaeology: for example, overgrazing, burrowing of animals into

tombs and even the substantial weight of these animals, which increases the soil's susceptibility to erosion and contributes to damage any remains that they may walk on, particularly on fragile surfaces such as mosaic and marble floors; in addition there is damage caused by their droppings (Abdulkariem 2014, 94). Some kinds of animals such as dogs, reptiles and rodents dig near to the walls of the monuments to produce shelter pockets or dust baths, which can lead to a weakening of the soil under the monuments and so threatening their stability and safety (Jones 2007, 21).

Most of these forms of damage caused by animals can be recorded in the suburbs of Cyrene: for instance, I recorded during my CAS survey a number of ancient stone chambers south of the urban core of the city which are currently being used as animal pens (Fig 9.5).



Fig 9.5: Example of rock-cut tombs at Cyrene being used as animal pens, looking south (Author).

9.4.2.2 Natural plants

There are several kinds of wild plants that grow widely across the archaeological sites of Cyrene and its suburbs, such as the *Ficus carica* (fig), *Ceratonia Siliqua* (carob), and *Olea europaea* (olive) (Abdulkariem 2014, 80), in addition to other kinds of plants,

herbs, shrubs and trees. All of these can lead to damage to archaeological remains; the roots of the plants are acidic and their surfaces contain a high level of hydrogen atoms (Warren, 1999, 82); in addition, the strong roots of the trees extend over long distances and penetrate the soil and foundations of walls, which can results in a notable deterioration, as these roots rupture or penetrate walls and foundations (Fig 9.6).



Fig 9.6: A view of the effect of roots in a wall in the sanctuary of Apollo at Cyrene (AR DoA).

Plants are widespread in Cyrene's suburbs due to the soil, and the local climate and environmental condition. It was noted during my CAS survey that some of the sites structured around Cyrene are under a real threat from vegetation more than others. Much good work has been done by the DoA of Cyrene in order to remove several kinds of plants that threaten many monuments located within Cyrene's core site (Figs 9.7 and 9.8), however, this work needs to be continued and extended to the suburbs, where many sites are still neglected and lie covered by bushes trees or and other plants.



Fig 9.7: Researchers from Cyrene's DoA remove plants and roots from the Byzantine Baths in the Sanctuary of Apollo (AR DoA).



Fig 9.8: Another view of removing plants from the Sanctuary of Apollo (AR DoA).

9.4.2.3 The effect of climate

Rain, wind, humidity, temperatures and high levels of drought can likewise cause deterioration in archaeological sites. Without doubt, heavy rain can generate floods and

cause the soil to wash away. This can lead to damage to many monuments including architectural features and portable antiquities but also to small sites and structures in fields. Rainfall in Cyrene ranges between 500 to 600 mm a year, meaning that Cyrene has the most rain in the province of Cyrenaica (Naoh 2009, 28). The archaeological site of Cyrene is indeed subject to periods of heavy rain every year.

Interestingly, the wind has been classified as the most damaging factor to exposed monuments, and it is at its most dangerous when combined with heavy rain. It can cause major erosion and damage archaeological features, especially when the winds are loaded with dust and sand. Cyrenaica forms a huge barrier for northern and north-west winds, which are saturated with moisture that turn to rain (Efkyrin 2012, 38). According to records from the meteorological station at Shahat, the location of Cyrene is exposed to the winds throughout the year, with winds coming from different directions and at different speeds (Abdulkariem 2014, 78).

Humidity also has a negative impact on archaeological sites. For example, it can dissolve and transfer salts, and it provides suitable conditions for growth of micro-organisms, particularly in some construction materials on archaeological sites such as gypsum and lime (Arabe 2004, 109). In structures that contain metal, humidity contributes to a corrosion process in metals, leading to fissures and cracks. In fact, it is known that humidity has contributed to the collapse of many of weak ancient buildings in Cyrene.

Increased temperatures and high levels of drought, in addition to continuous or sudden changes between them, can lead to the separation and deterioration of many of the component materials of archaeological structures and damage the construction of materials of ancient monuments. Cyrene is affected both by the climate of the Mediterranean Sea from the northern side, and by the desert climate of the southern side, and according to records of the meteorological station in Cyrene, the temperatures are highest in the months June, July and August (Abdulkariem 2014, 76).

All the above are challenges to the archaeology, both exposed and buried, monumental and domestic, but with potentially greater threat centred on suburban spaces, whose study, as I have argued, is limited, meaning that the threats are not fully recognised.

9.5 Future Directions of Study

This doctoral and field research has thrown up many questions which require further investigation. While a number of archaeological sites located in both the nearby and more distant suburbs of Cyrene have been recorded and studied in this research, it was not possible to cover all the sites located in this huge area in detail due to time limitation and access issues. Many of these sites still require further investigation. Nonetheless, the results of my research lead to the following recommendations:

The area around the ancient site of Cyrene is large and extends to other wide and open areas. It includes many archaeological sites around the urban site and in the hinterlands. The approach used in this research was extremely effective, as dividing the area around Cyrene into squares made it easier to systematically record the various sites; however, Cyrene's huge area and its topographic location means it could be much more effective to divide the area around the city into several smaller study areas, and then apply the squares to each area in order to conduct a further comprehensive archaeological survey.

This intensive survey needs to be completed by a team of surveyors to accurately record all the sites located in these areas. In addition, it is vital to conduct systematic archaeological excavation-not necessarily large- in order to obtain more information about many sites, especially those which have been recently discovered around the city. This will greatly help to identify their function chronology and build a more accurate overview of their relationships with the nearby sites, as well as with the urban core site.

Further work is required regarding the sites recently discovered during the construction of houses and other buildings in the new city of Shahat. Landowners denied me access to a number of these sites, even for a quick look at the sites positioned within

their property. As a result, none of these sites has been fully studied, and so it is crucial to find a mechanism to gain access to these sites through the proper authorities and study them before they disappear forever unless protected and to make the landowners aware of the need not to damage or destroy any archaeology.

I would state here that most of the sites around the city have sadly been subject to significant neglect and are at high risk of destruction. Many have already been partially or totally destroyed, especially due to the expansion of the nearby city. Many sections of the ancient roads, particularly those which extended outside of the city, have been destroyed by new buildings and farms. These roads led to several other sites and have minor routes extending out of the city. Many of them were never documented in the DoA archives since no images or coordinates related to them were found there. This means that they were never followed up or conserved, and so they remain under high threat. It is thus recommended that further research be undertaken in this area with the aim of tracking the extent of this road network. This can be achieved by recording the ancient main and minor roads in and around Cyrene and in the region of Cyrenaica.

Cyrene's suburbs have, as seen, much to offer in studying the city and its many parts and informing us of its people, religion, economy, and resources. Exploring, recording and protecting these suburbs is thus an essential target.

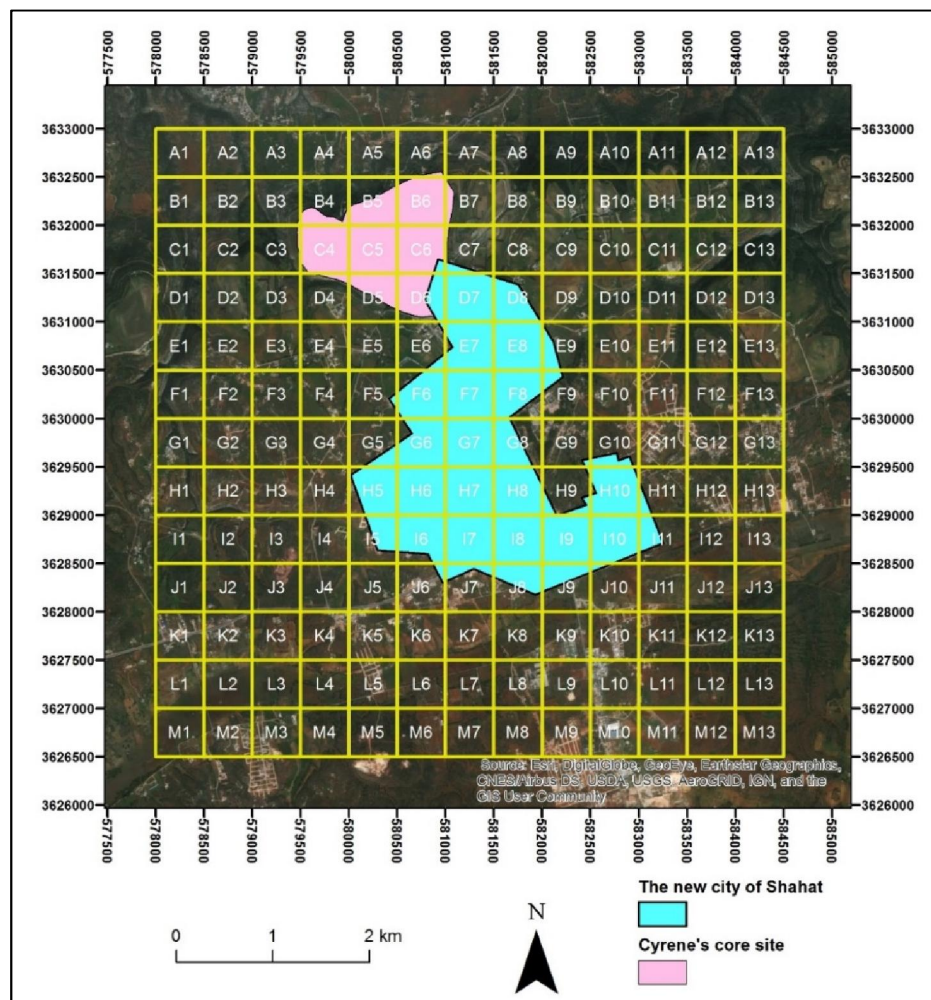
1 General Introduction

This catalogue comprises descriptions of the sites and sub-sites that I recorded during this thesis field survey. However, it should be noted that not all the suburban sites around Cyrene are recorded here because although I identified many features located on private farms and properties via Google Earth Imagery, access to many sites was sometimes denied by the landowners. This means that I was unable to obtain core information on many of them, and often could not even confirm whether or not they were archaeological sites. Therefore, I record here only the sites which I was able to visit personally. There is thus a need to conduct further surveys, particularly for the areas located on the east and south edges of the grid to record any sites which may be found there.

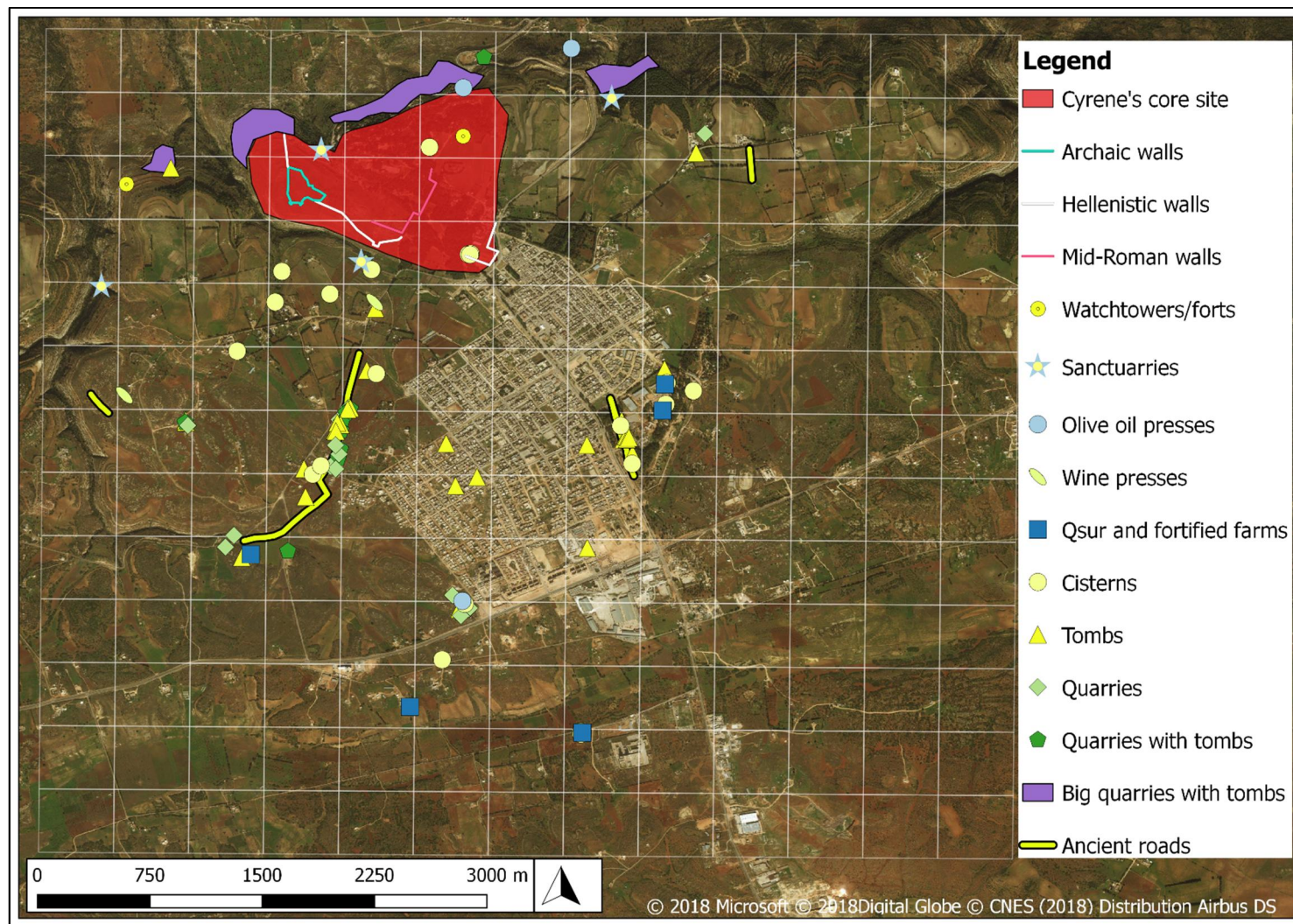
In addition, given the significant number of tombs and quarries located in the survey area, and the time limitations, it was impossible to visit and record all these features scattered within the entire grid. Instead, I investigated the topography of their locations and distribution across the urban periphery and provided an overview of their main types and chronology. When recording a group of tombs or a series of quarries, I took a GPS point for the core/center of the whole area. I also provided details on certain significant examples, especially the more recently discovered tombs.

To record the sites located in the survey area systematically, I started the recording process from right-to-left and up-to-down in the square grid which I created for this research (G 1). Each site was given a code according to its location within each square of the 500 x 500 m grid. For thus, A1.001 refers to site number 001 within square grid A1 of the Cyrene Archaeological Survey (CAS), and so on (see G 3-G 8). However, a number of these squares contain no features as their location within the modern city of Shahat means they are completely covered by modern buildings. In addition, a number of squares do not contain any archaeological sites because they are located within cultivated lands or very deep Wadis (G 2).

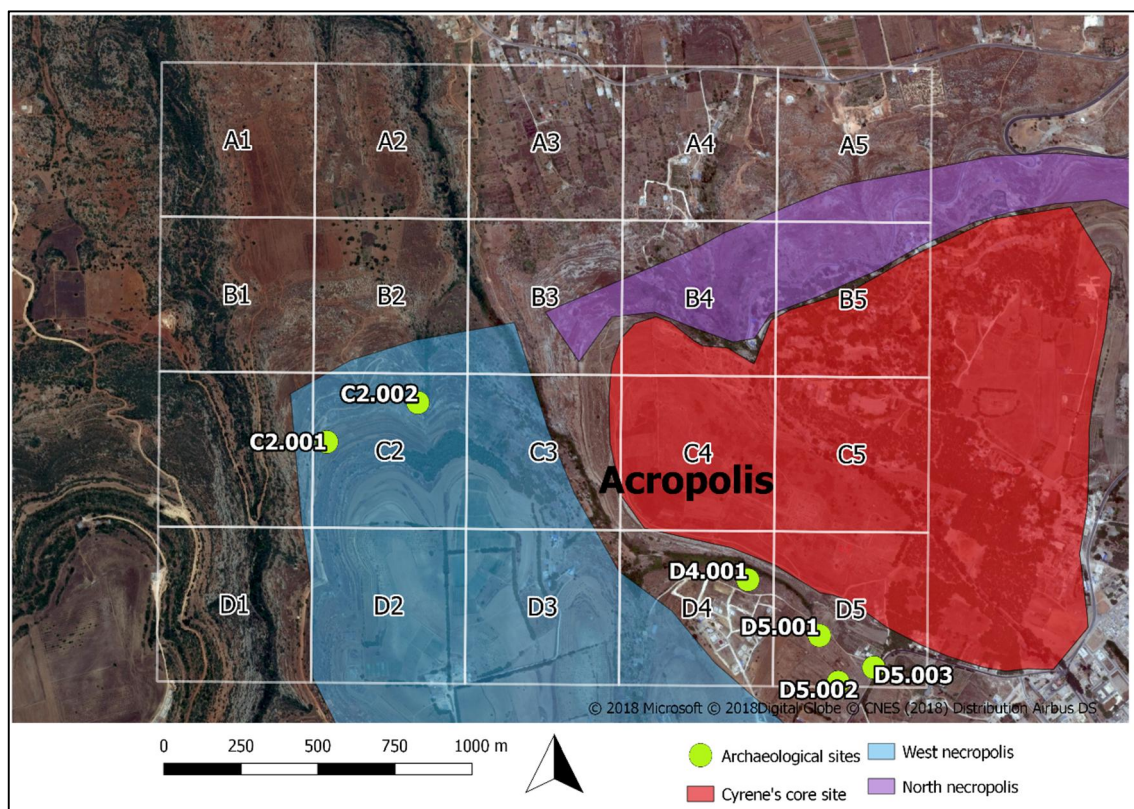
Site entries is provided including the ancient name of the site if known, the modern name, the type of site, the date of the site and the site location and coordinates. A brief description is provided, including a general description of the structural remains of each site, its current condition, and a brief account of any threats facing the site. However, some of this information is missing or uncertain because they are unknown or not completely evidenced in previous studies. Another reason for the absence of some information is that a number of the sites recorded in my survey were recently discovered and have not yet been definitely identified or fully studied. Further investigation into the recently discovered sites is also still needed in order to collect more data and gain as much information as possible about them.



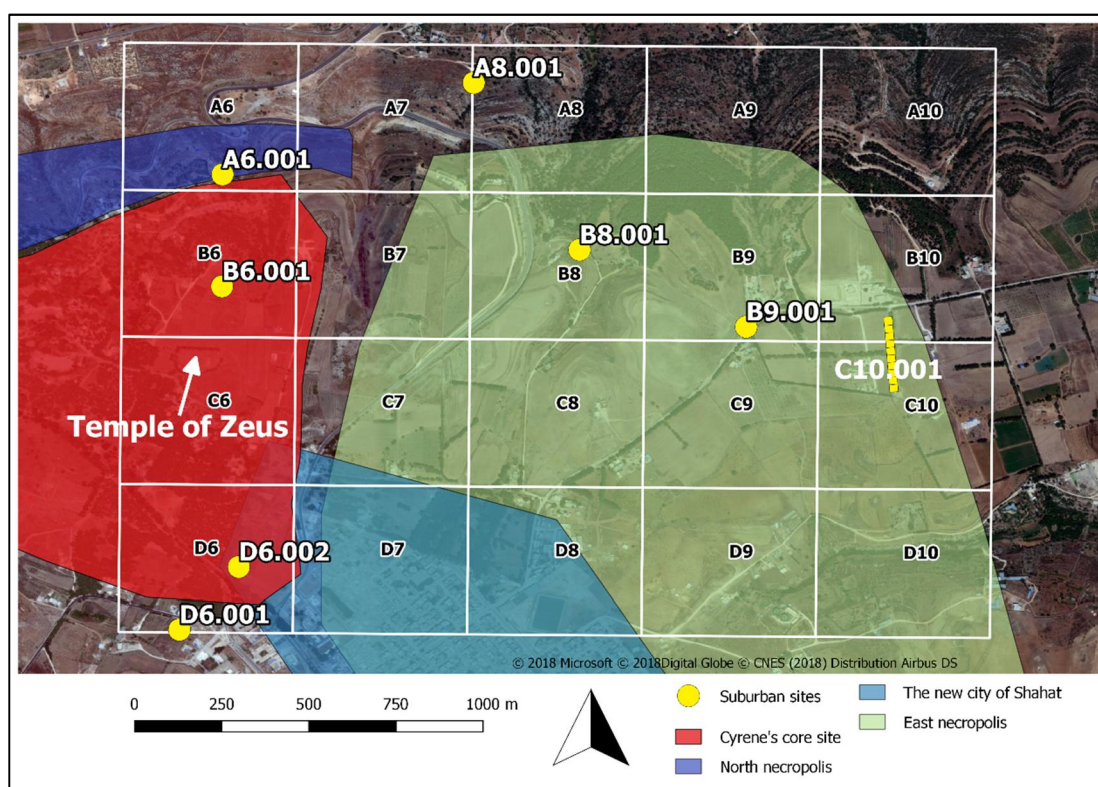
G 1: Square grid frame for the ancient site of Cyrene and its suburbs.



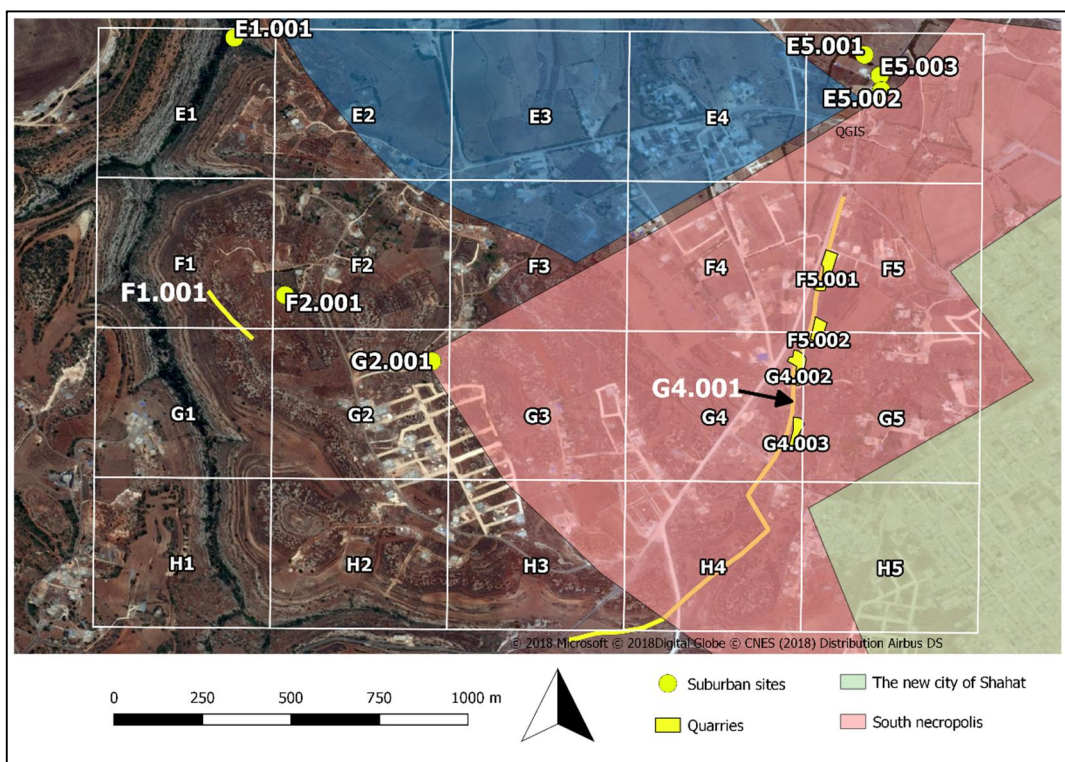
G 2: Distribution of the archaeological sites around Cyrene.



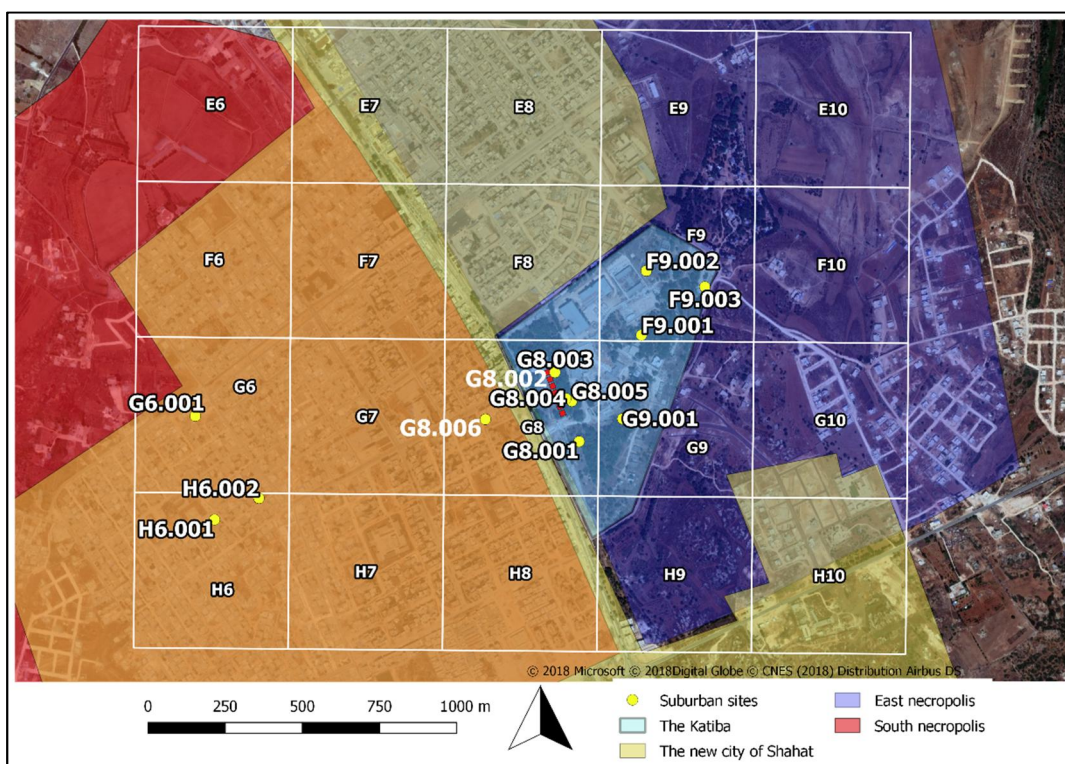
G 3: Distribution of the sites in squares A1-D5.



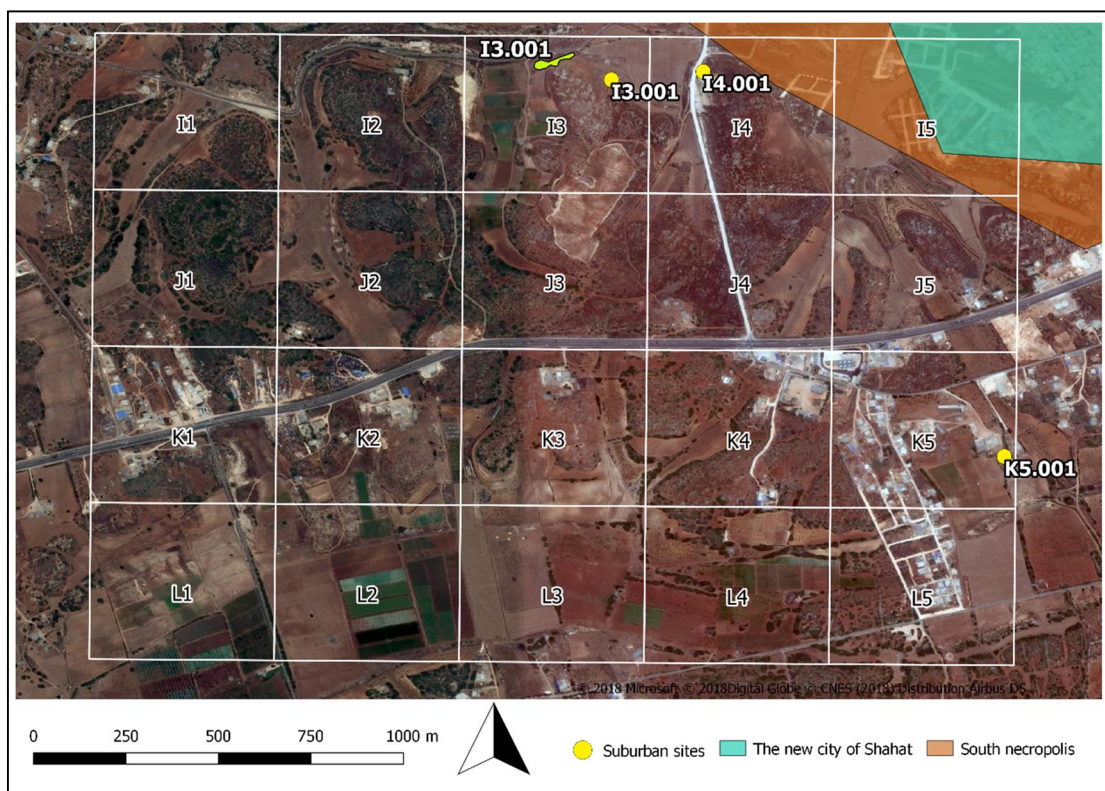
G 4: Distribution of the sites in squares A6-D10.



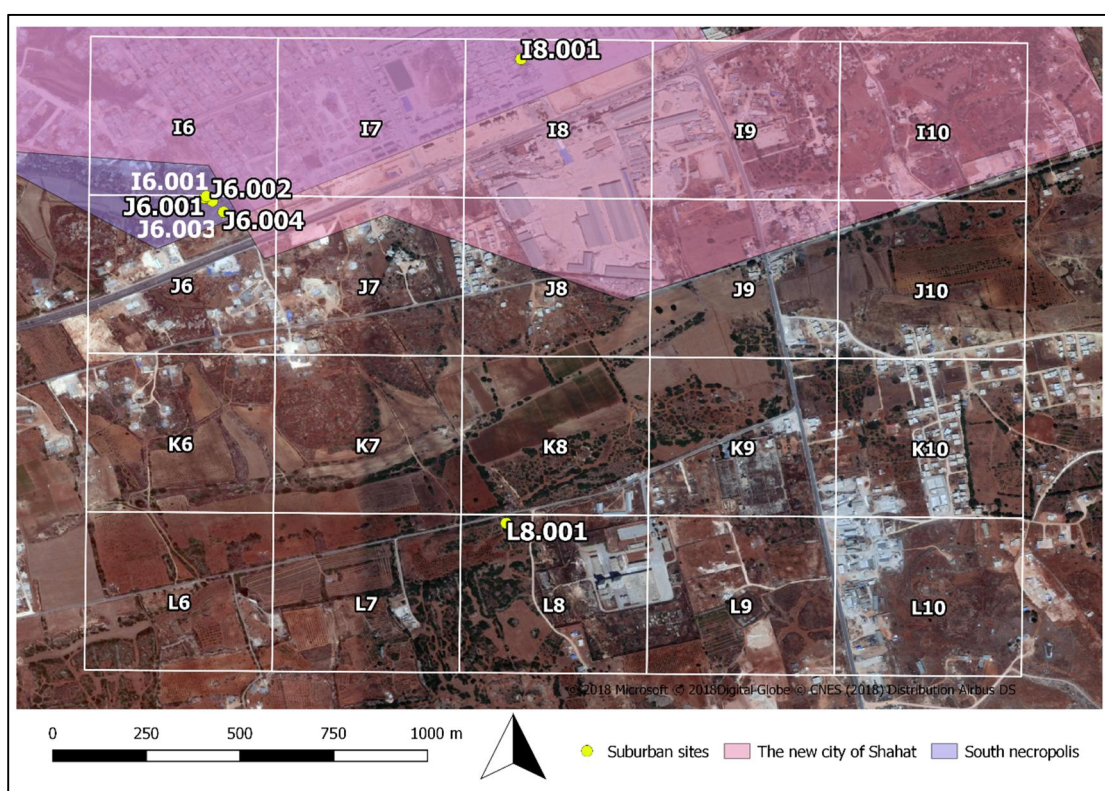
G 5: Distribution of the sites in squares E1-H5.



G 6: Distribution of the sites in squares E6-H10.



G 7: Distribution of the sites in squares I1-L5.



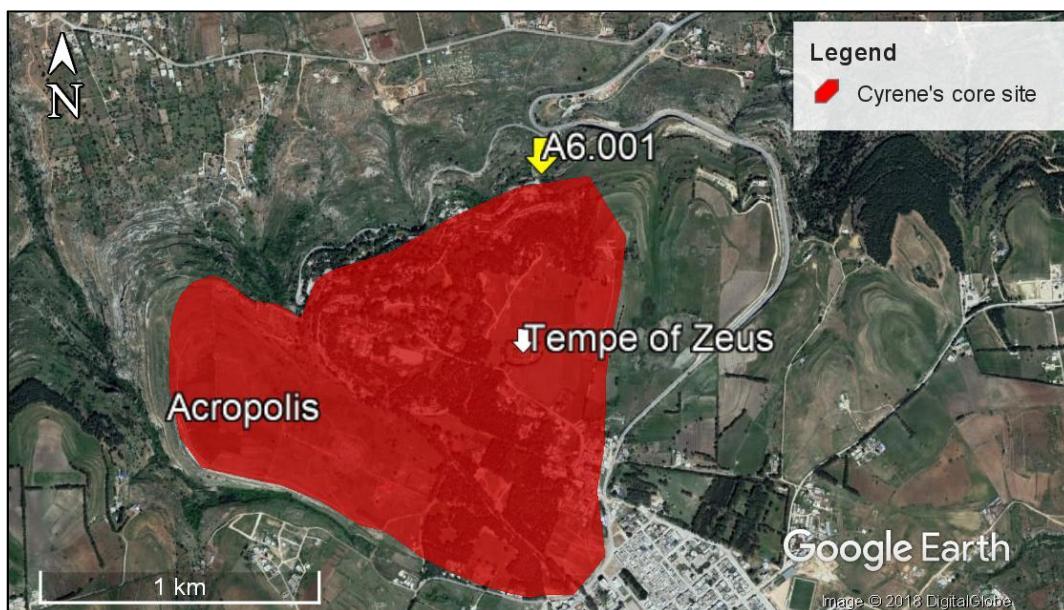
G 8: Distribution of the sites in squares I6-L10.

2 CAS Site Gazetteer

A6.001 Hawa al-Khail olive press

Site Code	A6.001
Ancient name	Unknown
Modern name	Hawa al-Khail olive press
Type	Economic (olive oil press)
Date	Roman
Coordinates	32°49'40.99"N 21°51'47.21"E
Current condition	Very good
Possible threat of destruction	Rubbish dumping and modern development.

Description: the Hawa al-Khail olive press is located on the northeast side of the Northern Necropolis of Cyrene (G 9). The site most probably was a rock-cut tomb converted later into an olive oil press. This olive oil press consists of two rock-cut chambers: The first chamber is the main one which contains several elements of the pressing facilities such as a crushing basin and a number of rectangular basins cut into the bedrock, in addition to channels which directed the oil into adjacent sunken tanks (see G 10 and G 11). The second chamber was cut in the north-west corner of the first one and contained only two small basins.



G 9: Location of Hawa al-Khail olive oil press A6.001.



G 10: A view of the crushing basin of Hawa al-Khail olive oil press (Author).

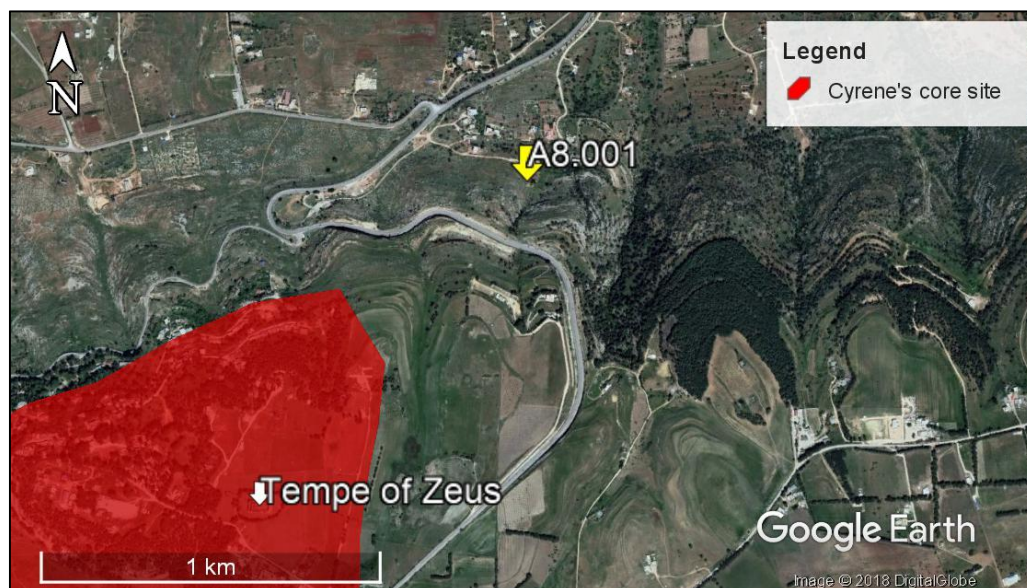


G 11: A view of rock-cut basins in the main room of the olive press (Author).

A8.001 Caf al-Naas olive press

Site Code	A8.001
Ancient name	Unknown
Type	Economic (olive oil press)
Date	Hellenistic/Roman
Coordinates	32°49'51.09"N 21°52'14.93"E
Current condition	Poor
Possible threat of destruction	Waste disposal and modern development.

Description: This olive press is located about 5 km north of the ancient site of Cyrene (G 12). It consists of three rooms cut into a cave, one behind the other, into the west face of a limestone cliff (G 13). A crushing basin was placed in the middle of the first room, in addition to two niches cut into the west wall above the pressing place in order to anchor the fixed end of the beam.



G 12: Location of Caf al-Naas olive oil press A8.001.



G 13: A view of the site of Caf al-Naas. Looking west. (Photo by Buzaian).

B6.001 Temple of Eluet Gassam

Site Code	B6.001
Ancient name	Unknown
Modern name	Eluet Gassam. Known also as Qasr al-Afrita
Type	Religious
Date	Probably from the fourth century BC
Coordinates	32°49'28.58"N 21°51'47.16"
Current condition	Poor
Possible threat of destruction	Modern development and removing site materials.

Description: The building now visible on this location is a fort built during the Italian occupation, positioned on a hill located about 220 m to the north of the temple of Zeus, and trapezoidal in plan and measured W: 47 m; E: 45 m; S: 29 m; N: 27 m (G 14). The fort was constructed on the foundations of a small temple built probably in the fourth century BC (Kenrick 2013, 225). The temple stands on a platform of three steps, was built up to form a terrace with two columns on its north face and seems to have never possessed a surrounding colonnade. The only visible part of the foundation of the temple now is on the north side of the fort (G 15).



G 14: Location of the temple of Eluet Gassam B6.001.

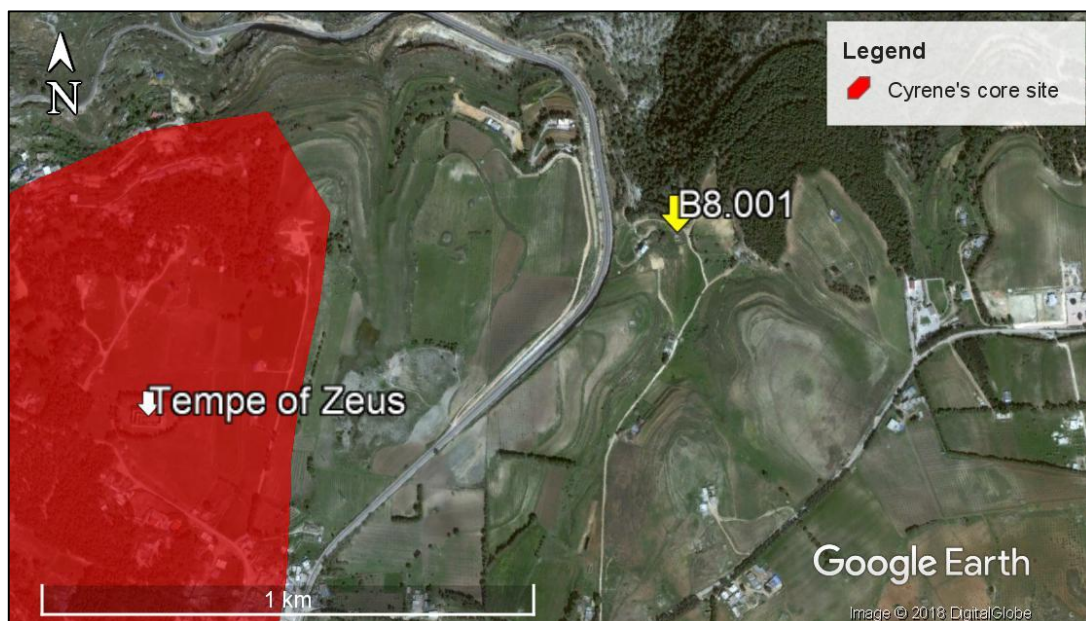


G 15: General view of the Italian fort, looking southeast (Author).

B8.001 The tomb of Ain Hofra

Site Code	B8.001
Ancient name	Unknown
Modern name	The tomb of Ain Hofra
Type	Funerary/Religious
Date	Roman
Coordinates	32°49'32.61"N 21°52'26.59"E
Current condition	Poor
Possible threat of destruction	Removing site materials and agricultural activities.

Description: This monumental built tomb is positioned on the top of Wadi Ain Hofra and faces the sea to the north (G 16). The tomb consisted of three rooms (labelled A, B and C); rooms A and C had columns on the northern entrance side (G 17), while room B is situated in the back and connected with the other two rooms. Some of the stone slabs of this tomb have been removed and used to build a new nearby garden wall (see G 18).



G 16: Location of the tomb of Ain Hofra B8.001.



G 17: A view of the northern entrance of the tomb B8.001 (Author).



G 18: A view of the new garden wall with some of the stones of the tomb, looking west (Author).

B9.001 Part of a wall?

Site Code	B9.001
Ancient name	Unknown
Modern name	Unknown
Type	Probably part of a field wall
Date	Hellenistic?
Coordinates	32°49'24.12"N 21°52'44.97"E
Current condition	Very poor
Possible threat of destruction	Agricultural activities, removing site materials and clearance for new constructions.

Description: This site is located to the east of temple of Zeus at a distance of 1.5 km and is about 20 m from the gate of the new resort of Shahat (G 19). The site was discovered recently during the expansion of the entrance of the new resort.

At least five stone slabs measuring 1.20 m in length, 0.50 m in width and 0.25 in thickness appear on the site (G 20). More investigation is needed for the site because excavations are needed to determine whether or not these five slabs are linked to any other slabs or building, as well as the function of these slabs and the type of buildings they are related to. These stones may be part of a building or possibly form part of the city wall.



G 19: Location of the site B9.001.

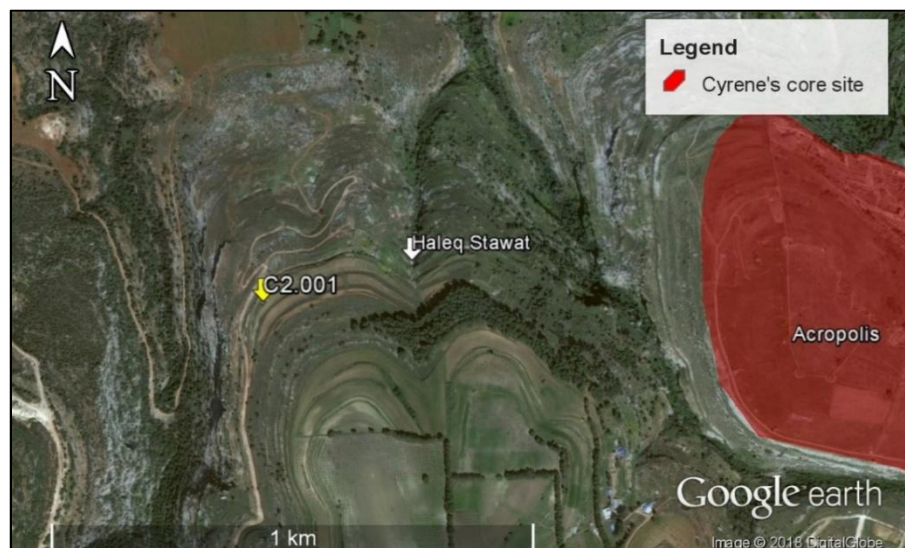


G 20: A view of some of the slabs which appear on the site, looking east (Author).

C2.001 Watchtower

Site Code	C2.001
Ancient name	Unknown
Modern name	Qasr
Type	Probable military watchtower
Date	Hellenistic?
Coordinates	32°49'16.44"N 21°50'20.91"E
Current condition	Fair
Possible threat of destruction	Vegetation and removing site materials

Description: This structure measures 10 x 13 m and is located about 1.2 km west of the core site of Cyrene and about 300 m west of the area known as Haleq Stawat (G 21). The position of this structure high on the edge of the escarpment suggests that it was a watchtower. Due to the sloping ground on which the building is built, its outer walls stand on a terrace of five courses of stone blocks to reinforce it from the north-west and south-west sides (see G 22). The outer walls were built of large stone slabs which mostly measure 3.50 x 1.50 m, especially from the north-west side, while the other sides were built using smaller stone blocks.



G 21: Location of the watchtower C2.001.



G 22: A view of the watchtower, looking southwest (Author).

C2.002 Tomba dell'Altalena

Site Code	C2.002
Ancient name	Tomba dell'Altalena
Modern name	Cave of Haleq Stawat
Type	Funerary monument
Date	Classical to early Hellenistic period
Coordinates	32°49'20.43"N 21°50'32.18"E
Current condition	Poor
Possible threat of destruction	Vegetation and illegal excavation

Description: Wadi Haleq Stawat borders the ancient site of Cyrene on the north-west side. Rock-cut tombs including burial chambers and sarcophagi dating from the sixth to the second century BC were cut on the sides of the deep wadi, some of which have internal façades in the Doric style. The most important of these tombs is known as the Tomba dell'Altalena (G 23), which is a rock-cut cave comprising an internal chamber with a square niche on the wall in front of the entrance and an external Doric façade which includes a frieze with six metopes and triglyphs (G 24).

There are painted scenes on the six metopes which date to the Classical or early Hellenistic period (Fabbricotti 2006, 122). This tomb was recorded for the first time by the Beecheys, who drew the six scenes (Beechey and Beechey 1828, 451-7) (G 25). Pacho (1929, PL. LIV) also drew the whole frieze rather than just the individual metopes and put them in the correct order (see G 26). After this, it was studied by several scholars (Bacchielli 1976, 353-83; Thorn and Thorn 2007, 295; Fabbricotti 2006, 121-2).



G 23: Location of tomb dell'Altalena C2.001.

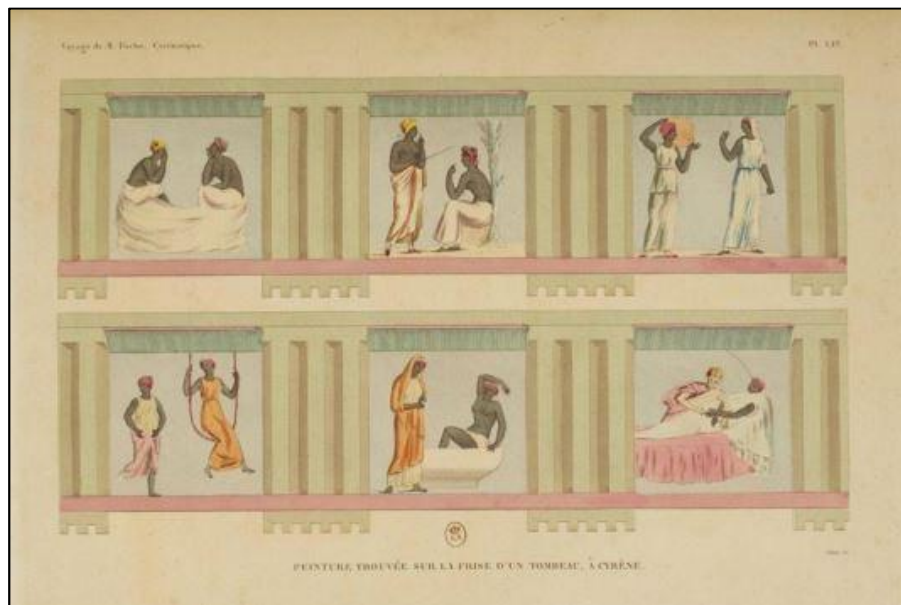


G 24: A view of the entrance of the Tomba dell'Altalena (Fabbricotti 2006, 128).

The scenes were interpreted as a conversation amongst female friends (1); education (2); a stroll (3); a woman looking at a sleeping youth (4); a scene on a swing (5); and a father and son saying farewell to each other (6) (Rekowska 2016, 211). These scenes make up an elegy for a deceased woman. Some of them refer to real life (mourning of the dead woman, lessons and play), while others are symbolic (such as the scene showing Charon and the deceased, as well as a scene with Demeter) (Rekowska 2016, 212). The six metopes were removed by Vattier de Bourville in 1850, who took them to Paris where they remain on display in the Louvre Museum under the numbers 4904-4909 (Rekowska 2016, 140; Fabbricotti 2006, 122).



G 25: The six scenes of the Tomba dell'Altalena as they appear in Beecheys (1828, PL. X).



G 26: Pacho's drawing of the six scenes of Tomba dell'Altalena (Pacho 1827, PL. LIV; Rekowska 2016, 213).

C10.001 Eastern road

Site Code	C10.001
Ancient name	Unknown
Modern name	The Eastern Road
Type	Infrastructure (Road)
Date	Roman
Coordinates	32°49'17.94"N 21°53'1.15"E
Current condition	Poor
Possible threat of destruction	Agricultural activities and modern development.

Description: This section of ancient road is located about 2 km east of ancient Cyrene and extends from south to north in the area between Wadi Ain Hofra and Wadi Bu Miliou, and possibly led to the coast (G 27). The visible part of the road is about 245 m in length and 2.80 m in width with traces of wheel ruts. The road is interrupted on its north side by modern roads and houses, then disappears under new farms on both the north and south sides.

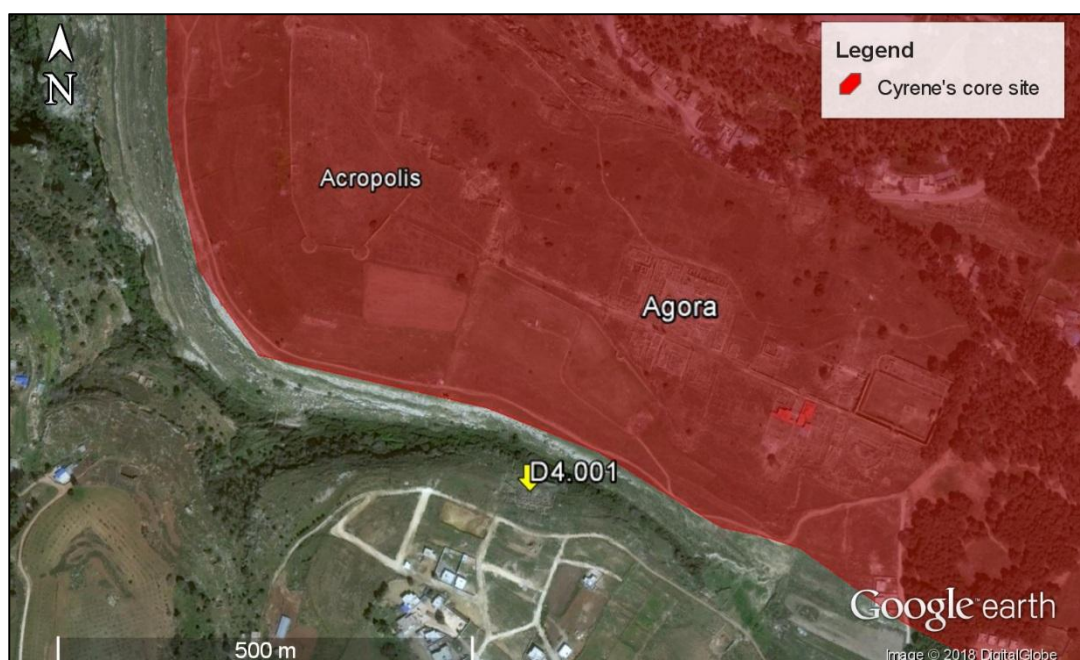


G 27: Location of the Eastern road C10.001.

D4.001 A building sacred to Demeter and Persephone

Site Code	D4.001
Ancient name	Unknown
Modern name	A building sacred to Demeter and Persephone
Type	Religious
Date	Archaic/Classic
Coordinates	32°49'1.86"N 21°51'13.38"E
Current condition	Very poor
Possible threat of destruction	Removing site materials, agricultural activities, modern development and rubbish dumping.

Description: This sacred building is located outside the city walls of Cyrene about 250 m southwest of the Agora, on the western side of the area known today as the Demeter sanctuary (G 28). The building covers about 3,000 sq. m, and was the only structure discovered in this zone during White's excavations in 1969, therefore it was known for some time as the Sanctuary of Demeter (G 29). However, recent excavations and surveys discovered some other structures related to the cult of Demeter and Persephone, extending this sacred area along the southern terrace of the Wadi Bel Ghadir.



G 28: Location of the sacred building at Demeter sanctuary D4.001.

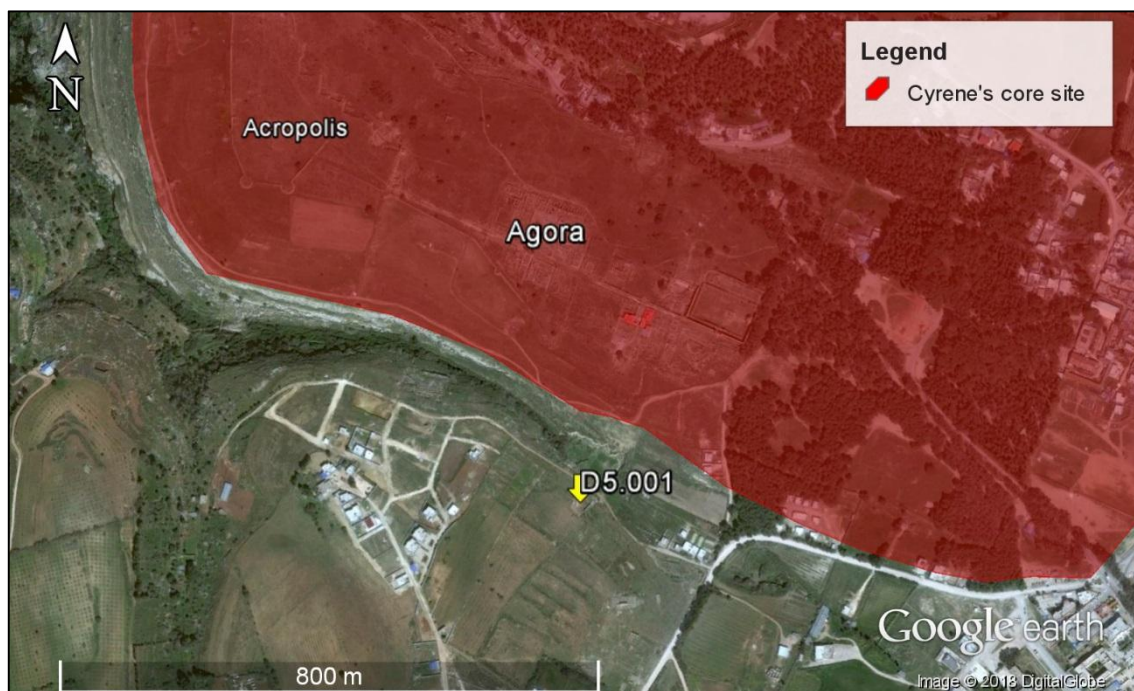


G 29: A general view of the sacred building D4.001, looking southeast. (Author).

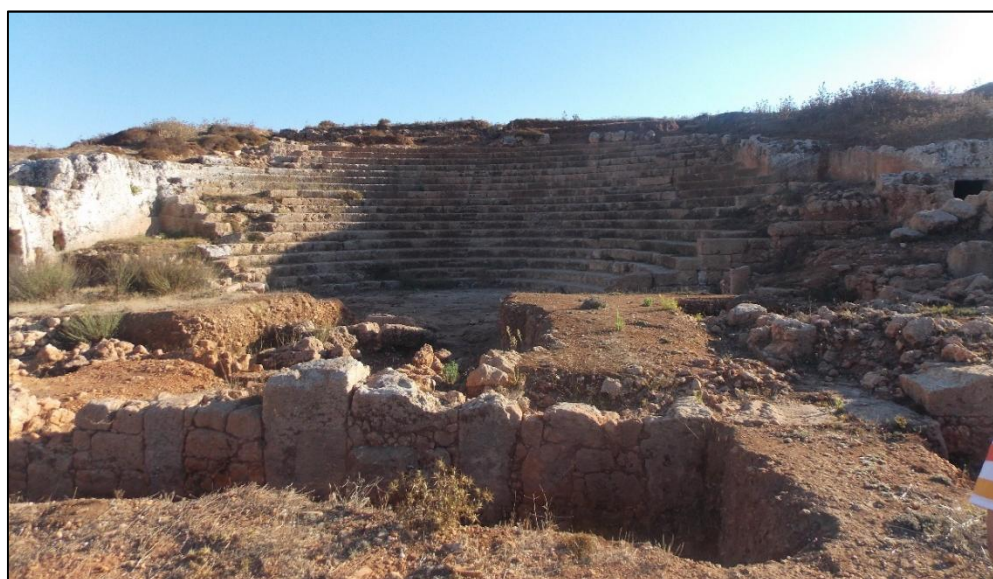
D5,001 Theatre 5

Site Code	D5.001
Ancient name	Theatre
Modern name	Theatre 5/Demeter's Theatre
Type	Entertainment/Religious
Date	Classical/Hellenistic
Coordinates	32°48'56.02"N 21°51'22.32"E
Current condition	Fair
Possible threat of destruction	Modern development and rubbish dumping.

Description: This theatre is positioned outside the walls of Cyrene on the eastern side of the sanctuary of Demeter and Persephone, and about 350 m south of the Agora (G 30). The theatre was almost certainly also an important quarry which provided the stones required for the other buildings within the sanctuary (G 31).



G 30: Location of Theatre 5.

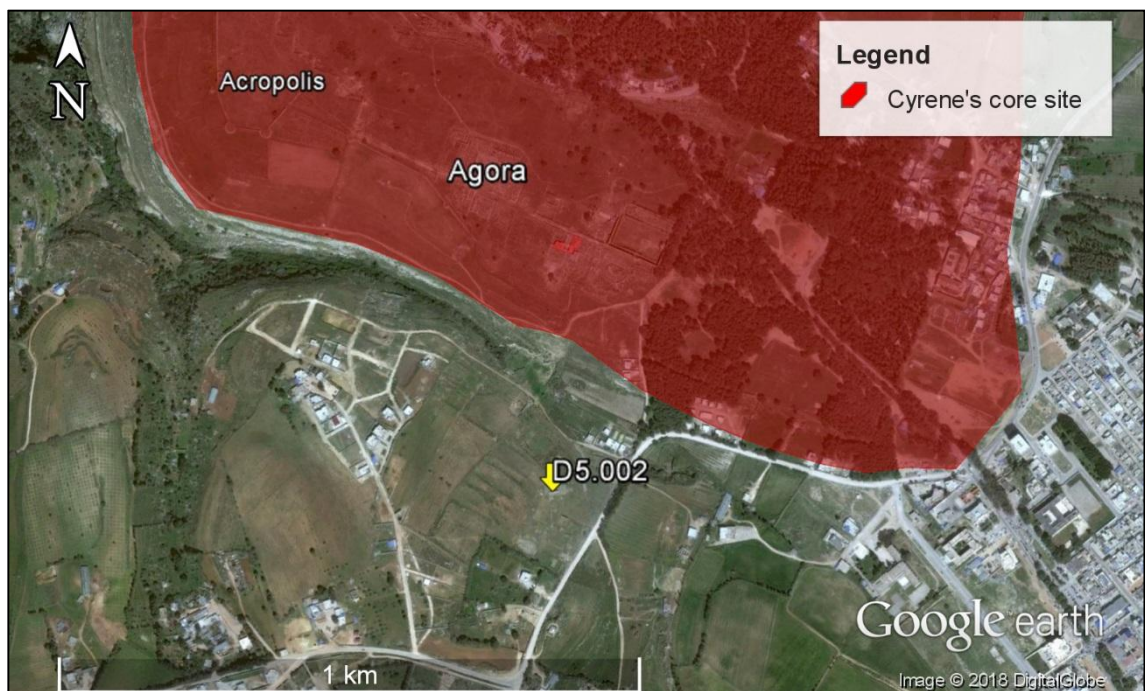


G 31: A general view of the site D5.001, looking northeast (Author).

D5.002 Temple of Demeter

Site Code	D5.002
Ancient name	Unknown
Modern name	Temple of Demeter
Type	Religious
Date	Late Archaic
Coordinates	32°48'51.14"N 21°51'24.66"E
Current condition	Poor
Possible threat of destruction	Modern development, agricultural activities and removing site materials.

Description: This suburban temple is located to the south of Cyrene's urban core, approximately in the centre of the sanctuary of Demeter and Persephone (G 32). This Doric temple is considered as the most significant building in the sanctuary. It consists of six columns across the front, while its cella was divided into three aisles by two rows of seven columns.

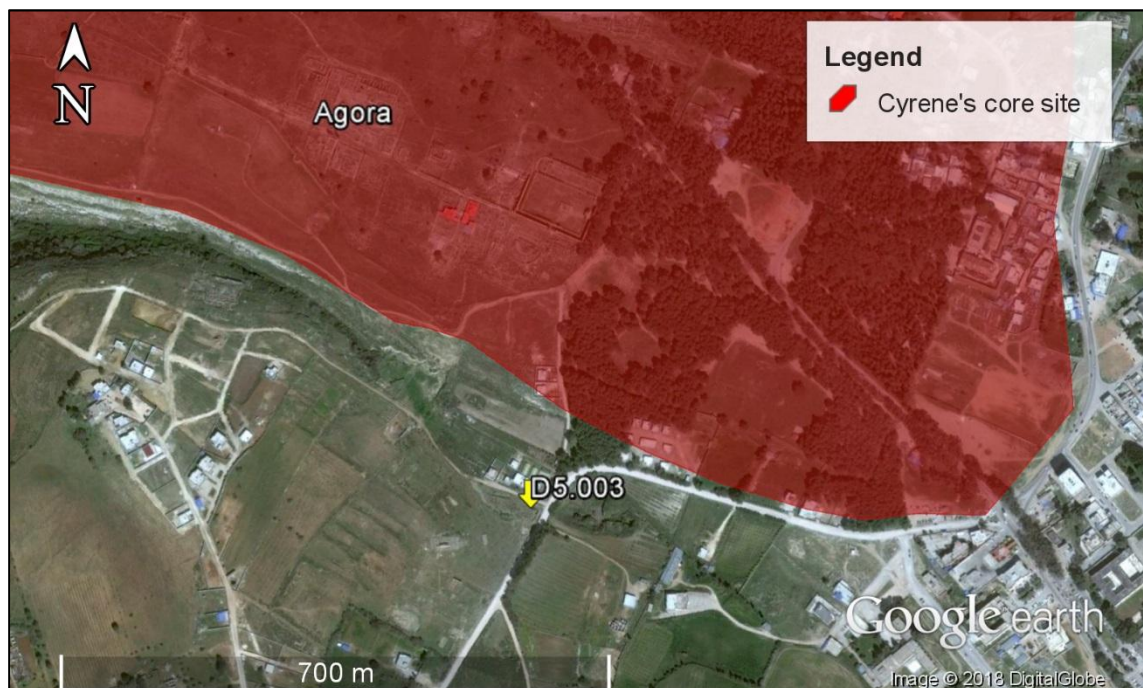


G 32: Location of the temple of Demeter D5.002.

D5.003 Propylaeum

Site Code	D5.003
Ancient name	Unknown
Modern name	Propylaeum
Type	Infrastructure (a monumental entrance to a sacred area or a sanctuary)
Date	Early Hellenistic/Archaic
Coordinates	32°48'52.68"N 21°51'29.09"E
Current condition	Poor
Possible threat of destruction	Modern development and agricultural activities.

Description: This propylaeum is located at the northeast side of the sanctuary of Demeter and Persephone, next to the modern road to Balagrae (G 33). It consists of two rooms flanking a central passageway, and four Doric semi-columns standing on Ionic bases (G 34). It likely formed the main entrance to the sanctuary coming from the city.



G 33: Location of the Propylaeum D5.003.

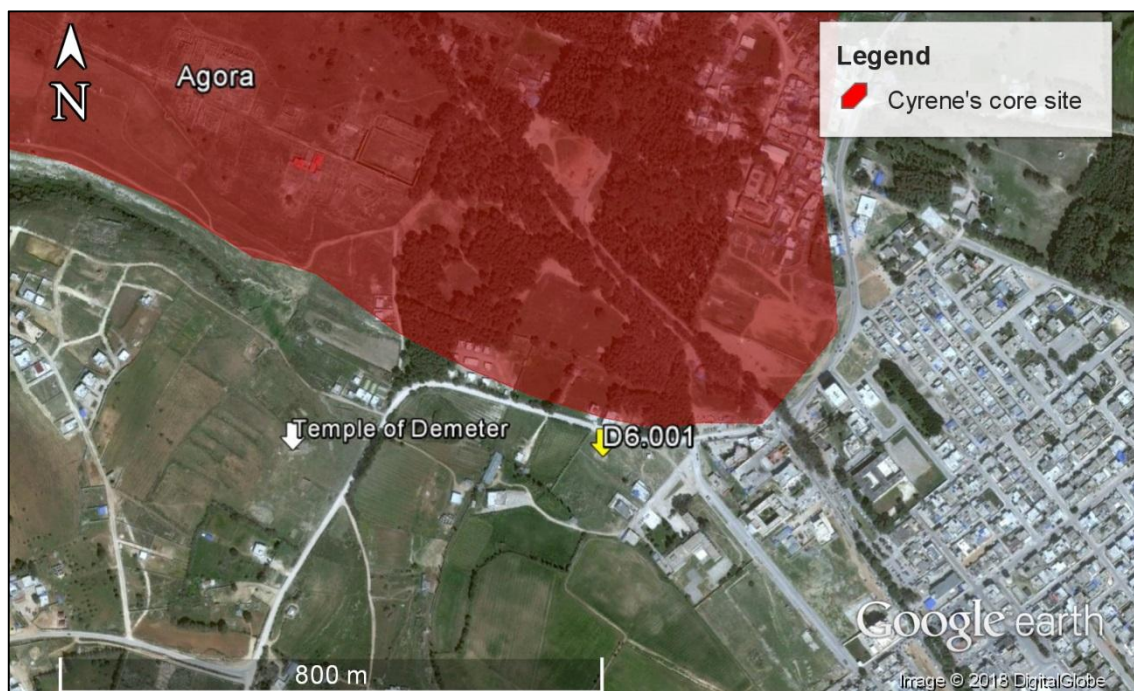


G 34: General view of the propylaeum, looking east (Author).

D6.001 Qasr Grescendi

Site Code	D6.001
Ancient name	Unknown
Modern name	Qasr Grescendi
Type	Religious
Date	Late Roman
Coordinates	32°48'50.82"N 21°51'42.46"E
Current condition	Very poor
Possible threat of destruction	Modern development and agricultural activities.

Description: This suburban basilica is also known as Qasr Grescendi, and is located to the south of the city walls of Cyrene at a distance of about 400 m (G 35). Though this basilica has not been fully excavated yet, its plan can be seen on the ground, including a central nave, side aisles and entrances to the north and west.

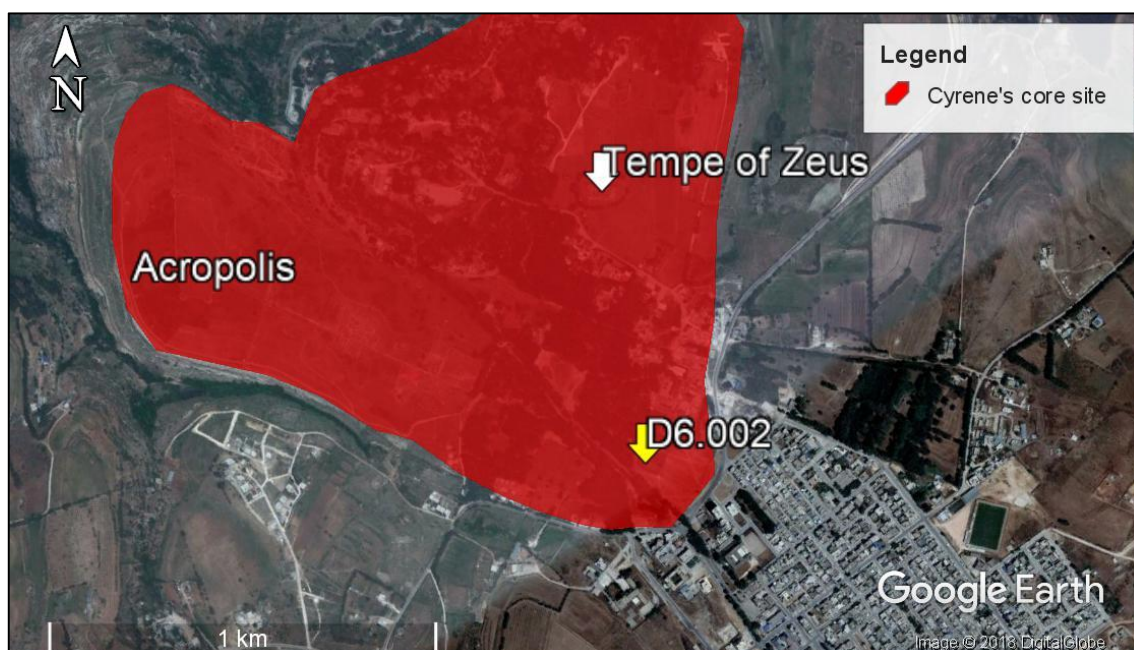


G 35: Location of the basilica of Qasr Grescendi D6.001.

D6.002 The major water cisterns

Site Code	D6.002
Ancient name	Unknown
Modern name	The Major Water Cisterns
Type	Infrastructure (water storage)
Date	Hellenistic/Roman
Coordinates	32°48'57.67"N 21°51'49.01"E
Current condition	Poor
Possible threat of destruction	Waste disposal and modern development.

Description: These major cisterns are located in the south-eastern part of Cyrene (G 36). Only two cisterns can be seen today, with barrel-vaulted roofs, while another five can only be traced by the foundations of their walls. All seven cisterns were part of a huge complex enclosed by a wall.



G 36: Location of the major water cisterns D6.002.

E1.001 Sanctuary of Budaraj

Site Code	E1.001
Ancient name	Unknown
Modern name	Sanctuary of Budaraj
Type	Religious
Date	Classical/Roman
Coordinates	32°48'50.15"N 21°50'14.36"E
Current condition	Fair
Possible threat of destruction	Vandalism and illegal excavation.

Description: This rock-cut sanctuary is located on the terrace in Wadi Bu Nabeh, about 2 km west of the ancient site of Cyrene (G 37). This cultic sanctuary consists of two main chambers cut into the rock and a number of other minor niches and caves.



G 37: Location of the Sanctuary of Budaraj E1.001.

E5.001 The Southern temple

Site Code	E5.001
Ancient name	Unknown
Modern name	The Southern temple
Type	Religious
Date	The fifth century BC
Coordinates	32°48'48.29"N 21°51'22.79"E
Current condition	Poor
Possible threat of destruction	Modern development, removing site materials and agricultural activities.

Description: This temple is located on the southern side of the sanctuary of Demeter and Persephone, to the south of the Temple of Demeter (G 38). The remains of the building show that it was a Doric temple, consisting of 6 x 11 columns enclosing a simple pronaos and naos.



G 38: Location of the Southern temple.

E5.002 The Garden Tomb

Site Code	E5.002
Ancient name	Unknown
Modern name	The Garden Tomb
Type	Funerary
Date	Late Classical/Early Hellenistic
Coordinates	32°48'44.41"N 21°51'24.64"E
Current condition	Fair
Possible threat of destruction	Modern development and illegal excavation.

Description: This tomb is located in the Southern Necropolis, on the south side of the new road to Balagrae (Al-Beida) (G 39). The tomb consists of a large rectangular courtyard with a monumental Doric façade. Inside, it contains two chambers; one on the east side of the tomb and the other on the south side, including several funnel-shaped loculi (G 40).



G 39: Location of the Garden Tomb E5.002.

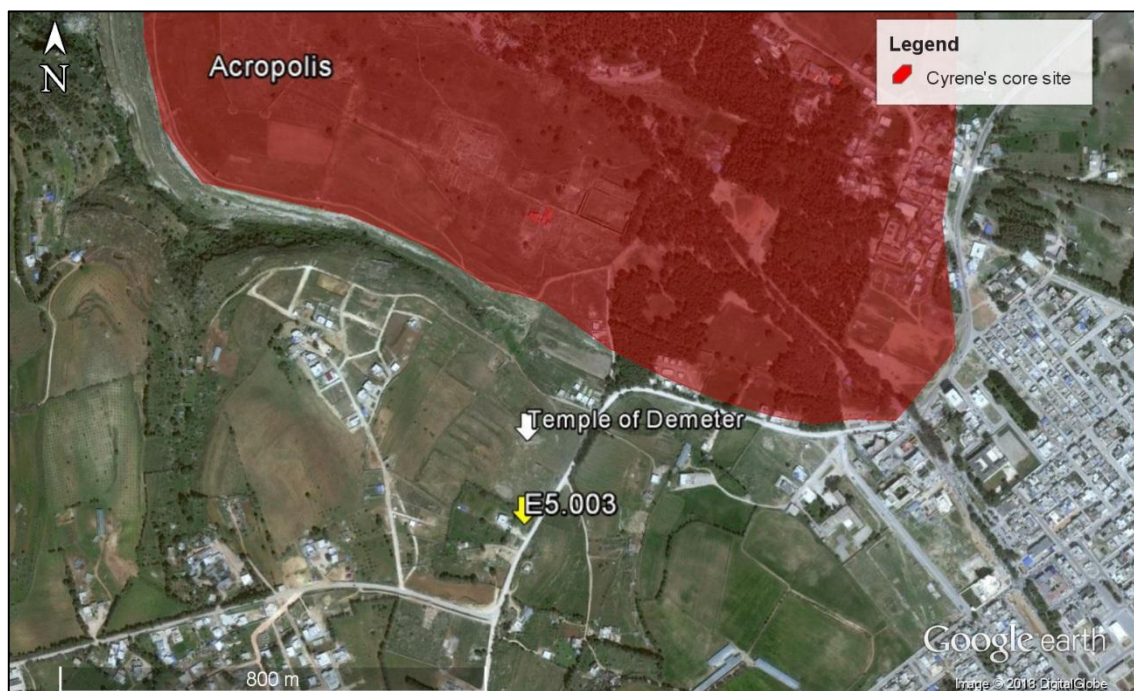


G 40: Entrance to the Garden Tomb, looking north (Author).

E5.003 The Southern wine press

Site Code	E5.003
Ancient name	Unknown
Modern name	The Southern Wine Press
Type	Economic (wine press)
Date	Hellenistic/Roman
Coordinates	32°48'46.04"N 21°51'24.46"E
Current condition	Poor
Possible threat of destruction	Reuse for other purposes, modern development and vandalism.

Description: This wine press is located south of Cyrene's ancient site and is situated about 150 m south of the temple of Demeter (G 41). The site of this press was most probably a rock-cut tomb that measured about 2.5 m x 3m and was later converted into a wine press. The entrance to the chamber was through a doorway on the south side (G 42). From inside, the chamber consists of two main elements: a rectangular treading basin in the western corner of the chamber and a lower circular tank on the eastern side (G 43). A channel which probably directed the fluid into other adjacent sunken tanks can also be seen on the floor.



G 41: Location of the Southern wine press E5.003.



G 42: A view of the entrance of the rock-cut chamber of E5.003, looking south. (Photo by Buzaian).

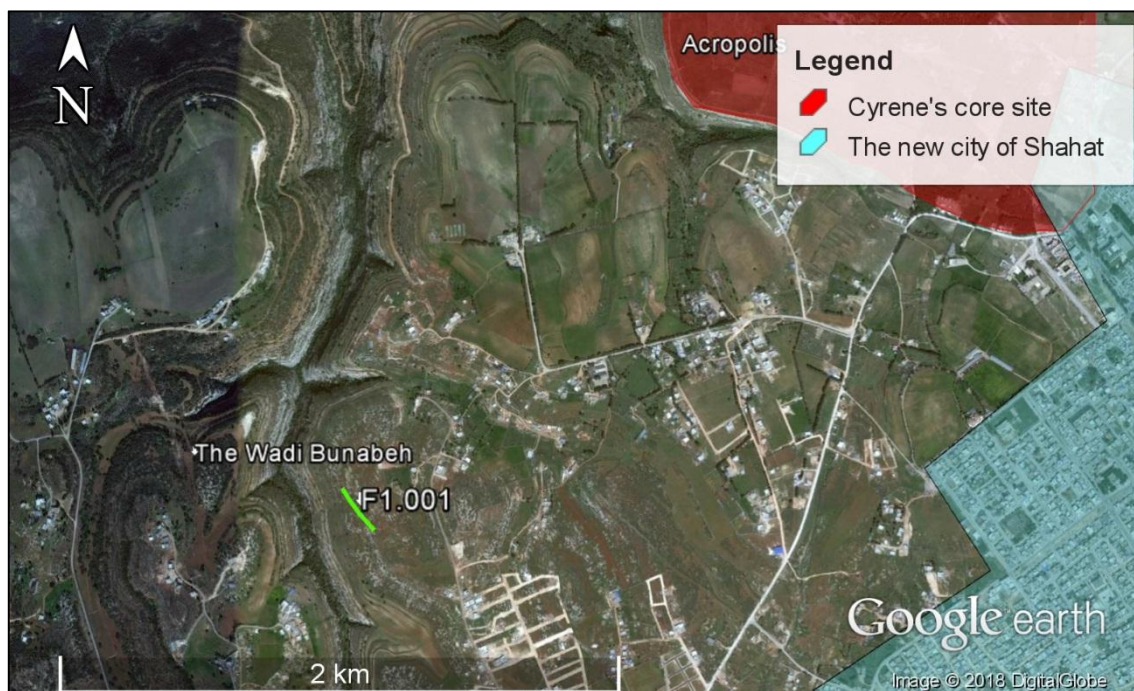


G 43: A view of the wine press from inside, looking south. (Photo by Buzaian).

F1.001 The Wadi Bunabeh's road

Site Code	F1.001
Ancient name	Unknown
Modern name	The Wadi Bunabeh's road
Type	Infrastructure (Road)
Date	Classical?
Coordinates	32°48'19.66"N 21°50'13.97"E
Current condition	Very poor
Possible threat of destruction	Agricultural activities, modern development and erosion.

Description: This road is located east of the Wadi Bunabeh and is about 2 km southwest of the ancient site of Cyrene (G 44). Though the traces of this road in this section are greatly damaged, and the wheel ruts cannot be tracked accurately (G 45), its direction suggests that it probably led to the western part of the Northern Necropolis and was most likely linked to the Southern road to Balagrae.



G 44: Location of the road of Wadi Bunabeh f1.001.

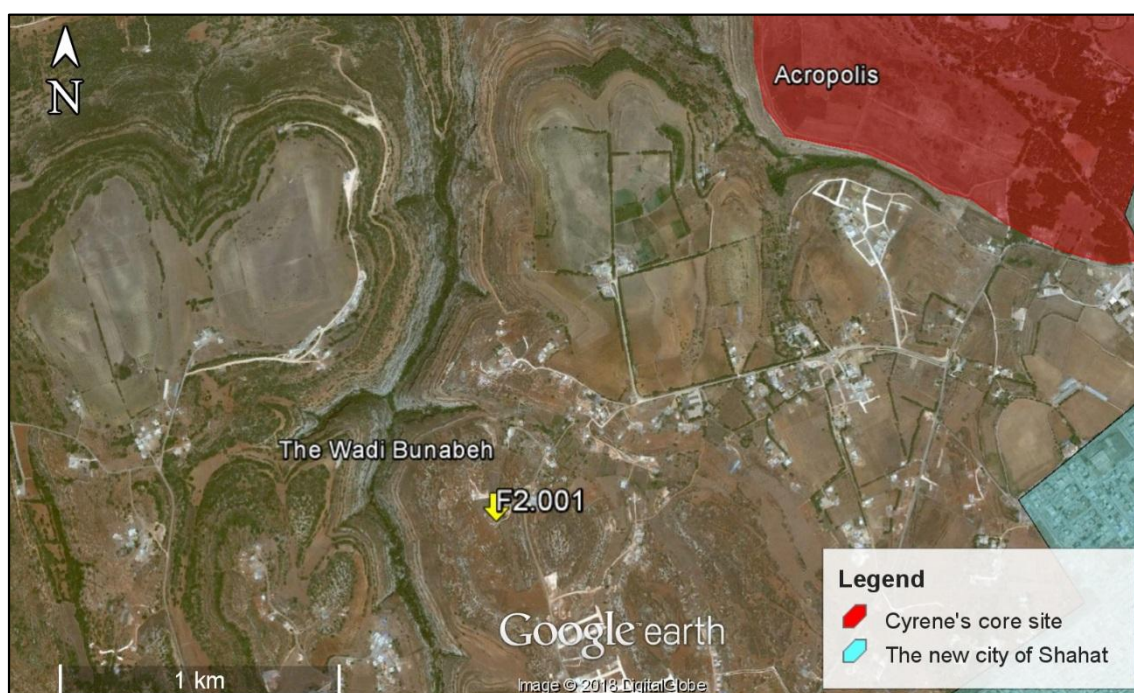


G 45: A view of the traces of the road of the Wadi Bunabeh, looking southeast (Author).

F2.001 The Wadi Bunabeh wine press

Site Code	F2.001
Ancient name	Unknown
Modern name	Wadi Bunabeh wine press
Type	Economic (wine press)
Date	Hellenistic/Roman
Coordinates	32°48'22.22"N 21°50'20.25"E
Current condition	Poor
Possible threat of destruction	Reuse for other purposes and modern development.

Description: This simple wine press is located about 2 km southwest of Cyrene's ancient site near Wadi Bunabeh (G 46). It consists of two main elements: a rectangular treading floor and a lower circular tank.

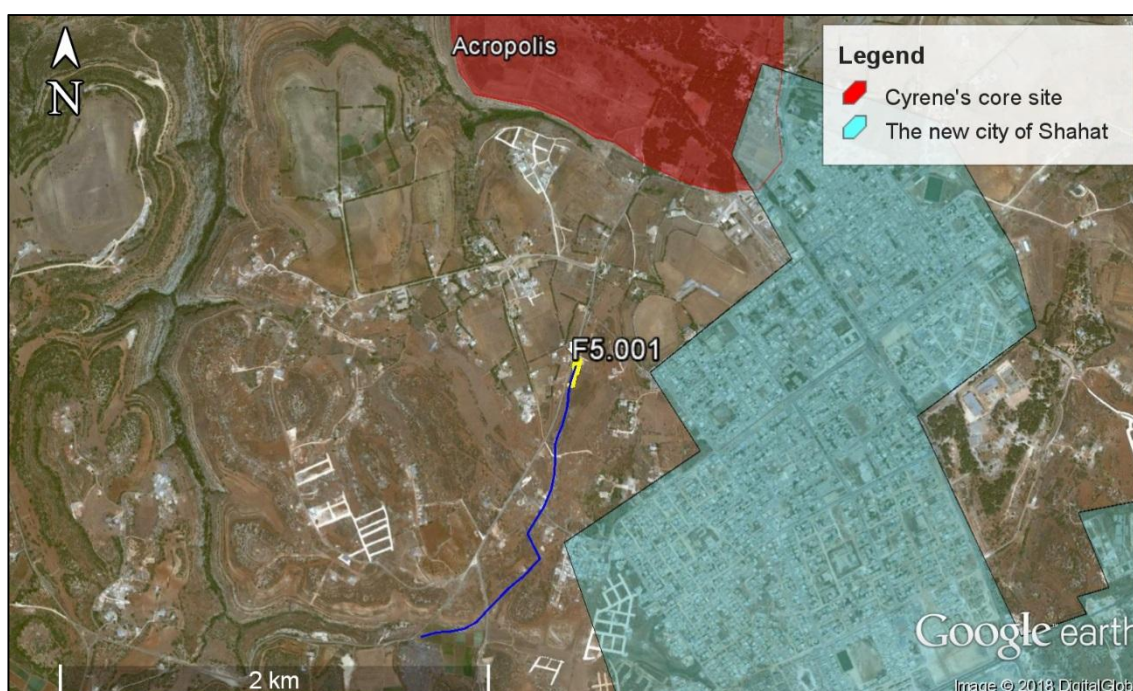


G 46: Location of the wine press near Wadi Bunabeh F2.001.

F5.001 Southern quarries 1

Site Code	F5.001
Ancient name	Unknown
Modern name	Southern quarries 1
Type	Economic (building materials)
Date	Hellenistic/Roman
Coordinates	32°48'24.76"N 21°51'18.70"E
Current condition	Very poor
Possible threat of destruction	Modern development and agricultural activity.

Description: This group of quarries covers an area of about 700 m², and is located about 1 km to the south of ancient Cyrene (G 47). These quarries were also used for burial purposes, since they contain many rock-tombs that probably date to the Hellenistic and Roman eras. (G 48).



G 47: Location of the Southern quarries 1.

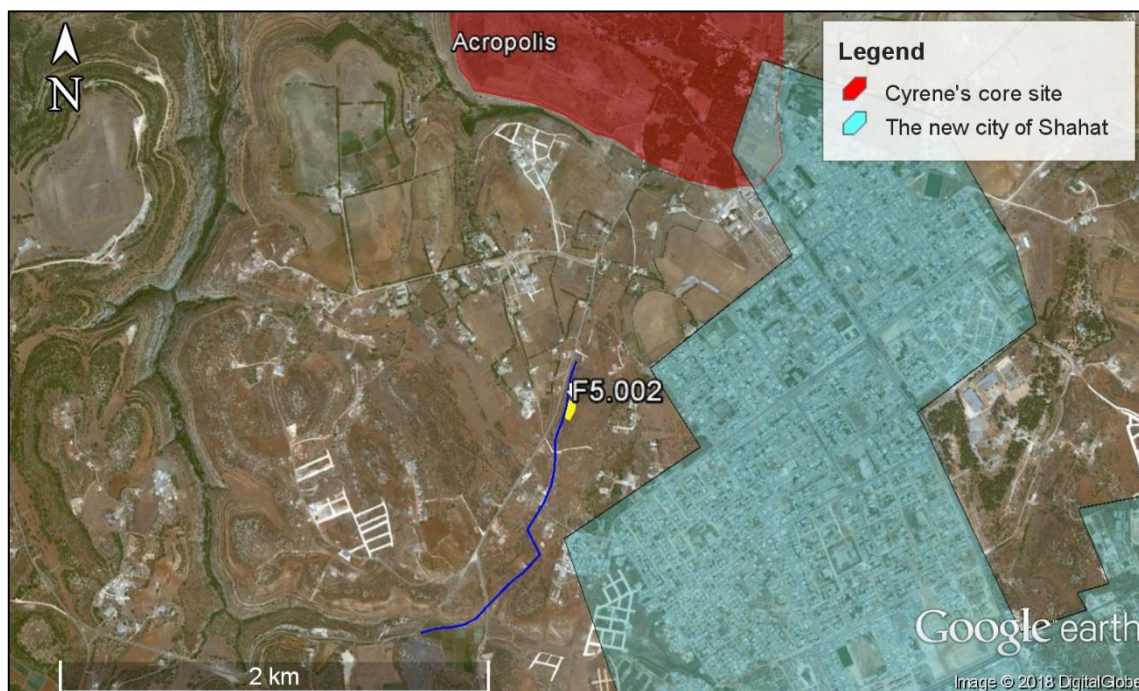


G 48: A view of the Southern quarries 1 of F5.001, looking south (Author).

F5.002 Southern quarries 2

Site Code	F5.002
Ancient name	Unknown
Modern name	Southern quarries 2
Type	Economic (building materials) and funerary
Date	Hellenistic/Roman
Coordinates	32°48'18.43"N 21°51'17.85"E
Current condition	Very poor
Possible threat of destruction	Modern development and agriculture activities.

Description: This quarry lies at a distance of about 150 m to the south of the previous one and covers an area about 500 m² (G 49). Several quarries and tombs of different sizes are still clearly visible in this area, especially on the two sides of the ancient road to Balagrae (G 50).



G 49: Location of the Southern quarries 2.

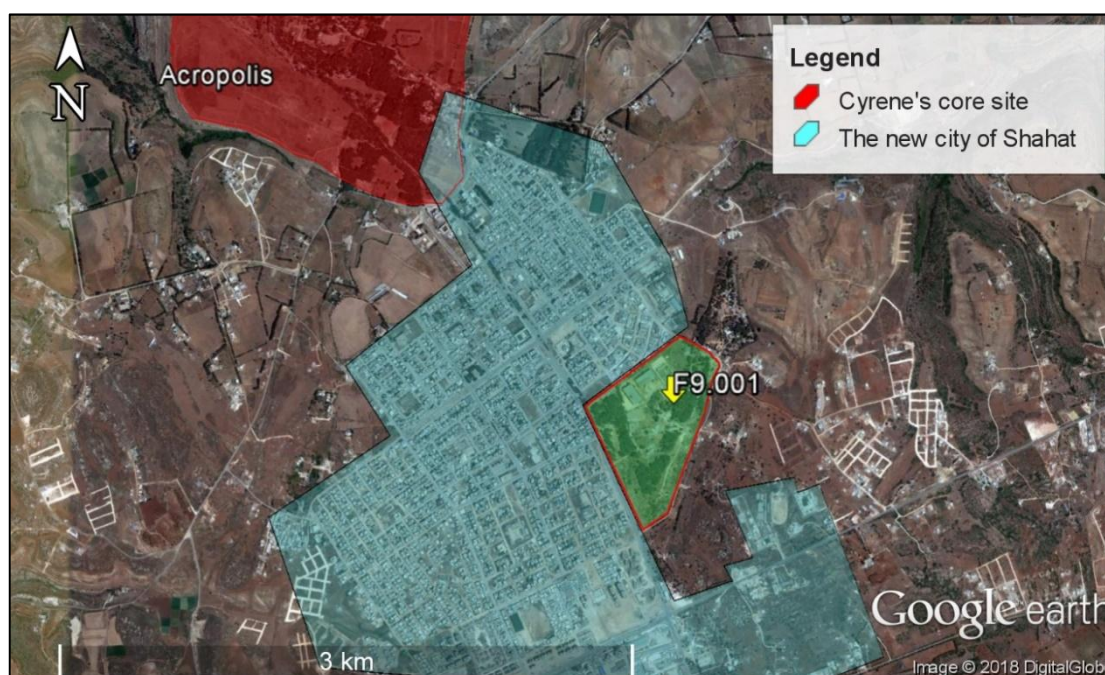


G 50: A view of the Southern quarries 2 (F5.002) with tombs, looking southwest (Author).

F9.001 Farm 1 within the Katiba area

Site Code	F9.001
Ancient name	Unknown
Modern name	Farm 1 within the Katiba area
Type	Economic (fortified productive farm)
Date	Late Roman/Early Byzantine
Coordinates	32°48'18.28"N 21°52'38.33"E
Current condition	Very poor
Possible threat of destruction	Modern development, vegetation and rubbing of site materials

Description: This rectangular farm is located within the area of the Katiba, about 2.5 km southeast of the ancient site of Cyrene (G 51 and G 52). This site was involved in olive oil and wine production and likely was built over a courtyard tomb dates probably to the Hellenistic period (G 53).



G 51: Location of the Farm 1 within the Katiba area F9.001.



G 52: General view of the Farm 1, looking northwest (Author).

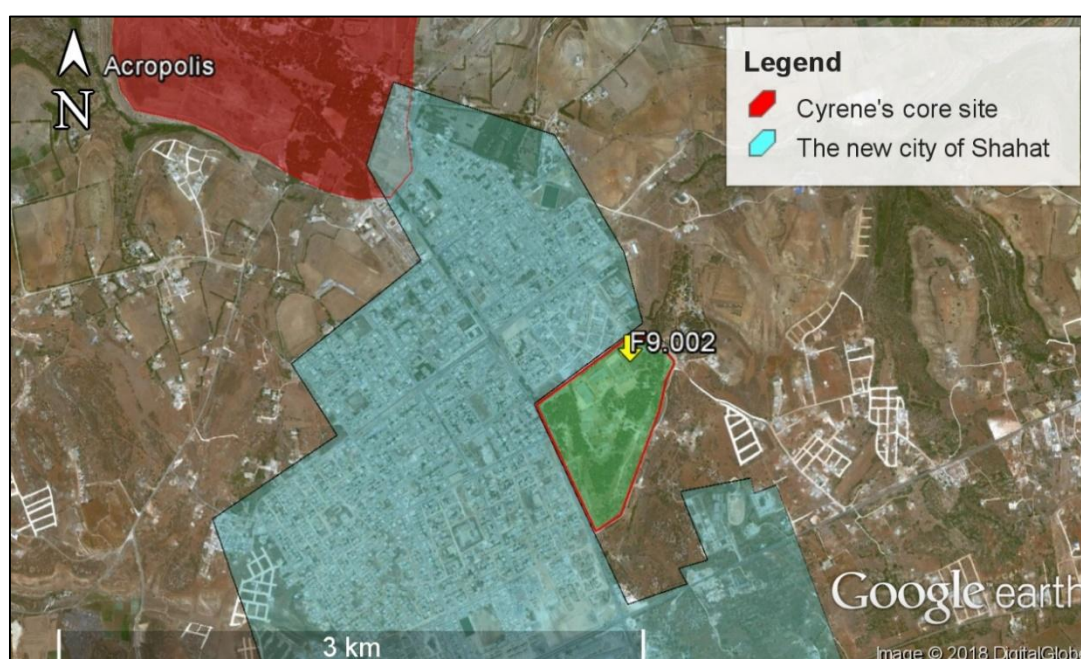


G 53: A view of the square courtyard in the Farm 1 (Author).

F9.002 Farm 2 within the Katiba area

Site Code	F9.002
Ancient name	Unknown
Modern name	Farm 2 within the Katiba area
Type	Economic (fortified productive farm)
Date	Late Roman/Early Byzantine
Coordinates	32°48'25.00"N 21°52'38.93"E
Current condition	Poor
Possible threat of destruction	Modern development and remove site materials

Description: This farm is located about 2.3 km southeast of the ancient site of Cyrene, within the area known as the Katiba (G 54 and 55). Like Farm 1 mentioned above, Farm 2 was also involved in oil production and was built over a courtyard tomb dating probably to the Hellenistic period (G 56). There is a water cistern at the northern side of the farm which measures 5 x 3 m and is linked to the farm by a channel (G 57). Its depth is unknown due to the rubble infill.



G 54: Location of the Farm 2 within the Katiba area F9.002.



G 55: General view of the Farm 2, looking northeast (Author).



G 56: A view of the square courtyard in the farm 2, looking southeast (Author).

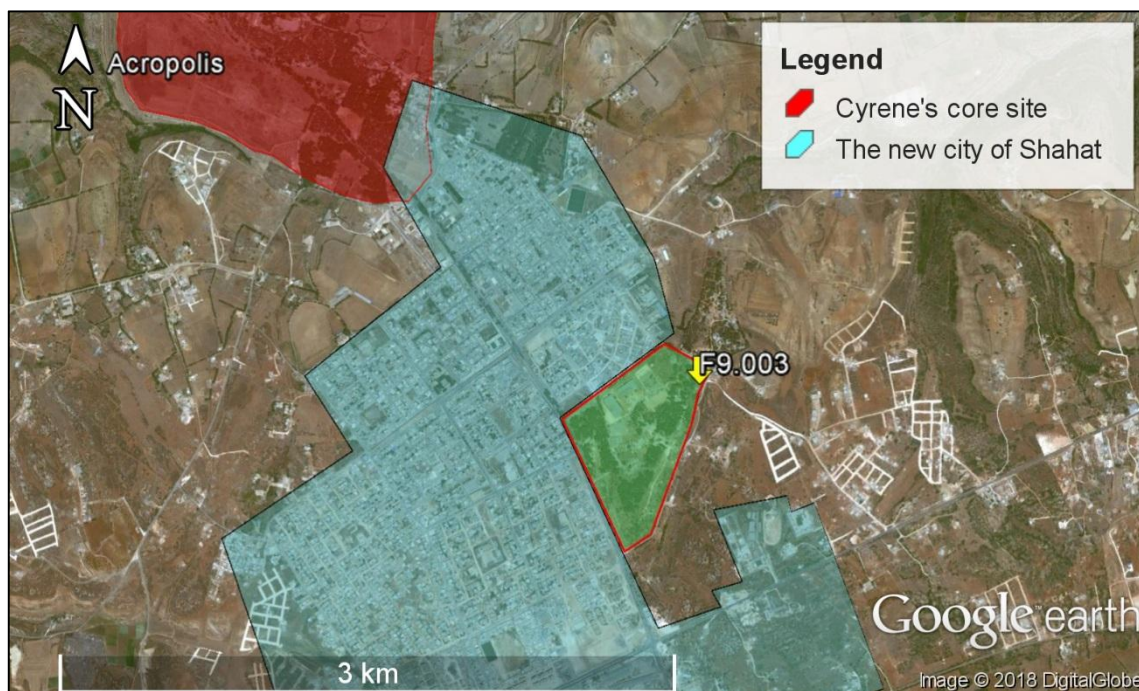


G 57: A view of the water cistern of farm 2, Looking north (Author).

F9.003 The Northeastern cistern on the Katiba

Site Code	F9.003
Ancient name	Unknown
Modern name	The Northeastern Cistern of the Katiba
Type	Infrastructure (water storage)
Date	Hellenistic/Roman?
Coordinates	32°48'23.33"N 21°52'46.22"E
Current condition	Fair
Possible threat of destruction	Waste disposal and modern development.

Description: This rock-cut type cistern is situated on the north-east side of the Katiba (G 58). While it was not possible to investigate the size of the cistern due to the rubble infill, the visible part shows that the cistern is circular in shape and its internal walls were covered by a layer of waterproof material. The cistern has a rectangular opening about 1 m x 0.80 m (G 59).



G 58: The Northeastern cistern on the Katiba F9.003.

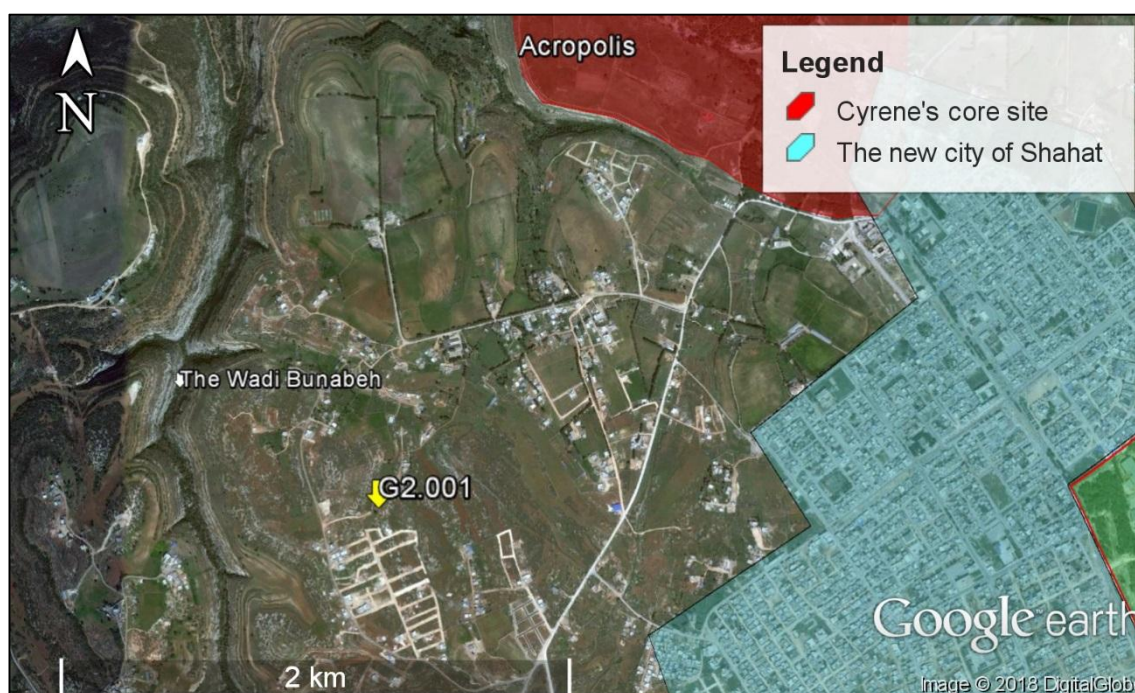


G 59: A view of the opening of the cistern (AR DoA).

G2.001 The Western rocky chambers

Site Code	G2.001
Ancient name	Unknown
Modern name	The Western rocky chambers
Type	Funeral
Date	Hellenistic/Early Roman
Coordinates	32°48'15.07"N 21°50'35.83"E
Current condition	Poor
Possible threat of destruction	Modern development and reuse for other purposes.

Description: These rock-cut tombs are located about 2 km southwest of the ancient site of Cyrene and are known today as the Western rocky chambers (G 60). These chambers are at least 7 in number, are situated beside each other aligned south-north, and are all currently being used for other purposes such as housing domestic animals (G 61).



G 60: Location of the Western rocky chambers G2.001.



G 61: A general view of the rocky chambers, looking west (Author).

G4.001 The Southern road

Site Code	G4.001
Ancient name	Unknown
Modern name	The Southern road
Type	Infrastructure (road)
Date	Sixth century BC
Coordinates	32°48'9.31"N 21°51'14.98"E
Current condition	Poor
Possible threat of destruction	Modern development.

Description: This road is located to the south of the ancient site of Cyrene and possibly led from Cyrene to Balagrae (G 62). The extant part of this road today is about 1.5 km long and up to 4 m wide (G 63). Many different sizes of quarries and tombs are still clearly visible on the two sides of this road.



G 62: Location of the Southern road G4.001.

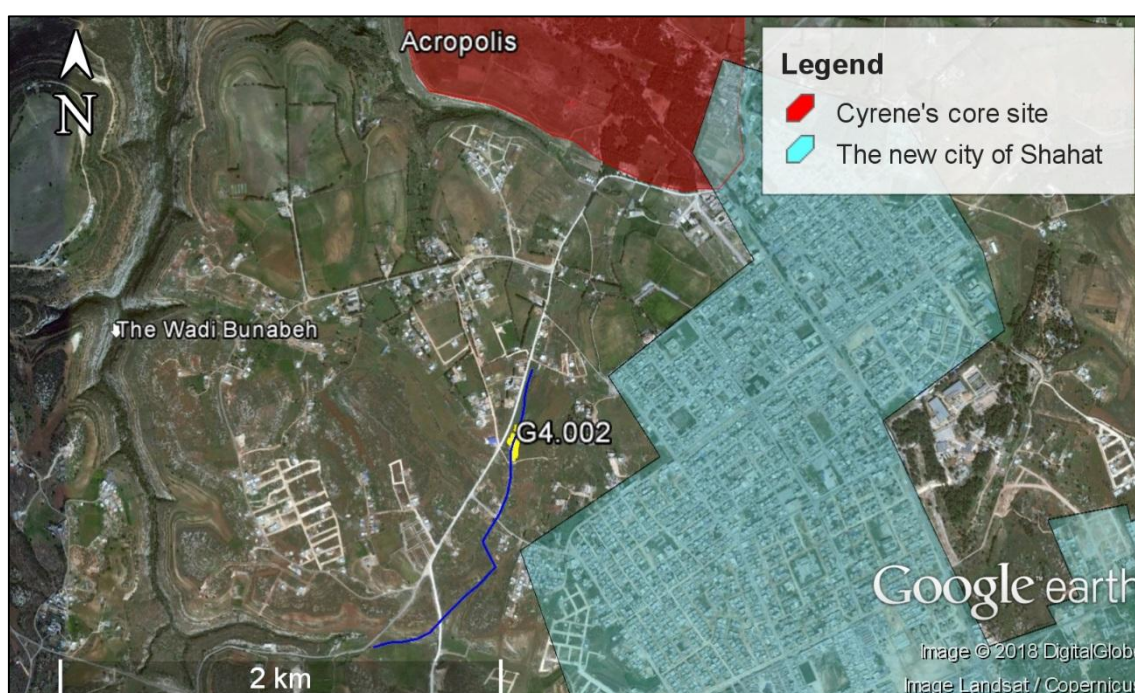


G 63: A view of the Southern road (Author).

G4.002 Southern quarries 3

Site Code	G4.002
Ancient name	Unknown
Modern name	Southern quarries 3
Type	Economic (building materials)
Date	Hellenistic/Roman
Coordinates	32°48'14.21"N 21°51'15.50"E
Current condition	Very poor
Possible threat of destruction	Modern development and agricultural activity.

Description: This series of quarries with tombs occupy an area of about 1600 m² and are located about 900 m south of the city's core on the two sides of the ancient road to Balagrae (see G 64 and 65).



G 64: Location of the Southern quarries 3.

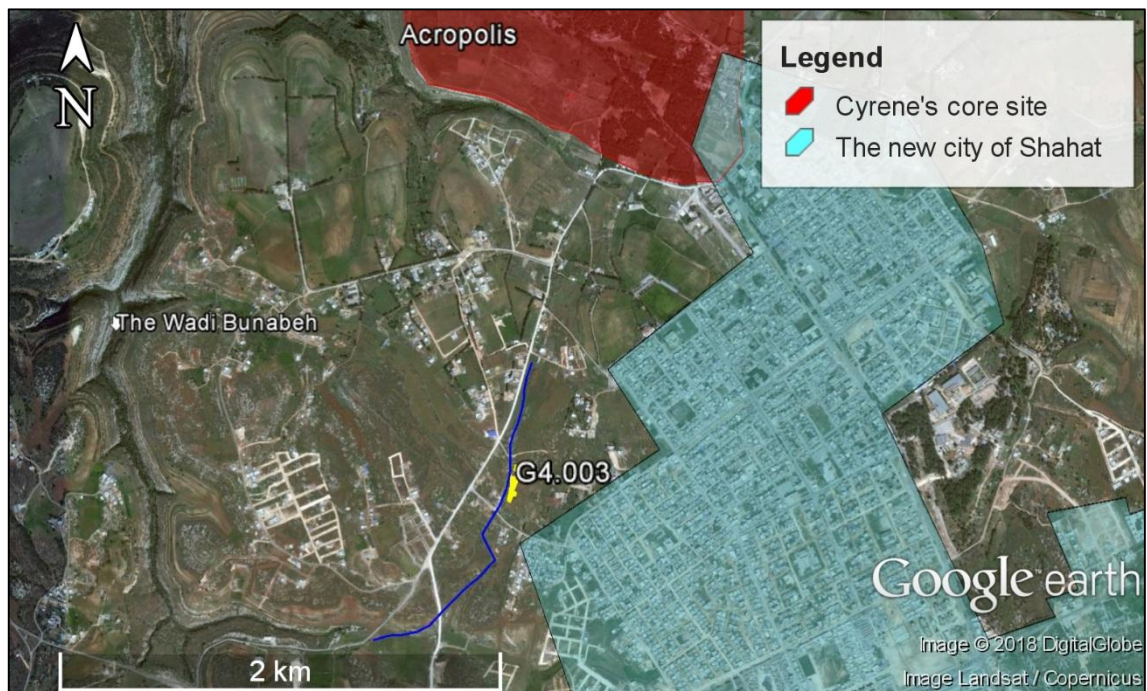


G 65: A view of the tombs on the sides the Southern quarries 3 (G4.002), looking west (Author).

G4.003 Southern quarries 4

Site Code	G4.003
Ancient name	Unknown
Modern name	Southern quarries 4
Type	Economic (building materials)
Date	Hellenistic/Roman
Coordinates	32°48'7.18"N 21°51'15.25"E
Current condition	Very poor
Possible threat of destruction	Modern development and agriculture activity.

Description: These quarries are located about 130 m south of the Southern quarries 3 (G 66). They occupy an area of about 800 m² and also contain a number of rock-cut tombs (G 67).



G 66: Location of the Southern quarries 4.

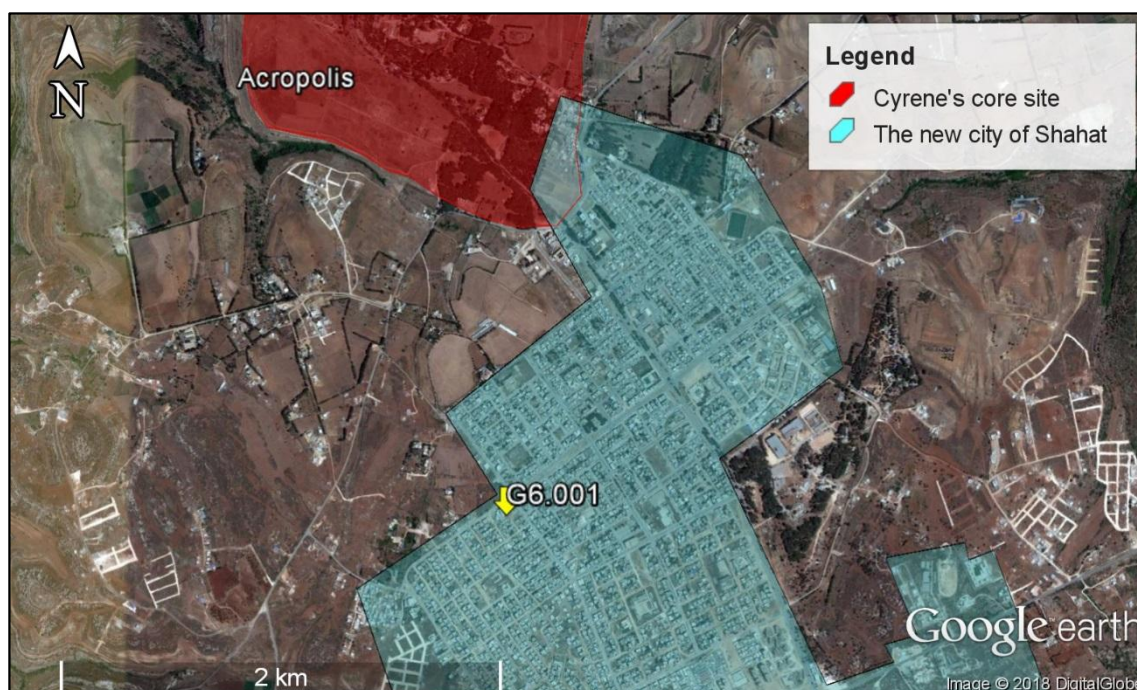


G 67: A view of the Southern quarries 4 (G4.003), looking north (Author).

G6.001 The Western tomb 1

Site Code	G6.001
Ancient name	Unknown
Modern name	The Western tomb 1
Type	Funerary
Date	Hellenistic or early Roman
Coordinates	32°48'9.84"N 21°51'42.79"E
Current condition	Poor
Possible threat of destruction	Modern development.

Description: This temple tomb is located on the west side of the modern city of Shahat, about 1.5 km south of ancient Cyrene (G 68). The tomb measures 7.50 m in length, 4.20 m in width and 2.30 m in height, and is now at high risk of destruction because it is surrounded by modern houses and construction continues in the area around it.



G 68: Location of the Western tomb 1 (G6.001).

G8.001 Temple tomb

Site Code	G8.001
Ancient name	Unknown
Modern name	Tomb
Type	Funerary
Date	Probably Hellenistic or early Roman
Coordinates	32°48'7.17"N 21°52'30.57"E
Current condition	Poor
Possible threat of destruction	Bulldozing for new constructions and removing site materials

Description: This temple-type tomb is located within the Katiba area (G 69). The tomb measures 6.50 m in length, 3.20 m in width and 2.30 m in height (G 70), and the area adjacent to it consists of a number of other smaller tombs. More new buildings are being built in the area, which makes the tomb vulnerable to destruction.



G 69: Location of the temple tomb within the Katiba G8.001.

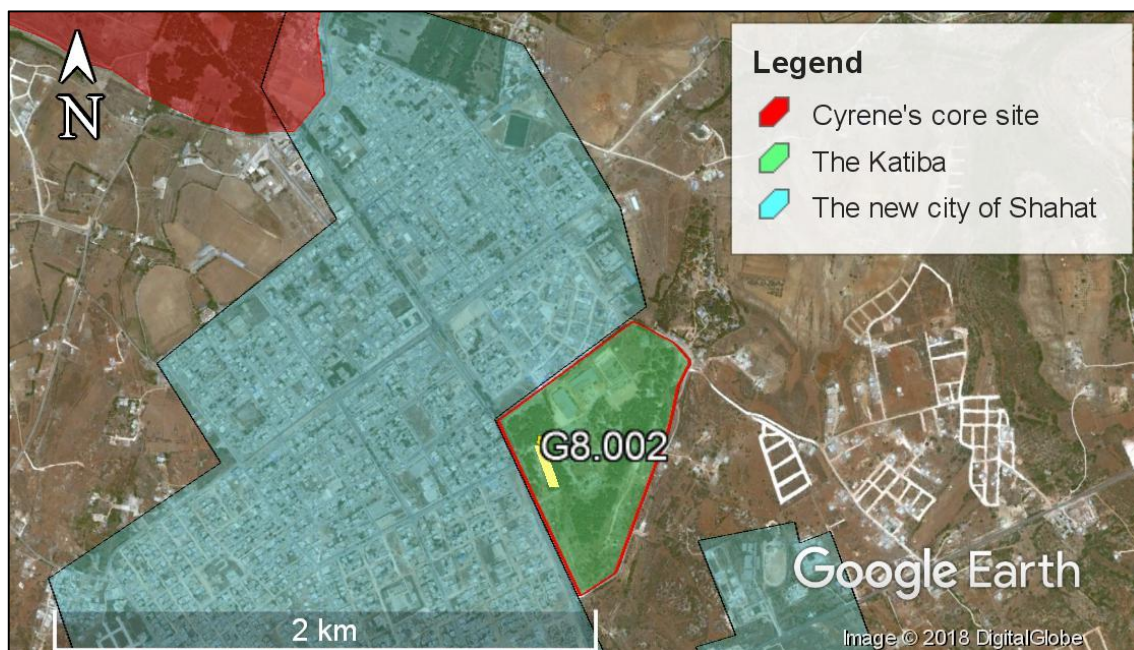


G 70: A view of the tomb, looking west (Author).

G8.002 The road of the Katiba

Site Code	G8.002
Ancient name	Unknown
Modern name	The road of the Katiba
Type	Infrastructure (road)
Date	Roman
Coordinates	32°48'12.53"N 21°52'27.49"E
Current condition	Poor
Possible threat of destruction	Modern development.

Description: This road is located within the area of the Katiba, and is extended from south to north (G 71). The visible part of the road today is about 1.30 m in length and 4 m in width with traces of wheel ruts (G 72). The road was completely destroyed from its both north and south sides and then interrupted by modern buildings.



G 71: Location of the road of the katiba G8.002.

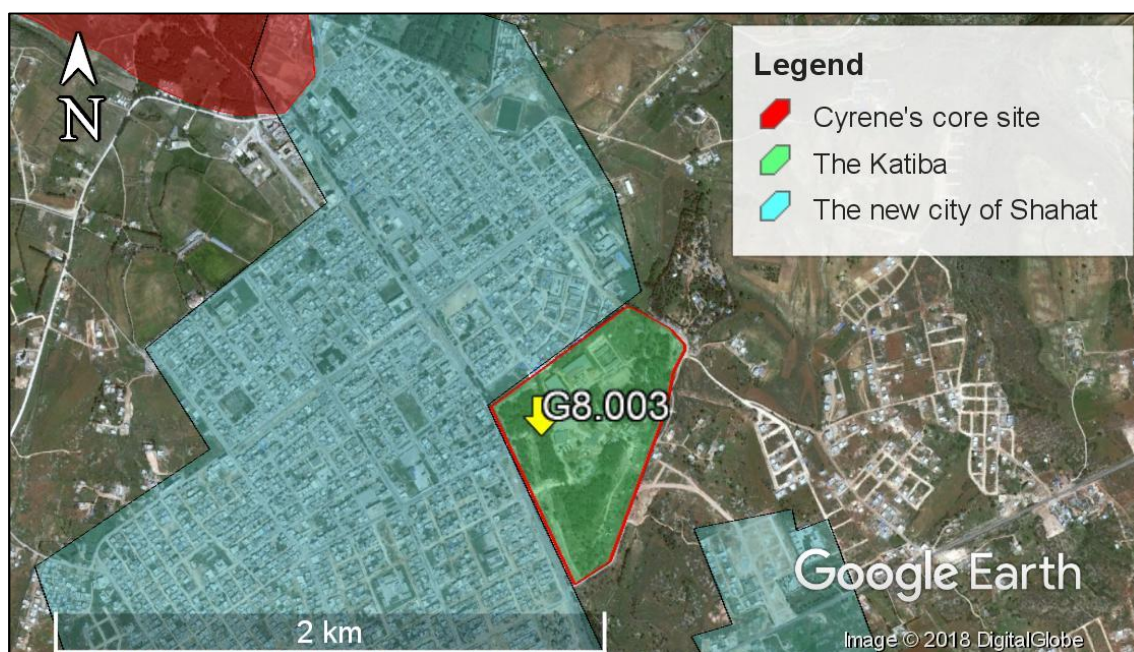


G 72: A general view of the Katiba road (Author).

G8.003 The Katiba's built cistern

Site Code	G8.003
Ancient name	Unknown
Modern name	The Katiba's built cistern
Type	Infrastructure (water storage)
Date	Roman
Coordinates	32°48'14.40"N 21°52'27.56"E
Current condition	Fair
Possible threat of destruction	Waste disposal and modern development.

Description: This built cistern is located within the Katiba area (G 73). It is an open-air cistern type which measured 5.50 x 4.80 m and 3.00 m in depth (G 74). The internal sides of the cistern were covered by a thick layer of waterproof material, and there are several steps cut at the south-western corner which may have been used to inspect and clean the cistern.



G 73: The Katiba's built cistern G8.003.

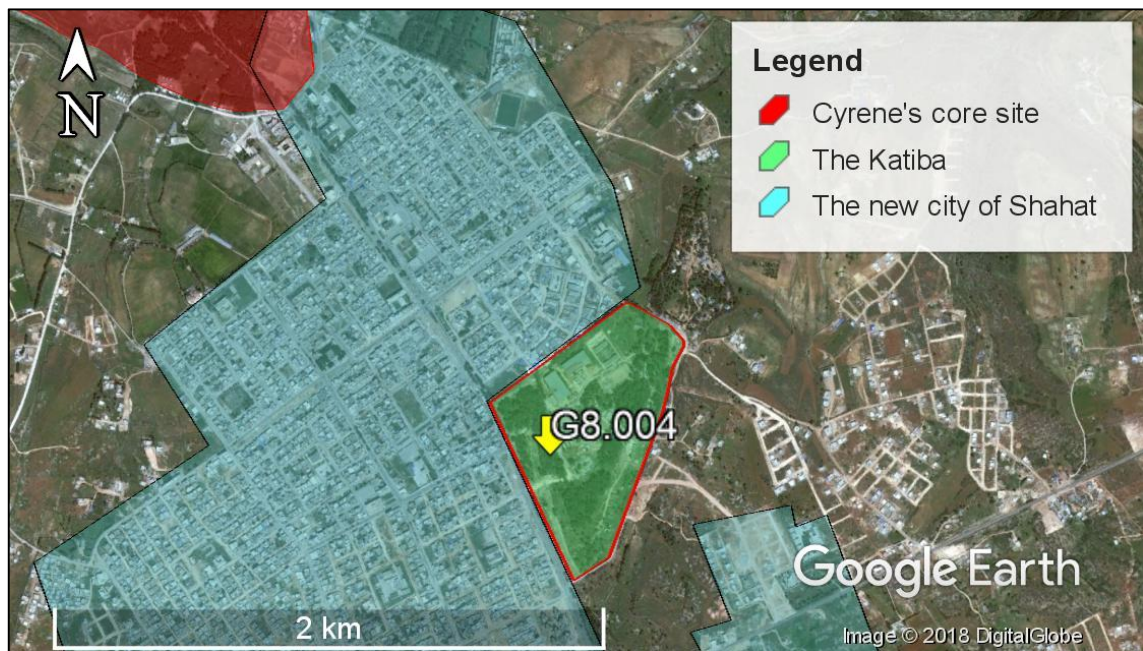


G 74: A view of the Katiba's built cistern, looking northeast (Author).

G8.004 Large circular tomb

Site Code	G8.004
Ancient name	Unknown
Modern name	Large circular tomb
Type	Funerary
Date	Roman
Coordinates	32°48'11.66"N 21°52'28.92"E
Current condition	Poor
Possible threat of destruction	Modern development and vegetation.

Description: This monumental circular tomb is located on the west side of the Katiba, and is positioned on a high podium (see G75 and 76).



G 75: Location of the large circular tomb G8.004.

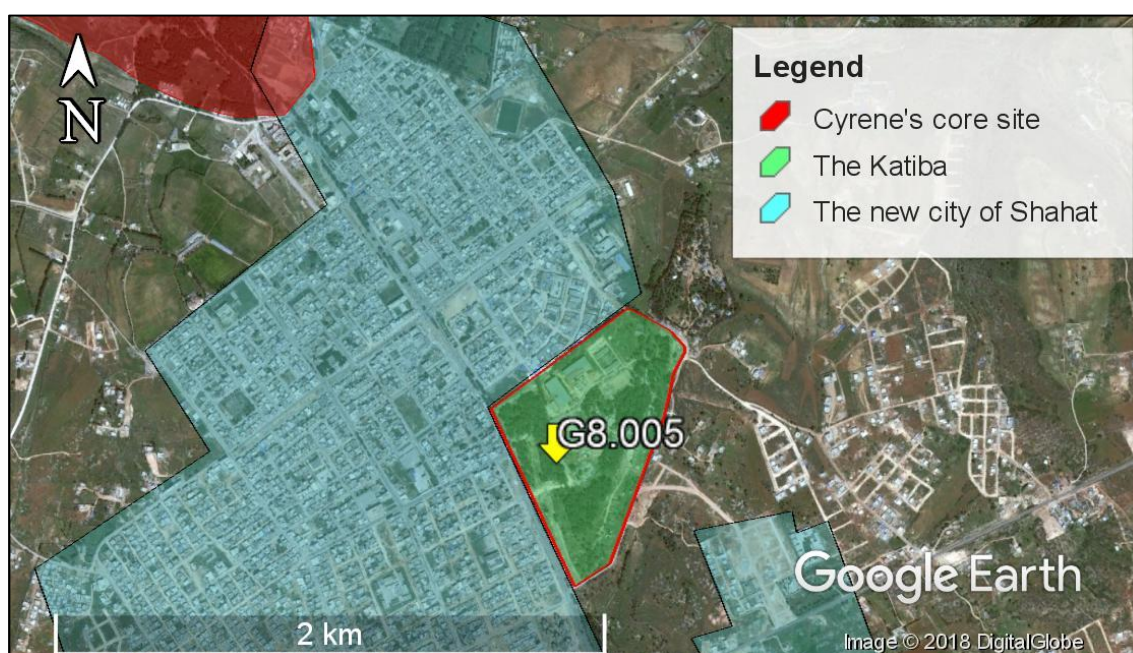


G 76: A view of large circular mausoleum on a high podium, looking west (Author).

G8.005 Large courtyard tomb

Site Code	G8.005
Ancient name	Unknown
Modern name	Large courtyard tomb
Type	Funerary
Date	Hellenistic/Early Roman
Coordinates	32°48'11.39"N 21°52'29.66"E
Current condition	Fair
Possible threat of destruction	Modern development.

Description: This large courtyard tomb is located just to the southeast of the monumental circular tomb mentioned above (G 77). Its courtyard measures 10 x 7 m with four loculi in the façade (G 78).



G 77: Location of the large courtyard tomb G8.005.

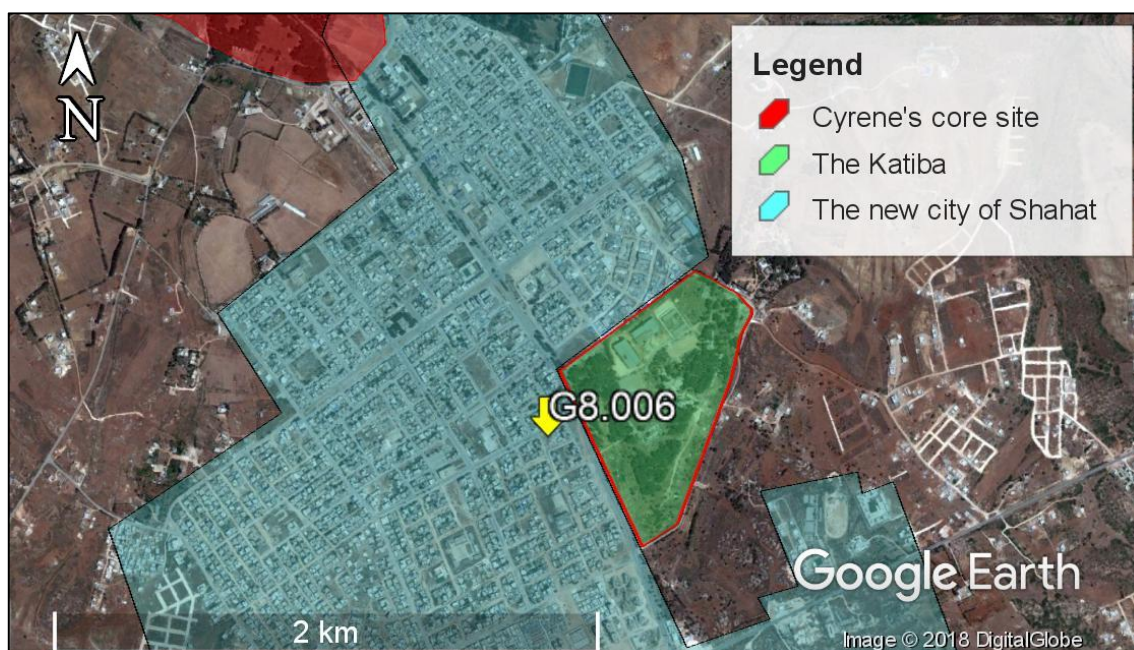


G 78: A view of the courtyard tomb with four loculi, looking east (Author).

G8.006 The Eastern Round tomb

Site Code	G8.006
Ancient name	Unknown
Modern name	The Eastern Round tomb
Type	Funerary
Date	Hellenistic or early Roman
Coordinates	32°48'9.49"N 21°52'18.90"E
Current condition	Very poor
Possible threat of destruction	Modern development.

Description: This tomb is located on the eastern side of the modern city of Shahat, c. 2 km south-east of the city's ancient site (G 79). The visible remains of this tomb show that it is circular in shape with a diameter of about 6 m. This tomb is also at very high risk of destruction because it is surrounded by modern houses and more new buildings are being built around it.

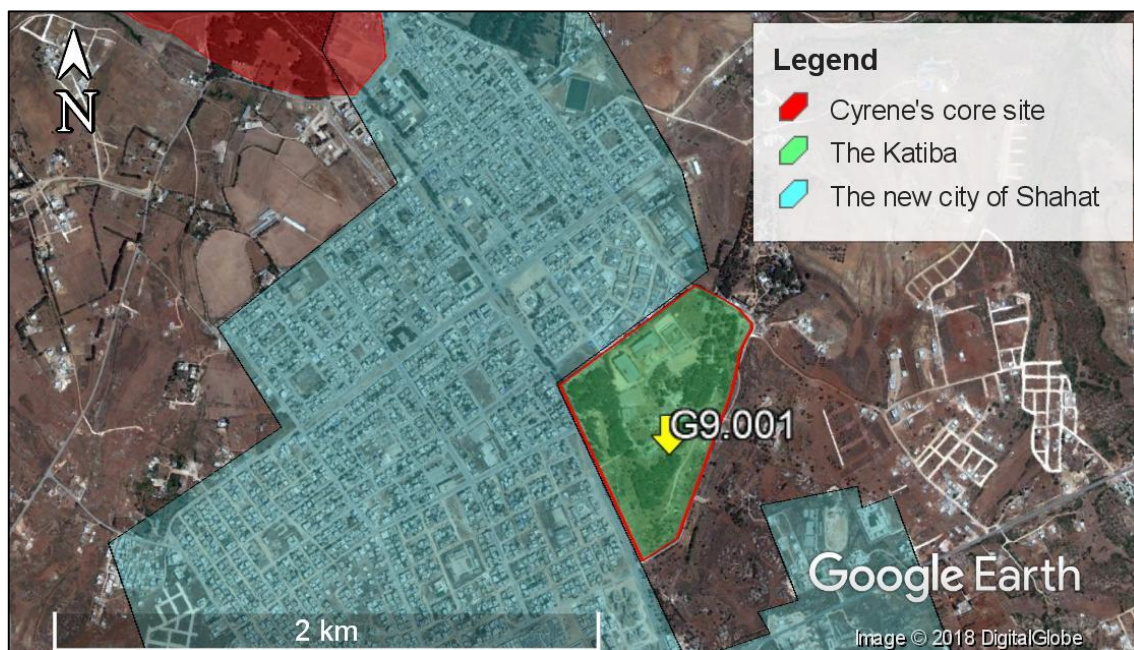


G 79: Location of the Eastern Round tomb G8.006.

G9.001 The Southern cistern on the Katiba

Site Code	G9.001
Ancient name	Unknown
Modern name	The Southern cistern on the Katiba
Type	Infrastructure (water storage)
Date	Roman?
Coordinates	32°48'9.54"N 21°52'35.98"E
Current condition	Poor
Possible threat of destruction	Waste disposal and modern development.

Description: This rock-cut type cistern is situated on the south side of the Katiba (G 80). Although it is now largely filled in, some visible parts of the internal walls show that they were coated with a layer of waterproof material. The cistern was fed by two rock-cut channels connected to its southwest and southeast sides. It has a rectangular opening c. 1.20 x 0.30 m, and there are two basins cut in the bedrock near to its mouth. One of these is square in shape 1 x 1 m and the other is circular with a diameter of about 0.50 m (G 81).



G 80: Location of the Southern cistern G9.001.

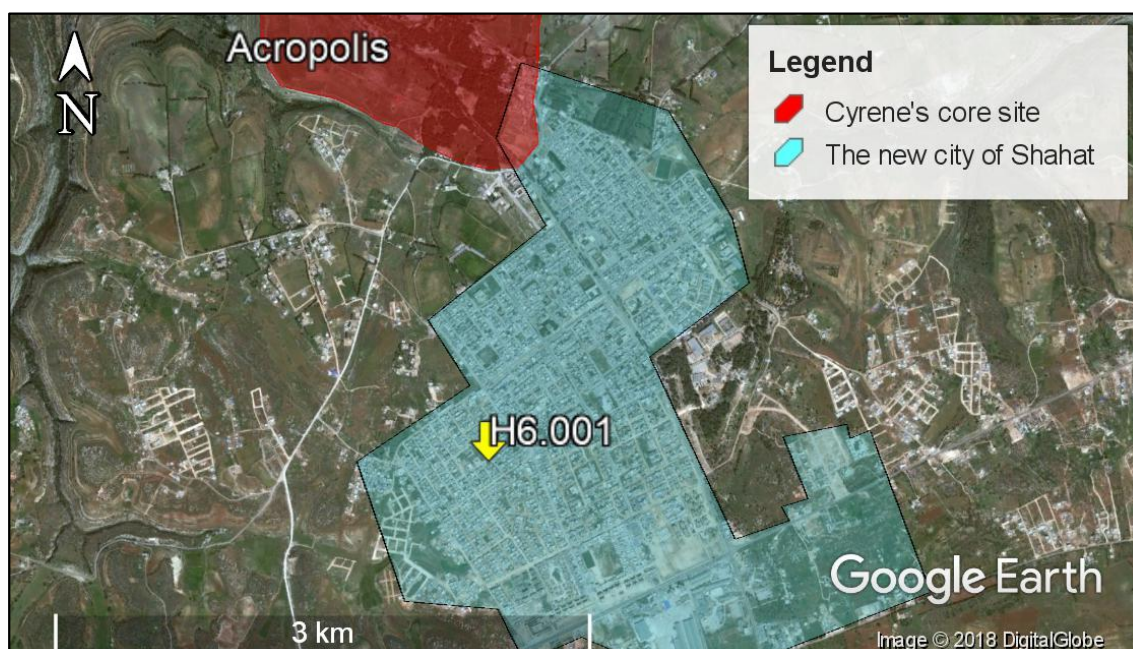


G 81: A view of the opening of the cistern and the two basins (AR DoA).

H6.001 The Western Round tomb

Site Code	H6.001
Ancient name	Unknown
Modern name	The Western Round tomb
Type	Funerary
Date	Hellenistic or early Roman
Coordinates	32°47'59.01"N 21°51'45.19"E
Current condition	Very poor
Possible threat of destruction	Modern development.

Description: This circular tomb is located on the west side of the modern city of Shahat, c. 2 km south of the city's ancient site (G 82). While the south and west sides of this tomb were destroyed and are now buried underneath the adjacent new house, the remains of its east and north sides are preserved up to the third course (G 83). The tomb is surrounded by modern houses and has already been partly destroyed. Consequently, it is at a very high risk of full destruction.



G 82: Location of the Western Round tomb H6.001.

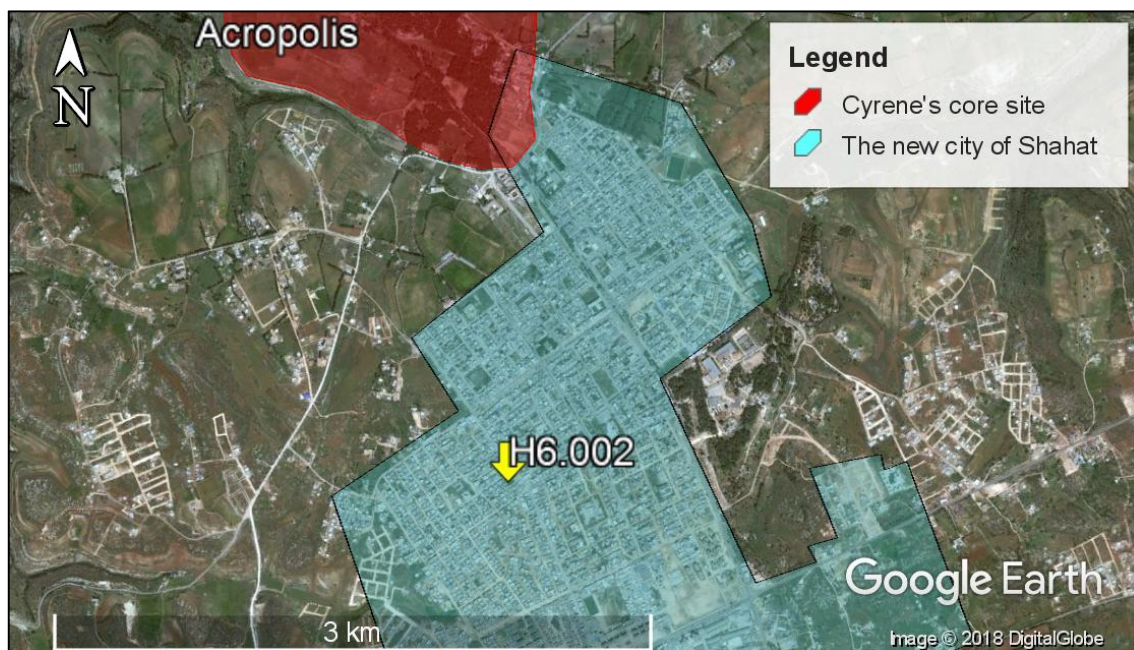


G 83: A view of the remains of the Western Round tomb, looking northwest (Author).

H6.002 The Western Tomb 2

Site Code	H6.002
Ancient name	Unknown
Modern name	The Western Tomb 2
Type	Funerary
Date	Hellenistic or early Roman
Coordinates	32°48'1.25"N 21°51'50.71"E
Current condition	Poor
Possible threat of destruction	Modern development.

Description: This temple tomb type is located on the west side of the modern city of Shahat, at a distance of about 2 km south of the ancient site of Cyrene (G 84). The tomb measures 7.5 m in length, 4 m in width and 2.80 m in height (G 85). It is surrounded by modern houses built since 1985.



G 84: Location of the Western tomb 2 (H6.002).

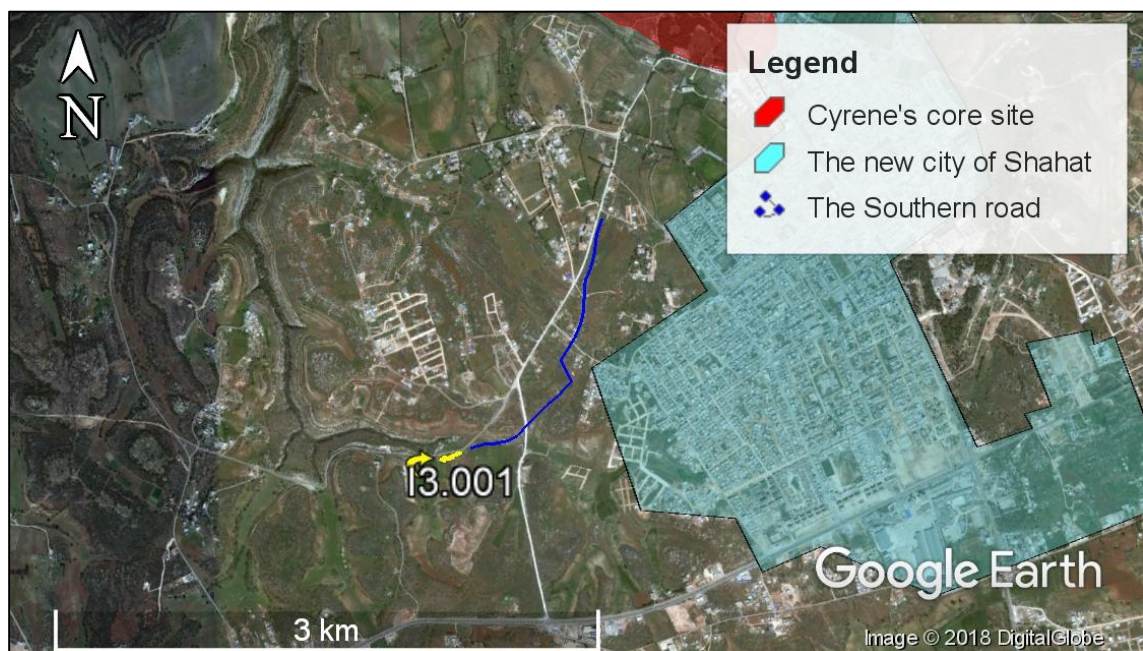


G 85: A view of the Western tomb 2, looking southeast (Author).

I3.001 Southern quarries 5

Site Code	I3.001
Ancient name	Unknown
Modern name	Southern quarries 5
Type	Economic (building materials)
Date	Hellenistic/Roman
Coordinates	32°47'43.38"N 21°50'46.82"E
Current condition	Very poor
Possible threat of destruction	Modern development and agriculture activity.

Description: These quarries occupy an area of rising ground and cover an area of about 250 sq. m. The quarries are located about 2.6 km to the southwest of the ancient site of Cyrene (G 86).

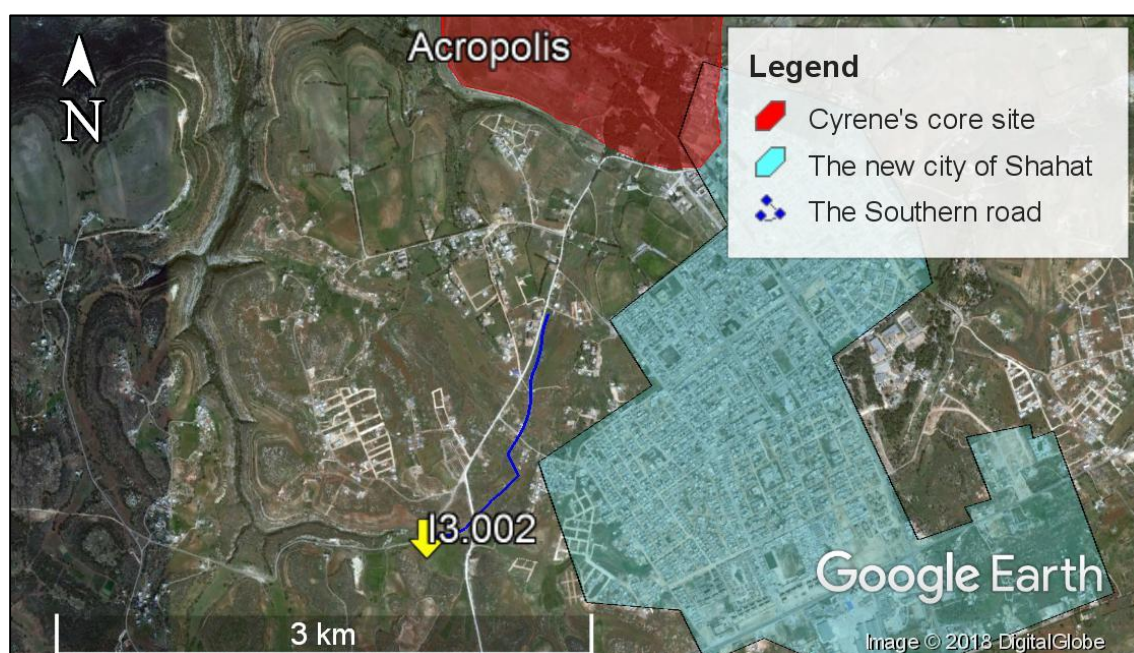


G 86: Location of the Southern quarries 5 (I3.001).

I3.002 Qasr Mgata

Site Code	I3.002
Ancient name	Unknown
Modern name	Qasr Mgata
Type	Economic (fortified productive farm)
Date	Late Roman
Coordinates	32°47'41.44"N 21°50'52.66"E
Current condition	Very poor
Possible threat of destruction	Modern development, vegetation and looting

Description: Qasr Mgata is located c. 2.5 km to the southwest of the ancient site of Cyrene and is positioned on a hill on the right side of the new road to Balagrae (G 87). The qasr measures 28 x 23 m, consisting of several rooms and one water cistern of rock-cut type (G 88). Two small vats were found within this qasr related to pressing activities (for more on this qasr see Chapter 6. Section 6.3.2).



G 87: Location of Qasr Mgata I3.002.



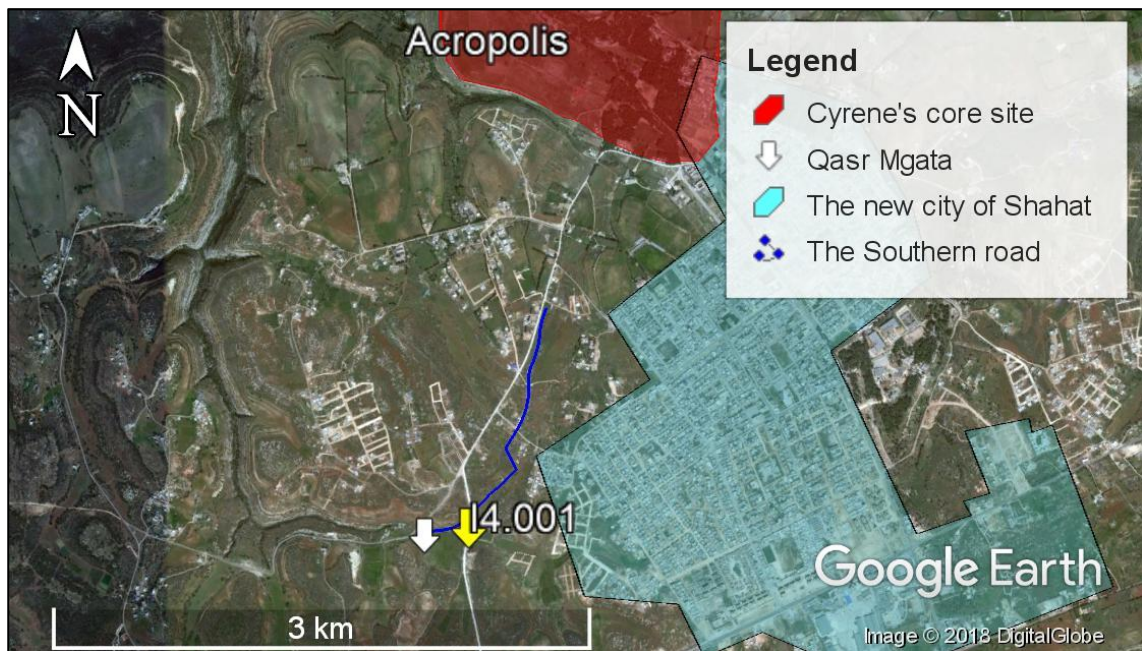
G 88: A general view of Qasr Mgata, looking south (Author).

I4.001 The Southern rocky chamber

Site Code	I4.001
Ancient name	Unknown
Modern name	The Southern rocky chamber
Type	Funerary
Date	Hellenistic/Early Roman
Coordinates	32°47'42.28"N 21°51'2.20"E
Current condition	Fair
Possible threat of destruction	Modern development and erosion.

Description: This rock-cut chamber is located in the Southern Necropolis on the left side of the new road to Balagrae, opposite Qasr Mgata (G 89). The remains of ancient quarrying activity in the façade of the chamber are still visible, which strongly suggests the area was used for quarrying purposes (see G 90). The chamber is about 5.5 x 6.5 m, containing several loculi with arch shapes on the top. In the middle of the room are three arches cut into the bedrock which stand on stone pillars (one big arch in the middle and two smaller on the two sides) (see G 91). These arches suggest that the chamber was later expanded, most likely to add spaces for more burials. Although this chamber is well-

protected and is now locked with a metal gate, it is threatened by the rainwater which is gathering inside it.



G 89: Location of the Southern rocky chamber I4.001.



G 90: Entrance to the chamber, looking northwest (Author).



G 91: An internal view of the chamber, looking northwest (Author).

I6.001 The Southern olive oil press?

Site Code	I6.001
Ancient name	Unknown
Modern name	The Southern olive press
Type	Economic
Date	Hellenistic/Roman
Coordinates	32°47'29.49"N 21°51'46.96"E
Current condition	Fair
Possible threat of destruction	Bulldozing due to the expansion of the new city of Shahat.

Description: This site is situated on the south side of the Southern Necropolis of Cyrene just to the south-west of Shahat (G 92). This site was recently discovered by chance when the area was surveyed by a team from the DoA of Cyrene after the target area was prepared for new constructions. In addition, a number of other nearby sites were also identified, including a number of small basins, a water cistern and at least three rock-cut tombs.



G 92: Location of the olive oil press I6.001.

The site consists of three chambers cut directly into the rock. The entrance to the main chamber was through a 1.80 x 1.20 m doorway on the south side which led underground through a passage cut into the rock directly to the first or main room (G 93). The first room is the biggest chamber, measuring 7 x 6 m and with several niches on its walls (G 94). The second chamber was cut in the north-east corner of the first room and measured 4.30 x 1.20 m and was accessed through a small doorway 1.20 m high and 0.60 m wide with two openings on each side of the door (G 95).

The third room was on the east side of the first chamber and is approximately similar to the second room in terms of its shape and size with an entrance about 1.40 m high (G 96). This site most likely originated as a tomb, probably in the Hellenistic era. It appears to have been converted into use for another purpose, most likely to serve as an olive press during the Roman era, although no crushing basin was found inside any of the three rooms.



G 93: Entrance to the olive oil press, looking south (Author).



G 94: A view of the main chamber from inside, looking southwest (Author).



G 95: A view of the second chamber room, looking southwest (Author).

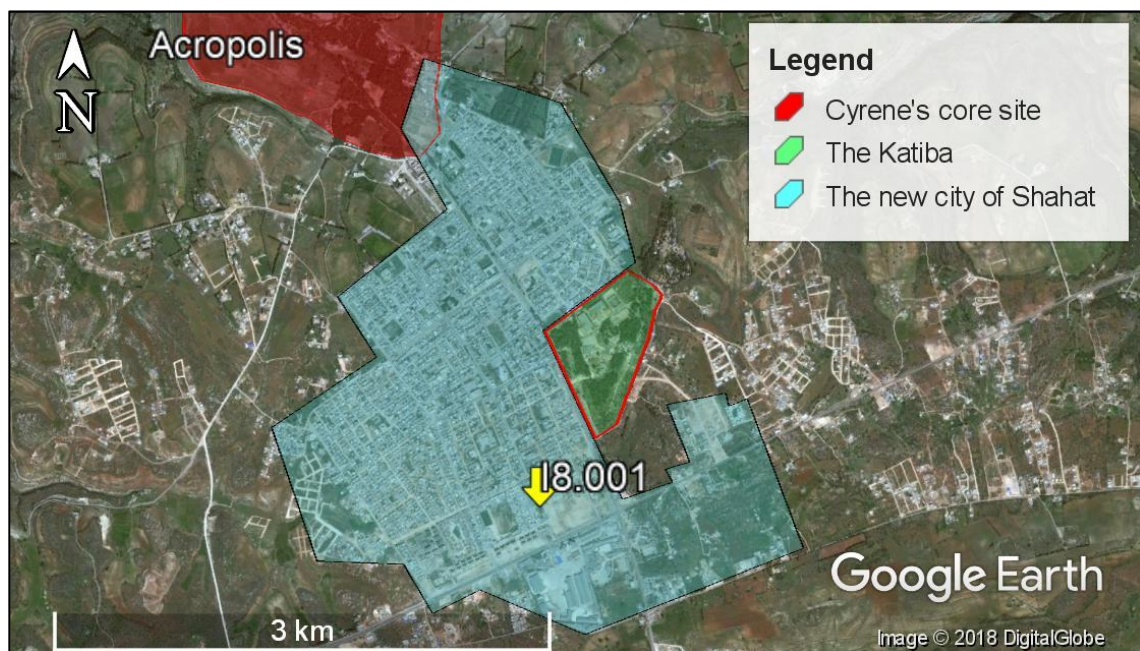


G 96: A view of the third chamber, looking west (Author).

18.001 A group of tombs

Site Code	I8.001
Ancient name	Unknown
Modern name	A group of tombs
Type	Funerary
Date	Hellenistic/Early Roman?
Coordinates	32°47'43.32"N 21°52'19.24"E
Current condition	Very poor
Possible threat of destruction	Modern development.

Description: This site is c. 2.5 km southwest of the ancient site of Cyrene, on the south side of the new city of Shahat (G 97). The site contains a number of built sarcophagi and rock-cut type tombs, surrounded by modern buildings.



G 97: Location of the tombs in the new city of Shahat I8.001.

J6.001 Elements of olive oil press

Site Code	J6.001
Ancient name	Unknown
Modern name	Unknown
Type	Economic
Date	Probably Mid Roman
Coordinates	32°47'29.02"N 21°51'46.76"E
Current condition	Poor
Possible threat of destruction	Bulldozing due to the expansion of the new city of Shahat

Description: These elements are situated near to the site I6.001 mentioned above, a few meters south-east of the entrance of its main chamber. The elements include a T-shaped niche cut into a stone slab measuring 1.50 m high x 80 m wide (G 98). This was most likely used to anchor the beam of a lever and windlass type press. Around this slab are a number of blocks laid vertically and horizontally, most of which have a channel engraved into one of their sides. This area potentially also contains a crushing basin which is one of the fundamental elements of the olive press. However, this cannot be proven without excavations as the area is largely filled in.



G 98: A view of the niche J6.001, looking north (Author).

J6.002 A number of small basins

Site Code	J6.002
Ancient name	Unknown
Modern name	A number of small basins
Type	Economic, probably for wine or olive oil press
Date	Probably mid Roman
Coordinates	32°47'29.02"N 21°51'47.45"E
Current condition	Fair
Possible threat of destruction	Bulldozing due to the expansion of the new city of Shahat

Description: These basins were also found near the site of the three chambers (the Southern olive press or I6.001), about five meters east of the entrance to the chambers. At least six of the basins can be seen above ground (four are rectangular in shape 0.50 x 0.40 m, and two squared 0.40 x 0.40 m (G 99). All of these basins were cut into the bedrock and form a series of basins in a line (G 100). The above niche and these basins were probably linked to one another via a channel. The three chambers previously mentioned and these facilities probably formed part of a single installation due to their location close to each other, and the chambers most likely served a related function, probably as a storage facility.



G 99: A view of the basins J6.002, looking southwest (Author).

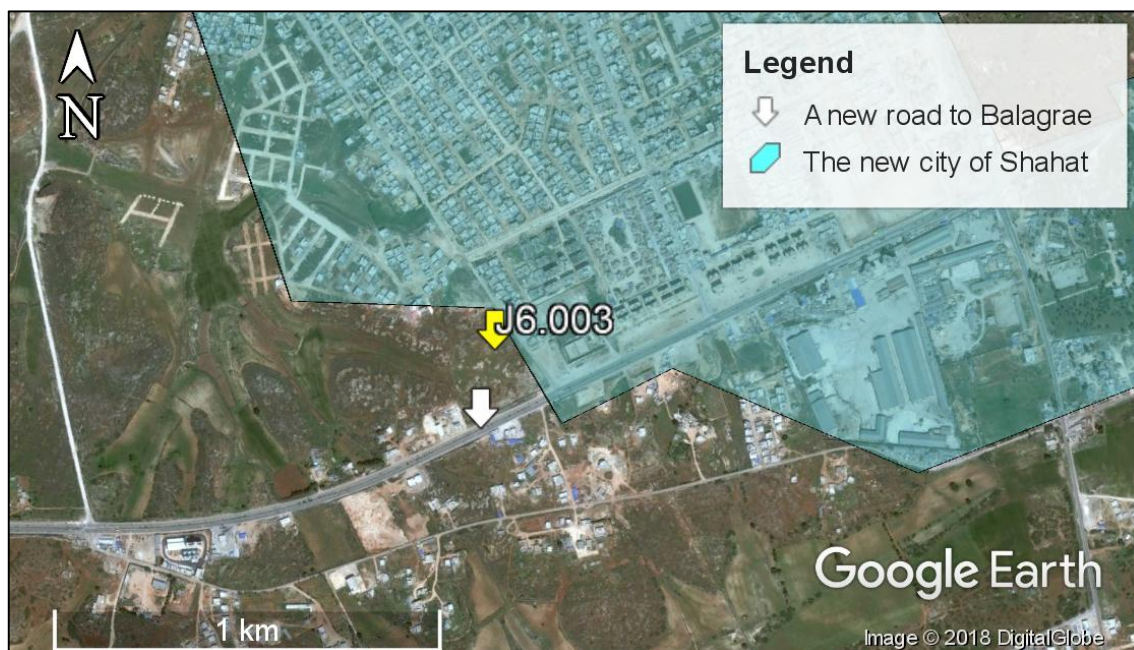


G 100: Another view of the small basins, looking southeast (Author).

J6.003 Water cistern

Site Code	J6.003
Ancient name	Unknown
Modern name	Water cistern
Type	Infrastructure (water storage)
Date	Hellenistic/Roman
Coordinates	32°47'28.77"N 21°51'47.59"E
Current condition	Fair
Possible threat of destruction	Waste disposal and modern development.

Description: This water cistern is located in the Southern Necropolis (G 101). The cistern measures about 3.30 m x 2.70 m and 1.50 m in depth, with a flat roof supported by two rock-cut pillars, and possesses interior walls coated with a layer of waterproof material. This cistern also has a relatively narrow horseshoe-shaped opening measuring about 0.80 x 0.70 m (G 102). This can be accessed through an entrance 1 x 1.20 m which opens in a sloping area from its northern side. Since this cistern is situated about 15 m southeast of the site of the Southern olive oil press, it could be related to that press and served to provide the water required for the process of oil production.



G 101: Location of the water cistern J6.003.

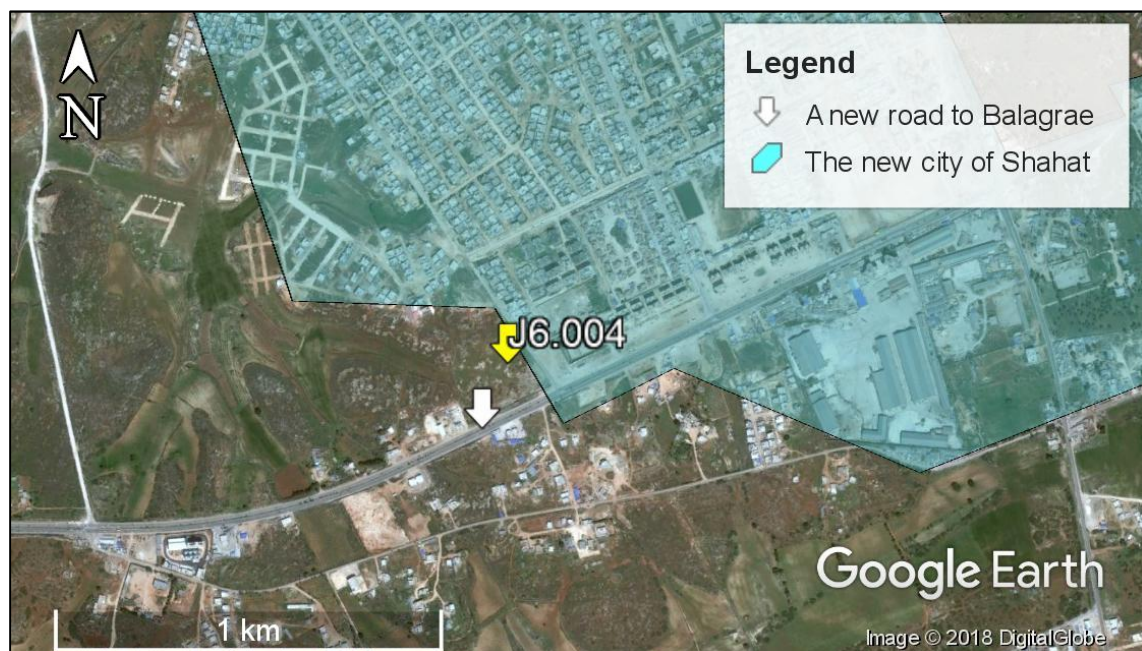


G 102: The horseshoe-shaped opening of the water cistern, looking east (Author).

J6.004 The Southwestern quarries

Site Code	J6.004
Ancient name	Unknown
Modern name	The Southwestern quarries
Type	Economic (building materials)
Date	Hellenistic/Roman
Coordinates	32°47'27.65"N 21°51'48.74"E
Current condition	Poor
Possible threat of destruction	Modern development and waste disposal

Description: These quarries are located on the southwest side of the new city of Shahat (G 103). They vary in size and some still bear traces of chiselling (G 104 and 105). A number of rock-cut tombs were likely dug into some of these quarries (G 106).



G 103: Location of the Southwestern quarries J6.004.



G 104: A view of a quarry J6.004 with traces of chiselling (Author).



G 105: A view of another quarry in the area, looking south (Author).

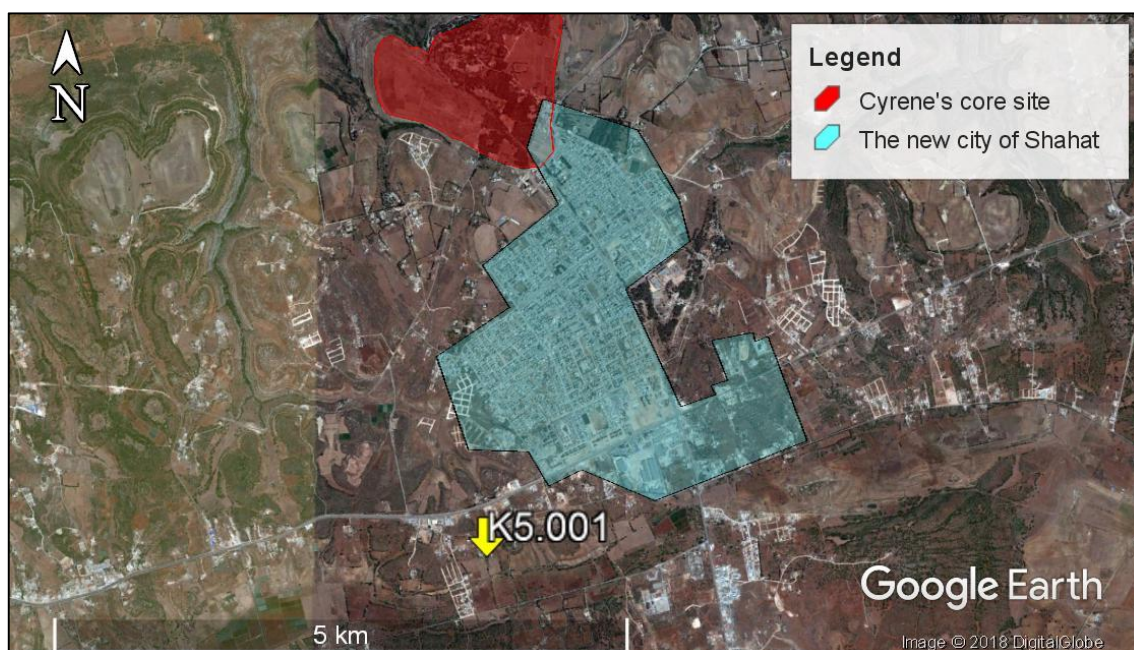


G 106: Example of a quarry converted into a rock-cut tomb, looking south (Author).

K5.001 Qasr Bubdair

Site Code	K5.001
Ancient name	Unknown
Modern name	Qasr Bubdair
Type	Economic (Probably a core of an agricultural settlement)
Date	Late Roman?
Coordinates	32°47'2.36"N 21°51'33.50"E
Current condition	Very poor
Possible threat of destruction	Modern development and reuse for other purposes.

Description: This qasr is located south of the ancient site of Cyrene at a distance of about 4 km (G 107). The qasr is a rectangular building consist of two rocky chambers and most probably served as the core of an agricultural settlement owing to its location overlooking a wadi floor. Remains of an oil press were also found which suggest the economic activity of the site.

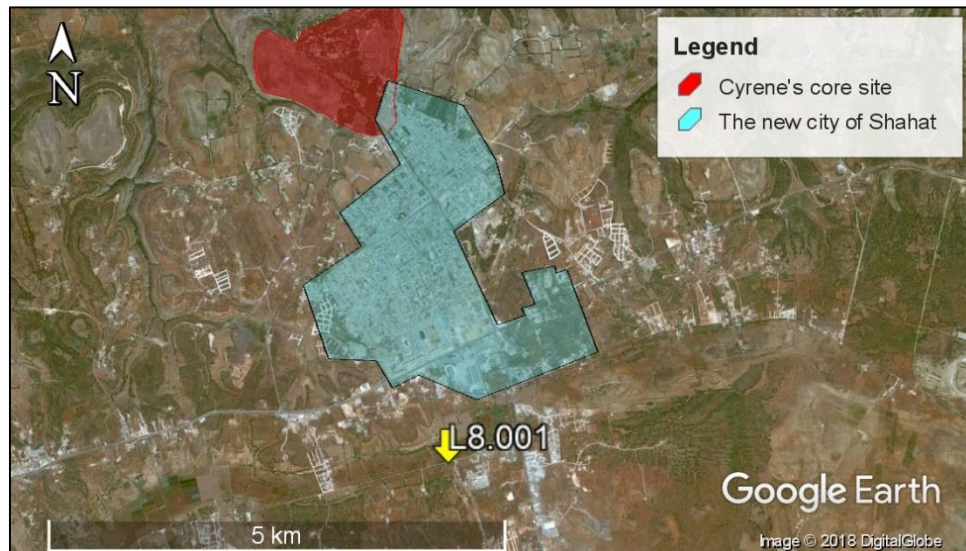


G 107: Location of Qasr Bubdair K5.001.

L8.001 Qasr al-Raged

Site Code	L8.001
Ancient name	Unknown
Modern name	Qasr al-Raged
Type	Economic (fortified productive farm)
Date	Late Roman
Coordinates	32°46'55.75"N 21°52'17.72"E
Current condition	Poor
Possible threat of destruction	Agricultural activities and vegetation.

Description: This qasr is located about 4 km southeast of the ancient site of Cyrene (G 108). The qasr is a roughly square building 24 x 23 m consisting of several rooms and two water cisterns (G 109). One of the cisterns is of the rock-cut type measuring 3.50 x 1.50 m and about 2.00 m depth and is located on the western side of the qasr (G 110). The second is of the open-air type and is sunk into the ground, measures 5.80 x 5.30 m and is located on the northern side of the qasr (G 111).



G 108: Location of Qasr al-Raged L8.001.



G 109: A view of Qasr al-Raged, looking northwest (Author).



G 110: A view of the water cistern on the western side of the qasr (Author).



G 111: A view of the northern cistern, looking north (Author).

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