ANSER ANCIENNES ROUTES MARITIMES MÉDITERRANÉENNES

FEDER
FONDO EUROPEO
DI SVILUPPO
REGIONALE

Programme
Interreg IIIB
MEDOCC
Pour la cohésion
des territoires
de l'Europe du Sud

REGIONE LAZIO
ASSESSORATO CULTURA, SPETTACOLO,
SPORT E TURISMO

LE STRUTTURE DEI PORTI E DEGLI APPRODI ANTICHI

II SEMINARIO

ROMA-OSTIA ANTICA
16-17 APRILE 2004

A CURA DI ANNA GALLINA ZEVI e RITA TURCHETTI

Direzione Generale per i Beni Archeologici

OSTIA ANTICA
SOPRINTENDENZA
PER I BENI ARCHEOLOGICI
DI OSTIA

Rubbettino

Ports and Port Structures for Ancient Malta

TIMOTHY GAMBIN*

Introduction

In the first ANSER seminar I presented some results of my recent research on the paleoenvironment of the ports and harbours of ancient Malta. It was established that many of the ports and anchorages of Malta were not only significantly larger than today but also different in outline. One of the main conclusions reached on the basis of this information is that the ancient harbours of Malta were safer, thus offering protection to ships during all the seasons.[1] In this paper I will discuss the way in which the past inhabitants of the island used these harbours with specific reference to the ancient harbour complex that was situated around the Marsa area.

Due to large-scale sediment deposition into the ancient harbours and the intensive urban development around the main harbour complex, the search for and location of any ancient structures in this area is extremely difficult. Some of the main developments in the area, such as the early modern fortifications and the historic dockyards, are today rightly considered as important monuments in their own right. Their construction and preservation have, over the years, partly contributed to the destruction and/or concealment of substantial ancient structures. It is therefore through second hand accounts that today's archaeologists and historians must attempt the reconstruction of such structures.

1. Sources

The sources I have used include the following:

a) Old descriptions: An eighteenth century description has proved to be indispensable for the reconstruction of ancient harbour structures in Malta. Count

* Foundation of International Studies University of Malta.

I would like to thank the Foundation of International Studies and IMED (Rome) for making my participation in the ANSER project possible. I am especially indebted to Dr N. Vella for encouraging and supporting my continued involvement in the ANSER project. Thanks are also due to N. Cardona for the loan of some rare books that were vital to this study. To X. Nieto for copies of his articles. Thanks for J. Fenech Conti, Martin and Charlo' at DITTS for their help with the maps. To Dr T. Hodos, my PhD supervisor, for her direction and support. Finally, thanks to Bristol University and the Malta Maritime Authority for making my research possible.

1. T. Gambin, *Islands of the Middle Sea: An archaeology of a coastline*, in ANSER I, pp. 127-146.

Barbaro, in his book *Degli Avanzi d'Alcuni Antichissimi Edifizi Scoperti in Malta L'Anno 1768*, describes the discovery of large harbour structures in great detail. To date this is the only first hand description of these important remains and his 18th century site plan is the only drawing.

b) Old Maps: These are mainly used to study the topography of the area at the time of the various discoveries.

c) Archaeological Reports: Some of the finds in the area were discovered and reported by archaeologists and their reports provide reliable albeit limited information on their discoveries.

d) Photographs: A few old photographs illustrating some of the discoveries in the area have recently been discovered and these are used as supplementary evidence.

e) Newspaper Reports: In the second half of the 19th century a large project was carried out to extend the innermost reaches of the Grand Harbour. This project was followed and reported in detail by contemporary newspapers. These reports often contain interesting details on discoveries made during the course of the project.

f) Engineer's Reports: The abovementioned harbour extension produced a number of reports, drawings and letters that shed light on various ancient discoveries made in the area.

2. The Physical Setting

The main harbour of ancient Malta was situated in an area that is today known as Marsa, which is a word of Semitic origin that describes an anchorage and/or harbour.[2] Today, a small part of the general area referred to as Marsa forms the inner reaches of the Grand Harbour but the majority of this district is today dry land. As already mentioned, the dynamics of siltation in and around Marsa have been described elsewhere[3].

Whereas the entire Grand Harbour complex is sheltered from the prevailing summer wind, that from the north-west (Majestral), most of the creeks are highly exposed to the winter gales that blow from the north-east (Grigal). The British remedied this situation in the early 20th century when they constructed a massive breakwater across the mouth of the harbour complex. In antiquity, the Marsa area would have been the largest all-weather harbour of the Maltese Islands, this because the

2. G. Wettinger, *Place-Names of the Maltese Islands ca. 1300-1800*, Malta 2000, p. 364.

3. T. Gambin, *op. cit.* note 1.

Kortin promontory extends towards the south-east and protects the entrance into the Marsa harbour. From the top of this promontory one commands an excellent view of the channel leading to and from the main harbour channel. A number of hills surround Marsa and access to the hinterland would have been gained via a series of valleys that penetrate inland. The exact nature of the bay in antiquity is yet to be studied in earnest but one can safely assume that there existed a beach and/or a marsh on the periphery of the bay. One cannot be certain about the type of seabed in antiquity and the quality of holding offered to ships anchoring in the area. However, due to the constant deposition of sediments via the abovementioned valleys, the seabed of Marsa must have been similar to the that in the outer reaches of the Grand Harbour today, which is mainly made up of silt and fine mud.

Marsa lies at a distance of approximately 7km from Mdina and Rabat, the site of the ancient city of Melite. Although Melite was the main urban settlement of the Maltese archipelago during ancient times there also existed a number of other nucleated settlements, which enjoyed access to the sea via the numerous bays and anchorages around the island. Being such a large and well-protected harbour, Marsa had a number of settlements in its environs. Most of these settlements were set on high grounds commanding strategic views of both the harbour and the surrounding landscape. This can be deduced from the pattern of tomb distribution around the general area. The choice to settle and/or bury on high ground was probably dictated by periods of insecurity that were brought about by events such as the Punic Wars. As relative peace gradually spread through the Roman Mediterranean, it the inhabitants of the harbour area felt secure enough to bury their dead closer to the sea than in preceding centuries. Although settlements can only be deduced from burial sites there can be little doubt that the lives of the persons who occupied these sites were intricately linked to the sea.

3. Economic Activity

The main economic activities on the island of Malta in ancient times were the production of fine linens as described by various ancient authors such as *Diodorus Siculus* and *Cicero*[4], and the production of olive oil. An elevated plain to the south-west of Marsa, precisely in area known as Tad-Dawl, must have been a fertile area and a Roman farm was discovered and excavated there in 1888.[5] Products from this and perhaps other surrounding farmsteads would have been brought down to the harbour area to be loaded onto ships for export. Other farmsteads on Malta seemed to have enjoyed some form of 'autonomy' from the harbour at Marsa as these were built close to other bays and anchorages.

4. *Cicero, Verr.* II, 2, 183; *Diodorus Siculus*, V.12.2-3.
5. A.A. Caruana, *Remains of an Ancient Greek Building Discovered in Malta*, in *The American Journal of Archaeology and of the History of the Fine Arts* 4, 1888, pp. 450-454.

In the abovementioned passage by *Diodorus Siculus* the author clearly describes the islands' inhabitants as being quite affluent. The income that the islanders earned from the export of textiles was supplemented by profits that stemmed from other interaction with visiting seafarers:

«This island is a colony planted by the Phoenicians, who, as they extended their trade to the western ocean, found it a place of safe retreat, since it was well supplied with harbours and lay out in the open sea; and this is the reason why the inhabitants of the island, since they received assistance in many respects through the sea-merchants, shot up quickly in their manner and living and increased in renown».[6]

It is in the light of such maritime interaction that I shall now proceed to describe the various port structures that have, over the ages, been discovered around the Marsa harbour.

4. The Port Structures

Given that none of the remains of port structures in Malta have been scientifically studied we have, as yet, no definite chronology for the construction of these various buildings. When the Romans, under *Sempronius*, invaded the island in 218 BC they found the island protected by a garrison of 2000 Carthaginian soldiers.[7] This fragment of information suggests that the island must have been considered important and may have served as some form of advanced naval base for the Carthaginian navy. A further indication lending to this hypotheses comes from the same passage in which Livy states that once the island of Malta was captured *Sempronius* felt that the southern shore of Sicily was now safe thus highlighting the strategic position of Malta, dominating the Sicily channel.[8] Tombs from the Punico-Roman phase are found in various areas around Marsa providing further evidence for the use of the harbour during this period. However, to date we do not have evidence for naval facilities such as ship sheds but such structures may still lie undiscovered.

Circumstantial evidence apart, the first clue that that large manmade structures of some form existed in the environs of the Grand Harbour can be inferred from a written description of the island penned by a knight of Malta during a visit to the island around in the 1520s and subsequently published in 1536. Its author, Jean Quintin D'Autun, describes two ancient temples that were still extant and visible in the first decades of the sixteenth century, one at the southern harbour (Marsaxlokk) and the other described as being between the castle and the town.

«The foundations can be seen in many places: stones of stupendous height and width. I think that the temple of Juno, as one can see from the remains which still exist, could be considered not only as one among the great, but also among the magnificent temples of antiquity; it is situated about halfway between the town and the

6. *Diodorus Siculus*, V.12.2-3.
7. Livy, XXI, 50.
8. *Ibid.*

castle. The ruins lie scattered through many acres of land; the foundations of the temple cover a large part of the harbour, even far out into the sea, built there on a hilltop, on a plain, and sheltered from winds on all sides by very steep slopes. The name of this place is very difficult to pronounce except by the local Maltese tongue. On the hilltop there is a shrine dedicated to the Blessed Virgin, called "Ta' Qort" (Tal-Qortin)».[9]

This description has, since its inception, been taken to mean that the remains described by *Quintinus* lay between the castle of St. Angelo and its suburb Birgu. There are, however, a number of difficulties with the placing of these remains in this area. Firstly, the author describes the remains as lying half way between the castle and the town; in early modern times only Mdina was referred to as a town whereas the very place name Birgu originates from the medieval term for suburb: «burgi insule Meliveti (1357); in contrata burgii prope castrum maris (1420); suburbia castri maris (1466)»[10]. On the other hand the very meaning of the term Mdina (from Medina) is town.[11] Added to this, one must here consider that on a peninsula as narrow as that of Birgu, there probably did not exist many acres of space between the castle and its suburb. Also, the sea and mud in the area are not conducive to supporting large structural remains as described, the bedrock drops dramatically towards the centre of the submerged valley that is today known as Dockyard Creek (fig. 1).

It is more likely that Quitin D'Autun was referring to an area that coincides with Marsa. There are a series of archaeological remains in the area that fit his description as well other factors, such as place name evidence, that point to Marsa as being the place described in the passage. On the plain of Kordin, to the south-east of the Grand Harbour, there still exist a number of prehistoric remains that, when these were observed in the early 1500s, must have been similar in size to other substantial Neolithic monuments elsewhere on the island. It therefore comes as no surprise that the author of the passage describes the stones as being of «stupendous height and width». The remains that have been somewhat enigmatic are those referred to as «lying far out to sea». However, maps and nautical charts from the nineteenth century show this area as being muddy rather than awash.[12] This indicates that the process of siltation was not yet complete and may have been even less so in the early sixteenth century when the account was penned.

Proof of the existence of structures at the foot of Kordin Hill were to be brought to light in the second half of the nineteenth century when dredging machines working in the area brought to light a number of architectural remains of which only two (partial) marble columns and the torso of a small marble statue were retained (fig. 2). One column measures approximately 165 cm in height and the other 105 cm. Both measure 52 cm in width. A contemporary newspaper reports the discovery of the

9. C.R. Vella, *The Earliest Description of Malta (Lyons 1536) by Jean Quintin d'Autun*, Malta 1980, p. 23.
10. G. Wettinger, *op. cit.* note 2, p. 54.
11. *Ibid.*, p. 367.
12. Malta: *Valetta Harbours and the coast westward to Madalena Pt. Surveyed by Lt. G.R. Wilkinson and Mr J. Millard Mast. Assistant under the direction of Captns Graves & Spratt*, R.N. 1860. Published: London. Hydrographic Office. 1871, 1861 first pub., Maker: Great Britain. Admiralty. Hydrographic Office.

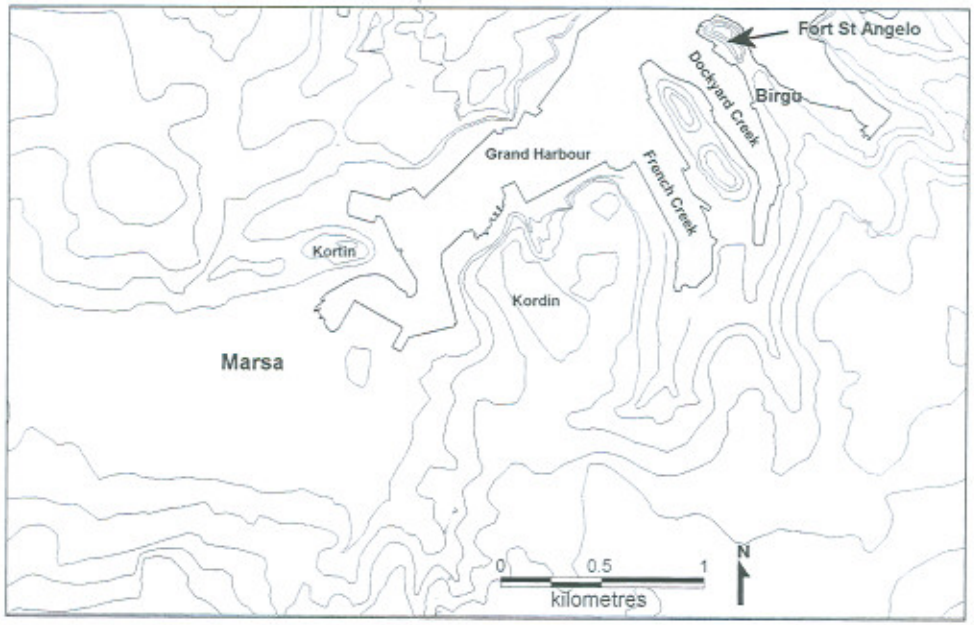

FIG. 1 – Detail of the various creeks, with modern coastline, and places around the Grand Harbour that are mentioned in the text.

FIG. 2 – Marble statue brought up during dredging works at the foot of Kordin Hill. (Photo by N.J. Cardona).

torso of a statue originally thought to be that of the Goddess Diana.[13] In November 1877 during construction works that were taking place in the same area a whole pillar of identical material to the aforementioned pieces was uncovered from «under six feet of earth».[14] This column is kept in a private collection and is unavailable for study. Although one cannot define the exact nature of the structure that once stood at the foot of this hill there can be no doubt that the discovery of these columns in this area point to the presence of a substantial building at a prominent place that dominates the entrance to the harbour at Marsa (see fig. 5.e).

With regards to remains that can be specifically linked to port structures at Marsa, Commmendatore Abela published the first available reference in 1647. He describes a: «molo di grossissime pietre edificato su la sponda del mare er un tratto di mille, e cinquecento passi fatto in tempo de'Romani».[15] It would seem that the author reached this conclusion based on a fragment of a marble plaque that read: «in statione... mille... quincent pass [sic]». I say this because he goes on to explain that only some of the mole was extant at the time that he was writing: «E n'appare fin'oggi qualche vestigio delle pietre nella punta del Cortino».[16] It is not exactly clear as to how large Abela thought the mole to be, as 1500 passus would mean a mole of over two kilometres![17] Even if one included the quay, a structure of this size would simply not fit in the area. However, some form of structure must have existed as during the nineteenth century some worked stone blocks were subsequently excavated from the mud in the area. These had traces of pozzolana pointing to a probable Roman origin of these structures (for possible site of mole see fig. 5.h).[18]

It was not until over a century after Abela that further port structures were to be discovered in Malta. Count Barbaro found these on the Kortin promontory in the year 1768 during major restructuring works that were being carried out in the area. Despite his self confessed shortcomings «che da persona poco, o nulla versate nell'antiquaria» he proceeded to publish an accurate and detailed account of his findings 26 years later in what remains our only first hand information on the site (fig. 3; for the location of these horrea see fig. 5).[19] I shall now proceed to describe these remains in detail.

This site was discovered in relatively good condition with the arched roof still surviving in parts of the main building. The main edifice was spread over a large area and consisted of a central chamber with corridors on each side. In turn, these corridors provided access to a series of chambers, precisely five on either side.[20] These chambers had roofs that were supported by three arches and each room measured

13. Malta Times and United Service Gazette, 21st December 1865.
14. A.A. Caruana, *Report on the Phoenician and Roman Antiquities in the Group of the Islands of Malta*, Malta 1882, p. 90.
15. G.F. Abela, *Della Descrittione di Malta: Isola nel Mare Siciliano con le sue Antichita, ed alter notitie*, Malta 1647, p. 16.
16. *Ibid.*, p. 17.
17. 125 *passus* = 1 *stadium* (180m).
18. Malta Times and United Service Gazette, 8th November 1866.
19. C.A. Barbaro, *Degli Avanzi D'Alcuni Antichissimi Edifizi Scoperti in Malta L'Anno 1768. Dissertazione Storico-Critica del Signor Marchese D. Carl'Antonio Barbaro*, Malta 1794.
20. A.A. Caruana, *op. cit.* note 14, p. 96.

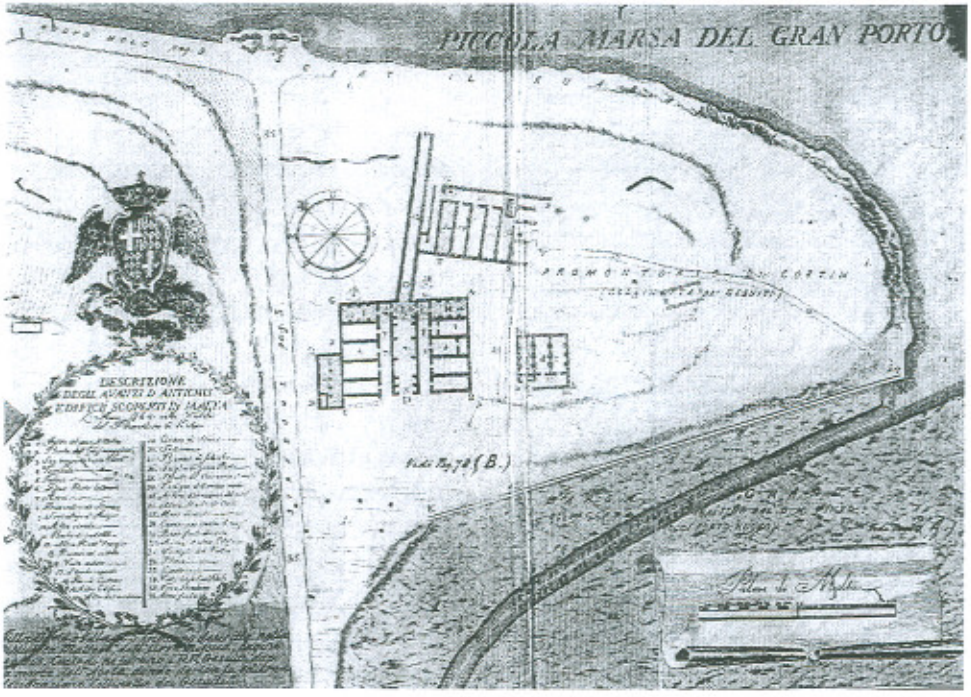

FIG. 3 – The plan of the large structures discovered in 1768 as published by Barbaro.

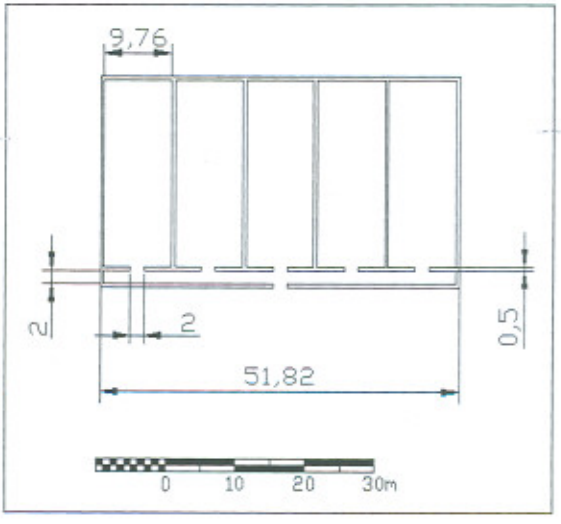

FIG. 4 – Reconstruction of the Roman remains from Marsa.

approximately nine by four metres or 36 square metres.[21] A vaulted portico measuring just over three metres in width distinguished the entrance to the main chamber; it was oriented to the south-west and was located approximately 35 metres from the shore of the 'inner-harbour'.[22] Attached to this large complex was a substantial structure that seems to have been in a lesser state of repair and was described simply as «rovine di fabriche».[23] Its dimensions were larger than those of the aforementioned lateral rooms measuring approximately 14 metres in length and eight metres in width. The roof of this room seems to have been supported by a series of five central columns and one also notes the remains of a smaller room.

The last two rooms and the north-east portico were built over excavated chambers, which at the time of their discovery were filled with fresh water. Apertures for the retrieval of water were situated in the corridors of the main buildings. The ceilings of these two chambers differed, one was vaulted (fatta a testuggine) and the other consisted of a series of arches built from large stones (pietre enormi).[24] The second building of the complex also had an excavated chamber under one of the rooms that was dry at the time of the discovery and contained a significant number of amphorae in good condition.[25] The third large underground chamber was situated under the abovementioned «rovine di fabriche» attached to the large building. Among some of the explanations given by Barbaro is the possibility of this area being a reutilised tomb.[26]

From the opposite extremity of the main chamber ran a large passage measuring approximately three metres wide and forty-three metres long that was oriented to east-north-east, and its entrance faced the 'open-harbour' that lay circa nineteen metres (from its end) in the same direction. A second complex was situated off this passage although no direct entrance from the latter can be identified in Barbaro's plan. The entrance to this second complex enjoyed the same orientation of the abovementioned passage. Access to the five rooms would have been via a large vestibule measuring twenty by three metres with each room measuring approximately three by fourteen metres. To the north of these rooms are two narrow corridors that were also accessible from the vestibule whereas to the south are a series of four rooms that are drawn by Barbaro as incomplete. This would indicate that these were probably in a state of ruin when the discovery was made. The narrowest of these rooms measured two and a half metres whereas the widest measured approximately five metres across.

A third complex of buildings, separate from both the aforementioned structures lay to the south of the main complex. The entrance to this building was through a vestibule that measured eight by two and a half metres. From here one could access the three chambers that measured approximately nine by four metres. The dividing walls contained pillars and these were made from large stones placed one over another. Large

21. C.A. Barbaro, *op. cit.* note 19, p. 4.
22. C.A. Barbaro, *op. cit.* note 19, p. 4.
23. *Ibid.*
24. C.A. Barbaro, *op. cit.* note 19, p. 7.
25. See concluding remarks.
26. C.A. Barbaro, *op. cit.* note 19, p. 9.

building blocks were used for the rest of the structure and the simple architecture of this particular building led Barbaro to conclude that this highlighted the antiquity of the building: «manifesta la rimota antichita' dell'edifizio».[27]

It was not until the abovementioned great harbour extension of the 1860s that further port structures were discovered in Marsa. Whilst dredging in the area the contractor entrusted with the removal of mud from the area consistently complained that he had to remove large stone blocks from beneath the seabed. It is not known what structure these blocks belonged to but contemporary reports state that many of these blocks had considerable traces of pozzolana on them. One of the early and accurate hydrographic surveys in the area of Marsa was carried out in the second decade of the 1800s by Captain W.H. Smyth and subsequently published in 1823. It shows a series of 'objects' that fouled the seabed in the area.[28] A subsequent hydrographic survey of Marsa, this time carried out by Captains Graves and Spratt and published in 1861, shows this area as clear of these objects. This could only mean that the dredging works that were ongoing at the time removed these 'obstacles'. It would not be unreasonable to assume that at least some of the obstacles noted by Smyth consisted of the worked blocks described by the dredging contractor. Should this be the case it would follow that the mole described by Abela extended into the entrance of the harbour. Such a structure would have offered extra protection from incoming waves and large swells that are known to build up in the Grand Harbour complex.

Nearly a century after the great harbour extension other work on the island's infrastructure contributed to the discovery of further structures that formed part of the harbour complex. In April 1939, «during the excavation of a trench for the laying of foundations in a field at Race Course Road, Marsa, at a depth of about ten feet from the surface, remains of a Roman building were uncovered».[29] The limited information available contains a description of a floor covered with clay tiles and of rectangular pits covered with plaster and cut into the bedrock. The area contained «a great quantity of potsherds of the Roman type» as well loose tiles and plaster.[30] It is not possible to precisely define the use of the building but it is seems to be related more to industrial activity rather than to storage facilities (see fig. 5.c).

In the mid 1950s further remains were unearthed in Marsa. During the laying of foundations for a new school workmen uncovered a building that «covered an area of at least 170 feet [51 metres] in length and 100 feet [30 metres] in width and consist of the lower courses of walls in *opus quadratum*. The walls uncovered so far appear to belong to large rectangular rooms or enclosures and the quality and workmanship of the Globigerina limestone blocks with which the walls are constructed show that the building originally constructed on this site must have been of some importance».[31] Very large quantities of pottery, including «amphoras, flagons and

27. *Ibid.* p. 6.
28. W.H. Smyth, *The Hydrography of Sicily, Malta and the Adiacent Islands, surveyed in 1814, 1815 and 1816*, London 1823.
29. *Museums Annual Report 1946-47*, p. 3.
30. *Ibid.*
31. *Museums Annual Report 1955-56*, p. 7.

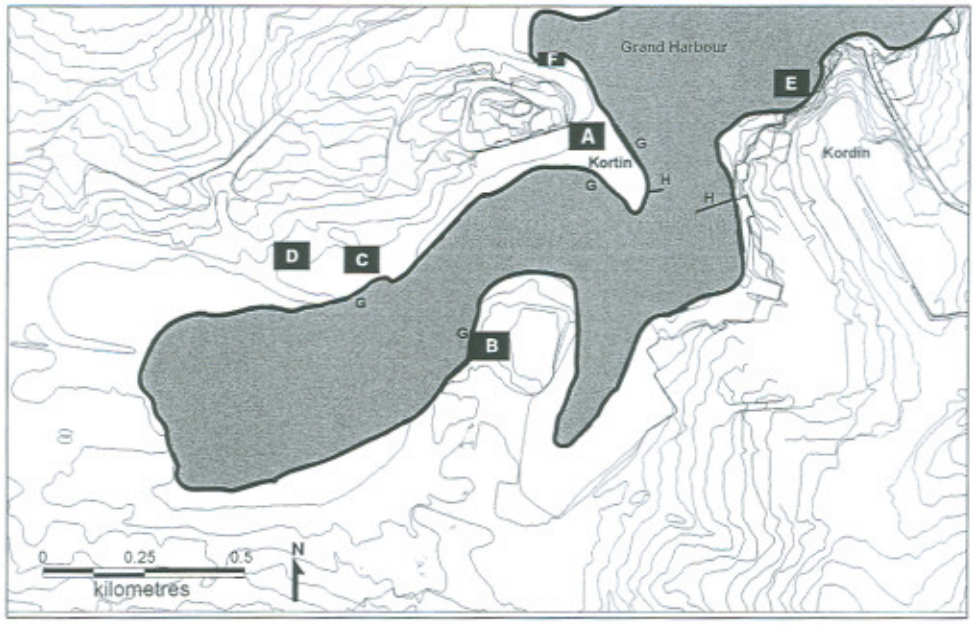

FIG. 5 – A reconstruction of the ancient port of Marsa with ancient coastline and port structures mentioned in text: a) *Horrea* b) *Horrea* c) industrial site d) *horrea* e) possible site of harbour temple f) fish ponds g) possible sites of quays in the port of Marsa.

storage jars» were retrieved from this site. What is of interest here is that some of the pottery from this site showed signs of being water worn and were encrusted with marine growth.[32] This is interesting because such remains would indicate that part of these structures were once submerged. One can look at two possible explanations: firstly, that the land on which these structures were built subsided over the centuries and lay for a period (until the silting up of the area) below sea level; alternatively, some of the ceramic material from this site originated from the great harbour works mentioned above from which «numerous pieces of earthen amphorae, urns and water jars, were also being continually brought up from the deep».[33] The mud was dumped in a variety of places in and around the area so it could well be that some of the ceramics discovered in this site originated from the spoil of the harbour dredging in the 1860s. Despite the uncertainty regarding the origin of the ceramic deposits from this site I believe that there can be little doubt that the structures described in the brief report constituted the remains of horrea. It is similar in dimensions to the horrea at Myra except that the latter is slightly larger. Based on the similar dimensions I have attempted a hypothetical reconstruction of those described above (figg. 4 and 5.b).

Further ancient buildings were discovered in the area in 1959 when «during building operations along the north side of Racecourse Street, Marsa...several lengths of heavy masonry, buried in levels containing nothing but Roman sherds, came to light... they seem to represent the remains of massive warehouses».[34] Although the brief report states that «detailed plans and drawings were taken for record purposes» these have since been lost and thus at this point in time it is difficult to comment further on the nature of these remains (fig. 5.d).

Throughout the ages a series of baths and fishponds were also discovered around Marsa. On Kortin hill, the remnants of what were thought to be bath complexes were discovered but no detailed description of these has reached us. A bath complex had been discovered in 1729, this time opposite Kortin Hill under what is today Floriana. This too was decorated with a series of mosaics depicting «diverse figure di pesci, di draghi, e d'altri simili animali di ben inteso lavoro».[35]

Other evidence pointing to economic activity in the area includes a series of fishponds discovered around Kortin Hill. In 1865, the government at the time «was informed that Mr. Gabrielli [the contractor working on the great harbour extension] has lately met with some further obstructions in his operations of dredging in the shape of two ancient fish ponds, and that he is, in consequence, about to put in a further claim of £2,000 or £3,000 to defray the extra expense of removing the masonary».[36] The contractor may have inflated the sum requested but it does represent a rather large amount of money for the time, which may be reflective of the substantial nature of the structures discovered (fig. 5. f).

32. *Ibid.*
33. *Malta Times and United Service Gazzette*, 8th November.
34. *Museums Annual Report 1959-60*, p. 5.
35. C.A. Barbaro, *op. cit.* note 19, p.10.
36. *Malta Times and United Service Gazzette*, 16th March 1865.

Finally, a large number of burial sites around the Marsa harbour area also shed light on human occupation around the Marsa area. Tombs that date from between 600 BC and 50 BC have been recorded in the surrounding landscape.[37] A substantial catacomb complex (circa 3rd and/or 4th century AD) was discovered on Kortin Hill in 1874. Of interest are a number of 'dolia burials' that were discovered on and around Kortin Hill.[38] It was never ascertained whether these burials were contemporaneous of when the dolia were in use or whether at some later stage, some persons reutilised older containers for burial purposes. Whatever the case, the use of these containers, two for each burial, in such a context points to a completely different burial style to what is normally recorded on Malta, i.e. rock cut tombs of various sizes and shapes. Dolia burials may have been reserved for foreign persons such as seafarers for example. Such burials also point to the large number of dolia that must have been present in the area.

Discussion and Concluding Remarks

The style of the majority of buildings discovered in the Marsa area point towards a Roman origin. Although one can safely assume that the area must have already been in use as a harbour complex during the Punic period no substantial evidence, except perhaps for the third building on Kortin Hill, has yet been unearthed that can be definitely attributed to this period. Small objects, such as coins, that predate the arrival of the Romans have been found in the area but their context is not clear.[39] However, there can be little doubt that the Carthaginians did have some form of port complex in this area. At some point the Romans contributed towards the economic development and activity in the area and this can be deduced from the style of building so common in ports around the Empire, the horrea.[40] The construction of horrea in Malta can also be seen in the context of increased exports of various products from North Africa to Italy.[41] This growth in North African exports brought about an increase in shipping between the southern and northern Mediterranean and Malta would have been caught in the crosscurrents of this exchange.

The lack of any scientific excavations at these sites prevents us from investigating whether the Romans reutilised some buildings that were already extant or whether altogether new structures were constructed. Whatever the case, there can be

37. C. Sagona, *The Archaeology of Punic Malta*, in *Ancient Near Eastern Studies Supplement 9*, 2002, pp. 947-952 and 847-850.

38. A.A. Caruana, *Ancient Pottery from the Ancient Pagan Tombs and Christian Cemeteries in the Islands of Malta*, Malta 1899, p. 51.

39. Some coins dating to the 4th and 3rd centuries BC were found at one of the Marsa harbour buildings discovered in the 1950s. *Museums Annual Report 1955-56*, p. 8.

40. G.E. Rickman, *Roman Granaries and Store Buildings*, Cambridge 1971, p. 135.

41. M. Fulford, *To East and West: The Mediterranean Trade of Cyrenaica and Tripolitania*, in *Antiquity Libyan Studies* 20, 1989, pp. 169-191; D. Mattingly, *Oil for export? A comparison of Libyan, Spanish and Tunisian olive oil production in the Roman Empire*, in *JRA*, 1988, pp. 33-56.

no doubt that the total area available for storage of goods around the Marsa harbour was large. But what were these stores used for? Although no certain population figures for the island exist for the Roman period. I believe that 8,000-10,000 persons as a realistic figure. Where these storehouses built to make sure the local population were guaranteed a constant supply of grain and other foodstuffs? If this was the case then surely it would have been more convenient to have storage facilities built close to Melite, the main centre of habitation. Added to this, is the fact hat despite not having the facilities enjoyed by Marsa, the harbour of Burmarrad further north would have provided a shorter route to the town. Burmarrad was large enough to accommodate ships of any size and although no port structures have yet been discovered the potential for such discoveries remains high.[42] Furthermore, I believe that the sizes of the horrea described above are slightly disproportionate to the needs of a small island like Malta. I state this on the basis of comparisons with horrea elsewhere in the Roman Empire. The storage space available in the various horrea situated on Kortin hill are approximately equivalent to that on the east mole at Leptis Magna.[43] The latter had numerous other horrea around the harbour and one must also consider the size and wealth of this city as well as the vast hinterland that it served.[44] Marsa too had other substantial buildings that formed part of its harbour complex but the similarities stop there for Marsa did not serve vast expanses of agricultural land and the town of Melite was incomparable in size and wealth to the city of Leptis Magna.

It is not certain how many quays were available for the mooring of ships at Marsa. However, the complex at the Kortin promontory seems to have enjoyed access to sea from two sides: a) the inner side that faced south-west (fig. 5.g and b) an outer quay that faced the north-east. This can be deduced from the fact that the inner side had the so-called 'molo' described by Abela and is the natural place for the location of a quay, protected from the winter gales of the north-east. On the other hand the road leading away from the complex of warehouses situated on the Kortin promontory seems to indicate the existence of an outer quay, remains of which were discovered during excavations in 1993 (fig. 5. g).[45] Such a quay would have been ideal during the summer months, as it would have been protected from the prevailing winds of the season. Probably, this quay was used for vessels needing to stop for short periods of time, either for freshwater from one of the many cisterns available at Kortin and/or for the quick transhipment of goods.

42. The plain of Burmarrad and the surrounding countryside remain largely unexplored from an archaeological point of view. During some of my fieldwork in the area many farmers have told me of incidents when they (or their relatives) have come across walls built of large stones buried deep in the sediment. One farmer in the area is also said to have found a bollard but my efforts to see the object have so far proved futile.

43. G. Rickman, *Roman Granaries and Store Buildings*, Cambridge 1971, p. 135 figure 29 depicts 17 rooms of more or less similar size and one larger room. The complex on Kortin Hill has 18 rooms of comparable size, one large room and a series of incomplete rooms.

44. D. Mattingly, *The olive boom: Oil surpluses, wealth and power in Roman Tripolitania*, in *Libyan Studies*, 1988, pp. 19, 21-42.

45. See B. Bruno, N. Cutajar, *Archeologia Bizantina a Malta: Primi Risultati e Prospettive di Indagine*, in M.G. Amadasi, M. Liverani, P. Matthiae (edd.), *Da Pyrgi a Mozia Studi Sull'Archeologia Del Mediterraneo in Memoria Di Antonia Ciasca*, Rome 2002, pp. 109-140.

There are two further hypotheses that deserve mention and one does not necessarily exclude the other. The first is that the buildings may have been used to store grain for ships that were wintering in Malta: « the safe limit of moisture in stored grain is usually between 10 and 15%» and therefore any ships involved in the transport of this essential commodity and spending the winter months in the safety of a Maltese harbour would have the facility of unloading its cargo of grain to keep it dry. Once the winter months were over and the sea 'reopened' the grain would be reloaded onto a ship which would have then proceeded on its journey north. One such ship from Alexandria carried St. Paul to Rome via Syracuse after wintering in Malta.[46] The harbour at Marsa would have been both large and deep enough to accommodate several grain ships of any size. The discovery of a large Roman anchor stock measuring four metres in length and weighing over one ton provides further evidence supporting this suggestion.[47] Malta would therefore have formed part of Rome's 'façade maritime', one of a series of interrelated ports throughout the Mediterranean that served Rome and the Roman world.[48]

The second hypotheses hereby suggested is based on a theoretical model that recently suggested by Xavier Nieto.[49] In this seminal work on cabotage and redistribution in antiquity, Nieto bases his work on both epigraphic and archaeological evidence. He suggests that various 'economic zones' enjoyed the services of primary and secondary ports whereby incoming cargoes were delivered to the former and redistributed to the latter. On the other hand, he suggests that outgoing cargoes from a particular economic zone were delivered from secondary to primary ports and subsequently transported to other economic zones.[50]

Malta's geographic location in the Sicilian channel makes it an ideal offshore location where ships could not only seek refuge from foul weather but also where various products could be purchased for redistribution elsewhere, a form of modest entrepōt. What evidence exists to support such a hypotheses? The presence and size of the horrea themselves provide the physical evidence. As has been suggested above, these seem to be disproportionate to the size and requirements of the island. Most of the olive oil producing Roman farmsteads were located within easy access to bays and anchorages where amphorae could be directly loaded onto waiting ships and/or boats. This situation presented two options to local farms: a) to send their produce to one central storage area (Marsa) for redistribution or b) to load their produce directly onto visiting ships in the nearby harbours. One practice does not exclude the other. That Malta was an important stopover for ships sailing in the central Mediterranean can be gleaned not only from the various shipwrecks that have so far been identified around its coasts but also through various harbour deposits that have been discovered and studied in the past decade. The latter point to the use of many

46. *Acts of the Apostles* XXVIII, 1-11.
47. *Museums Annual Report 1963*, p. 7.
48. N. Purcell, *The ports of Rome: evolution of a 'façade maritime'*, in A. Gallina Zevi, A. Claridge (edd.), *'Roman Ostia' Revisited: Archaeological and Historical Papers in Memory of Russell Meiggs*, Rome 1996, pp. 267-279.
49. X. Nieto, *Le Commerce de Cabotage et de Redistribution*, in P. Pomey (ed.) *La Navigation dans l'Antiquité*, 1997, *passim*.
50. *Ibid.*, p. 157.

harbours and anchorages throughout the Roman and Byzantine periods.[51] Malta is ideally situated for the redistribution of goods on both the east-west and north-south axis. In practical nautical terms, the use of Malta as a redistribution centre could potentially trim the length of journeys for ships. This is especially significant when one considers the treacherous reputation enjoyed by the Sirte Gulf in antiquity.[52] Should any vessels sailing south from Italy miss Malta they risked getting lost in the relatively large expanse of water to the south-east of the island. Thus, by shipping to and from Malta, vessels would have shortened sea journeys as well as rendering them safer.

For a period after the fall of the empire in the west, the Maltese Islands may have been taken over by the Vandals and the Ostrogoths. Eventually the island came under Byzantine rule (circa 535 AD), approximately around the conquest of Sicily by Belisarius, Justinian's general.[53] Some the buildings around Marsa seem to have remained in use throughout the Byzantine period in Malta. That the complex on Kortin Hill continued to be used can be deduced from the 260 amphorae that were still in place when the buildings were discovered in the 18th century. The illustrations of the amphorae published by Barbaro seem to point to some form of Late Roman amphorae, a few of which had Greek inscriptions on them.[54] Some Byzantine coins with dates varying between 527 and 829 are also indicative of continued use of the building during this period.[55] However, exactly when the abandonment of the port complex occurred at Marsa remains one of the main unanswered questions of Maltese archaeology.

51. One such deposit, consisting mainly of late Roman amphorae, was excavated in 1993 at Marsaskala Bay by DRASSM in partnership with the Museums Department of Malta but due to the danger posed by sports divers in the area no report has been made public. The present author is currently studying other deposits, consisting mainly of Roman material, from Mistra Bay, Lazaretto Creek and Sliema Creek.

52. C. Preece, *Marsa el-Berga: a fatal port of call. Evidence for shipwreck, anchorage and trade in antiquity in the Gulf of Sirte*, in *Libyan Studies* 31, 2000, pp. 29-57, C.A. Barbaro, *op. cit.* note 19, p. 29.

53. A. Bonanno, *Roman Malta The Archaeological Heritage of the Maltese Islands*, Malta 1994, p. 17.

54. C.A. Barbaro, *op. cit.* note 19, p. 13.

55. B. Bruno, N. Cutajar, *op. cit.* note 45, p. 122.