

Fig. 2: Schematic of the main features of Mareotis Island (Hopkinson).

from the Canopic Branch of the Nile apparently keeping the lake water sweet, and filling the cisterns of Alexandria. The direct link to the Nile during the seasonal floods is also likely to have had a significant impact on lake levels. The exact location and number of these connections is not firmly understood, but it is likely that the ancient courses would have mirrored those of the more recent canals (Warne & Stanley 1993: 15-16).

There is sufficient environmental evidence to show that the climate of the region has not changed significantly in the past two thousand years (Ball 1942: 20; Brooks 1949: 333). Evidence for this includes an analysis of a weather diary kept in Alexandria by Ptolemy in the 2nd century, which concludes that “the number of rainy days per annum was much the same as it is nowadays, though the rainfall was more evenly spread out over the year” (Murray 1951). So we can conclude that the climate was semi arid as it is today. Today rainfall in the Western Coastal Desert region is greatest along the margin by the sea and is typified by its great variability from location to location and from year to year, which suggests that in antiquity even this fertile and productive region would have had a precarious existence were it not for the fresh waters of the lake and the reliable annual Nile floodwaters.

Light north-westerly winds are generally observed in the region and these transport large quantities of clayey loess sediments from the degrading limestone ridges and silts and sand from the coastal plain. These silts are deposited in colluvial sheets at the base of the ridges and on north facing shores. This phenomenon has been noted previously (Warne & Stanley 1993: 53), and at a number

of sites located on the southern shore of the lake, where Roman foundations are observed to have been buried under 3 m of deposits (Khalil 2005: 39). Holocene sedimentation rates between 0.02 and 0.07 cm per year are indicated by Smithsonian boreholes either side of the island (Warne & Stanley 1993: 50). This sedimentation is likely to have obscured archaeological features over time, and to have raised the level of the lake bed while consequently reducing the depth of the lake waters (Flaux 2008: 9-10, III.2).

Modifications to the Lake since the Greco-Roman Period

The water regime in the area has been greatly modified since antiquity, most notably by the silting of the connections between the lake and the Nile; when the Canopic Branch of the Nile finally silted up around the 12th century the lake also began to dry up and shrink in size. Strabo also tells us that the extent of the lake must have been much greater in antiquity than it is today, and extended around 40 km to El Bordan to the southeast and to Kom Al Trouga 70 km to the southwest of Alexandria (De Cosson 1935: 26) (see Fig. 1). Warne & Stanley also support these dimensions which amount to around 700 km² of land lying below the 0 m sea-level datum (Warne & Stanley 1993: 53).

It is very likely that even without a direct connection to the lake the effects of the Nile flood would still have been noticeable in the water levels due to groundwater seepage (A.G., Brown, Univ. of Southampton, pers. com.). When the Aswan Dam was constructed in 1964 there was therefore a significant change to the water level in the Nile

Delta aquifers and the lake. As a result the hydrodynamic environment today is very different from antiquity and we have no direct way of understanding the range of water levels that would have been experienced during the floods. As Ramses & Omar (in this volume) indicate, modern infrastructure, fisheries and agricultural drainage ditches have further modified the lake, splitting it into several artificial basins and remodelling large stretches of coastline. These basins have water regimes that are artificially managed for modern needs, and large amounts of water are pumped into the sea to keep the waters artificially low for land reclamation projects.

Today the lake is fed only by water seepage from the sea, precipitation, and by irrigation ditches that channel agricultural waste-water from the Beheirah Governorate. As a result of all of these changes, it has been calculated that the current lake level is only 13% of the ancient lake surface area (Warne & Stanley 1993). Observations made during the 1970s show that the western arm of the lake was totally dry at least from Marea/Philoxinite and to the west. However, a recent geoarchaeological survey as a component of the Lake Mareotis Research Project indicates that the depositional environment close to the modern shoreline had always been lacustrine except during the recent centuries (Flaux forthcoming).

Deltaic subsidence and tectonic shifts may also have changed the topography of the region as it is known to have done within the Nile Delta region further to the east; however it has not proved possible to use existing geoarchaeological datasets to understand the significance of these events. Consequently as a result of the various geographical factors described, we must accept that the current lake level cannot be used as a reference datum from which to reconstruct ancient lake levels and to assess the impact of the annual floods and the summer evaporation on the shoreline. However, understanding these relationships is a fundamental factor to our interpretation of the archaeological structures lying near the shore.

Previous Research

There has been a significant increase in our understanding of the archaeology of the Mareotic region in recent times brought about by the work of El-Fakharani (1974, 1983, 1984), Rodziewicz (1983, 1990, 1998a, 1998b, 2002), and Empereur (1986, 1998; Empereur & Picon 1986, 1998, 1992), however previous research on the island itself appears to have been negligible. There are numerous cartographic representations of the region, two of the most informative being the one on Sheet 37 of the *Atlas Géographique in the Description de l'Égypte* from 1809, and on *Carte des environs d'Alexandrie* produced in 1866 by Mahmoud Bey El-Falaki; however, the detail pertaining to the island in both cases is limited and difficult to reliably geo-reference. A further cryptic description of the archaeology on the island is given by De Cosson (1935):

“Many buildings can be traced, and at the eastern end the circular stone platform and oblong well of an ancient sakia will be found. Stone channels are traceable leading from

this sakia to the cisterns of the town. To the south of this are the remains of two very interesting pottery kilns with a large heap of broken pottery thrown there as it was ‘scrapped’ from them. North of the sakia there is a long jetty running into the Lake from which ferry-boats once plied.” (De Cosson 1935: 130)

The reference here to waterwheels (*‘sakia’* or *‘saqiya’*), cisterns, ceramic mounds from pottery production and lakeside features characterise the island in general terms, but the description bears little direct relation to the position of the remains observed today. Consequently the archaeology of Mareotis Island represents a significant untapped resource that can enhance our understanding of the region.

Fieldwork

In August 2007 under the auspices of the Lake Mareotis Research Project, a six-week survey was undertaken to plot the visible archaeological remains on the island using RTK GPS and Total Station surveys. In order to provide an understanding of the dating of features a controlled surface ceramic collection strategy was adopted. An RTK GPS topographic model was also completed with 5 m transects across the island. In addition to this, a geoarchaeological auger survey was undertaken in 2008 to help contextualise the results and to begin to understand how site formation processes can inform our understanding of the site. Of particular interest here was the relationship between the ancient water levels and the archaeological features, and the impact of the changing lake levels on the development of the sites. A more detailed account of the Lake Mareotis Research Project and its methodologies is presented in this volume (see Blue this volume, see also Khalil and Ramses & Omar this volume)

The majority of archaeological structures are located on high ground, occupying the central limestone ridge that forms a series of hills that extends as a discontinuous spine along the length of the island. Two main settlements were identified concentrated at the eastern and western extremes of the island, with further activities evident on the north facing coastal plains below the central ridge. The central section of the island is some 2 km long and is much less densely occupied than the western and eastern extremities. The activities here represent industrial amphorae production and possible agricultural activities.

Chronology

The ceramics recovered from the island indicate that the settlements was well established some time during the Hellenistic period and that occupation potentially continued through to the 7th century AD. The western settlement appears to have been continually occupied as indicated by ceramic forms recovered, whereas the eastern settlement seems to have suffered a decline in activity in the Early Roman period which reached its nadir some time in the 4th to 5th centuries with a late recovery in the 6th century. The results of the ceramic survey are not commented on in detail here, but will be published shortly (Tomber & Thomas forthcoming).

Archaeology of the Eastern Settlement

The eastern settlement (Fig. 3) is concentrated on the high ground of the limestone ridge which measures approximately 650 m by 350 m; the majority of this area is covered with building remains of various construction styles and materials. The layout and construction styles of the visible building remains indicate some degree of social organisation; such as possible administrative and commercial areas, some are grouped around what appear to be large, open areas at a number of locations on top of the ridge. A long boundary wall is located winding along the top of the ridge in the north-western limit of the settlement; this wall measures 240 x 1.20 m wide, and may have served a defensive function protecting the settlement from the west. To the west of the settlement there is a small low-lying depression that could well have formed a natural inlet prior to silting; around its northern and southern margins the remains of buildings that may have been possible wharf structures have been identified. This inlet appears to have served as an inland harbour which would have provided sheltered mooring. Auger cores taken during the 2008 season confirm that the sediments in this depression were indeed deposited in lacustrine conditions in antiquity (Flaux forthcoming).

To the north of the eastern settlement, along the northern coastal plain of the island, between the lake and the foot of the ridge, are a series of structures and buildings which

are difficult to interpret in detail because there are several phases of activity. The relative dating of these features has not yet been possible. These structures appear to fall into several categories of linear features, walls and lakeside buildings.

Linear Features (Group A)

The first category of structures is a series of five linear features located on the low-lying northern coastal plain that extends between the present northern shoreline of the island and the foot of the limestone ridge (Fig. 3, Group A). These features range between 65 to 120 m in length, and appear as low, roughly built earthen ridges up to 4 m wide which are spaced roughly between 30 to 100 m apart. At the waters edge, additional features can be seen that extend along the current shoreline. As yet, these water front features have an undefined chronological relationship to the linear features (Group A) and represent primary and secondary activities over a period of time. The landscape between the base of the limestone ridge and the lakeside features appears to be largely devoid of additional structures and the linear features are relatively isolated with only a few abutting or adjacent features.

It has already been established that little is known about the absolute water-levels of the lake in antiquity, and unfortunately the 2008 geoarchaeological survey did not target the area around the linear features therefore our interpretations

of the exact nature and function of these features remains speculative, however two possibilities present themselves. Firstly, they may represent crude earthen jetties projecting from the ridge into the lake during periods of higher water-levels. The other possibility is that the coastal plain was dry in antiquity and that the earthen ridges may have divided the coastal land into units, potentially for cultivation as is suggested by the interpretation of similar features identified in the western settlement. We know from ancient sources that the Nile had a dramatic effect on the Delta region; Strabo states "at the rising of the Nile the whole country is under water and becomes a lake, except the settlements; and these are situated on natural hills or on artificial mounds, and contain cities of considerable size and villages, which, when viewed from afar, resemble islands" (*Geography* 17.1.4). It is therefore possible that the annual variation in the level of the lake level was large enough for both scenarios to be valid.

Linear Walls (Group B)

A second group of linear walls were observed to the west of Group A along the north-western shores of the lake in the eastern settlement area. This group is located to the west of the wall that winds along the top of the western side of the limestone ridge, and down onto the coastline (see Fig. 3). These linear features were observed as low rubble walls 0.50 m thick, their northern lakeside ends are close to the current waterline and appeared to extend inland for distances of between 25 to 60 m. None of these walls reached the foot of the limestone ridge and in most cases extended less than half way across the plain. Three of these walls were spaced approximately 35 m apart with a further group 30 m to the east that was composed of three roughly parallel walls in very close proximity. The coastal ends of the first three walls had associated low rubble linear structures or platforms which extended for a short distance along the coastline.

The alignment of the main walls of Group B is interesting since they were constructed on the same orientation as the linear features discussed above (Group A). However, the Group B linear features are not perpendicular to the shoreline since this section of the coast turns to the south and is west facing. As a result these features are on an oblique alignment relative to the current shoreline. The stone construction, relative close spacing, alignment to the coast, and their location to the west of the long winding 'boundary' wall, suggest a distinct function as compared to the Group A linear features. One possibility is that these features may have been concerned with land reclamation or stabilisation, serving perhaps as a series of 'groins'.

Ashlar Lake Walls (Group C)

Large sections of dressed ashlar blocks are observed forming stretches of wall along the northern edge of the plain (see Fig 3). These walls closely respect the natural topography of the current shoreline and appear to have originally been laid as stretchers extending parallel to the shore. This might suggest that the walls were built as a sort of

'quay' wall to demarcate the edge of the lake either as protection from inundation or to form a working platform, perhaps for the mooring and loading of boats. In some instances the construction of these sections of wall seem to be related to the linear earthen ridges of Group A, and it would appear that in some cases they were built to connect or at least respect, the linear features lakeside termini.

The elevations recorded from various sections of these walls indicate that the surviving top course of the walls are not all at the same level but in fact exhibit a difference in height of over 1.83 m. This may indicate that either the top course of some of the sections is missing, or that these walls were built at different times and at different mean lake-levels rather than as a single planned 'quay' building effort.

Coastal Buildings

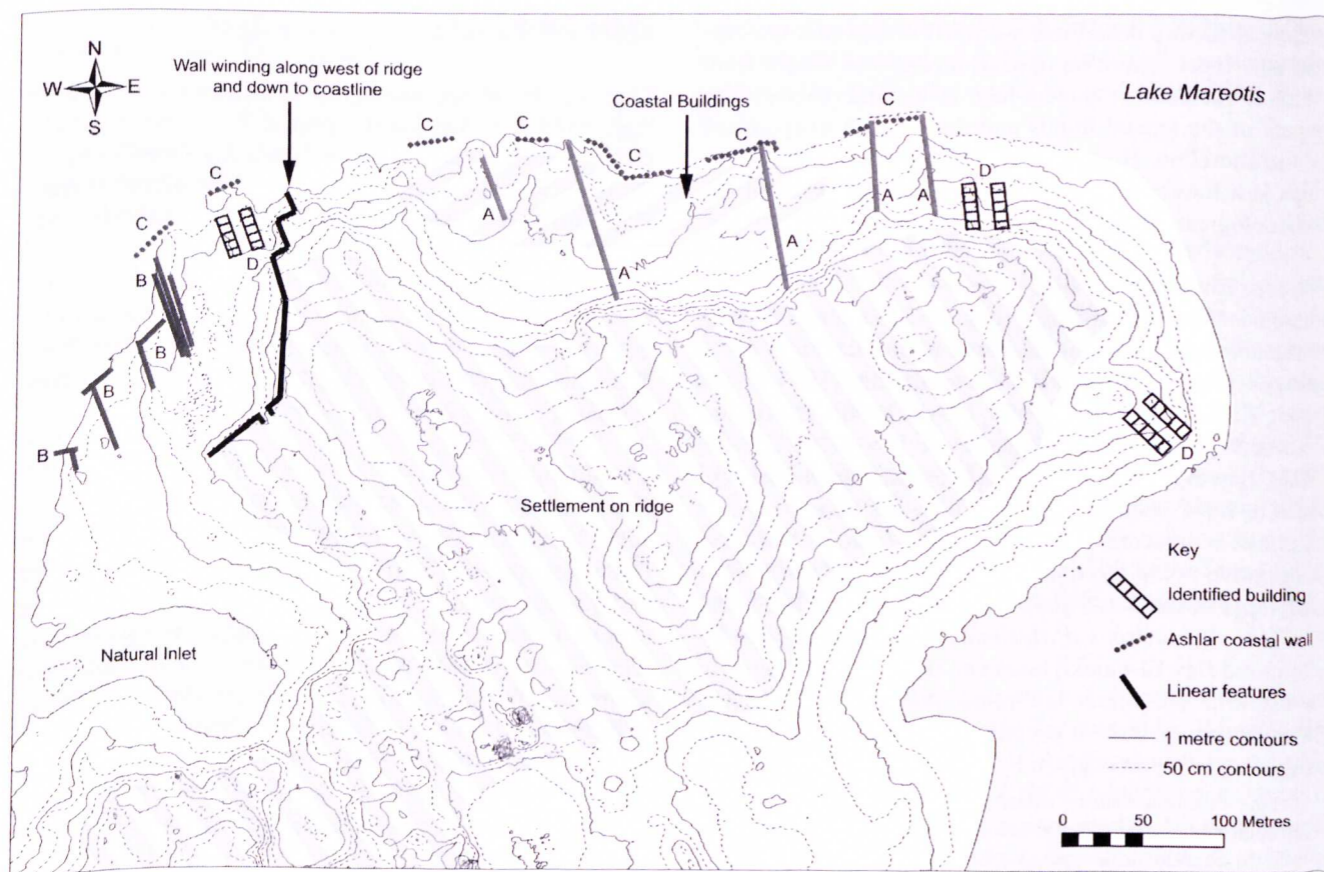
Associated with the first group of linear features (Group A) are a large number of walls indicating the presence of a number of buildings that had been constructed along the shoreline in this area (see Fig. 3). Since the relative dating of structures has yet to be determined it is not possible to discuss the phasing of the structures. However, what is apparent is that if the linear features were jetties and if they were built at the same period as the coastal buildings, then these buildings would have been susceptible to serious flooding. It is vital that the relationships and phasing of these features is investigated as it will have important implications with respect to interpretation of the landscape and the features located within it.

Amongst these coastal buildings are a group of structures that deserve particular attention. Three isolated groups of buildings of similar construction were identified at three different areas of the plain (see Fig. 3; Group D). Two of these are located on the north coast and a third on the eastern extreme of the island with a south-easterly coastal aspect. The buildings appear to be arranged in symmetrical blocks facing each other and around 13 m apart, each measuring approximately 10 m wide and between 30 and 55 m in length, and were aligned perpendicular to the coast. The building pairs consist of single rows of cellular rooms measuring roughly 10 m by 5 m. Their location and alignment relative to the coast suggests that their function was somehow related to the lake and that they could have been warehouses, shops or boathouses.

Summary

Overall there appears to be a great deal of established activity in the eastern settlement. Buildings on the ridge settlement hint at developed social organisation and those on the northern coastline show a strong association with the lake. Features interpreted as an inland harbour, lakeside walls, and possible jetties, all suggest an established interaction with the lake. There are a far greater number of buildings on the northern coastline as compared to the south coast in this part of the island, which may suggest that the southern coast was possibly dry or marshy and therefore inaccessible to boats in antiquity.

Fig. 3: The littoral features mentioned in this paper and topographic survey of the eastern settlement of the island (Hopkinson).



LAKE MAREOTIS: RECONSTRUCTING THE PAST

Archaeology of the Western Settlement

The western settlement occupies a similar location to the eastern settlement, situated on the high ground of the limestone ridge which measures 820 by 200 m (Fig. 4). The area exhibits the remains of various buildings, with a mixed function suggested by the construction materials and surface finds. Overall the preservation of these structures is not good; a large area in the extreme west has been heavily damaged by earthmoving machines, and in other instances only patchy areas of construction and dislocated wall lines survive. As a result, it is not possible to identify any zoning of functionality or social organisation, although a few significant groups of structures were observed. As in the eastern settlement the northern coastal plain appears to be the focus of activities. Once again it is the lakeside features that are the focus of interest in this paper although some of the structures on the ridge will be discussed.

The features of the coastal plain are sparsely distributed and appear to fall into three clear categories: a section of ashlar wall aligned along the shoreline; long, thin linear walls forming low ridges perpendicular to the coastline; and localised masonry features typified by curvilinear walls and associated ashlar lined pits, there is an overall lack of secondary activities such as the coastal buildings on the eastern coastal plain, which makes interpretation somewhat easier.

Ashlar Shoreline Wall Alignment (Feature E)
The area along the waterline is densely overgrown with water reeds and has silted up making the water level very shallow and the ground marshy. Amongst the reeds can be seen the upper surface of sections of a long straight wall (see Fig 4). All the shoreline features in the western settlement appear to respect this northern boundary. The wall is built from limestone ashlar laid as stretchers with a fine north-facing aspect, suggesting that it was laid in a special relation to the lake. The various sections of this feature appear to suggest a continuous wall with overall dimensions of 0.40 m by as much as 245 m in length. No excavations of this feature were undertaken so it is not possible to indicate the number of courses or the height of the wall.

The location and construction of this wall suggest that it has a significant relationship to the shoreline if water levels similar to those seen today are assumed. It appears to be a lakeside wall protecting the land behind or creating a working platform from which to conduct activities related to the lake. Some of the other features close to this wall appear to butt against this wall suggesting that it may also form part of a larger pattern of structures.

Linear Walls (Group F)

The second group of features located on the coastal plain of the western settlement, is a series of roughly parallel

linear features aligned perpendicularly to the current coastline; they are constructed from faced ashlar blocks that in some cases have degraded to stone rubble and in some areas only survive as low earthen ridges. Seven potential features were observed in this group (see Fig. 4), all of which have some connection with the current coastline and appear to respect the alignment of the possible lakeside wall. These linear features extend back from the coast, south towards the main ridge; their lengths vary between 25 and 100 m but on average only reach halfway across the plain and appear to show no direct relationship with the ridge itself. Two of these walls are connected by a linking wall at their southern ends.

These walls have much in common with similar features at the eastern end of the island, they have the same orientation relative to the coastline and occupy the ground between the coast and the ridge, with their coastal terminus closely associated with sections of ashlar wall aligned along the coast. This suggests that the walls could have potentially functioned as jetties when lake waters were high or as boundary markers potentially prescribing plots of land along the coast that butt against the ashlar wall.

Curvilinear Walls and Ashlar Lined Pits (Features G)

The land between the linear walls had a sparse distribution of ashlar constructed features that form the third group of structures. They are represented by sections of curved wall lines in two locations where additional associated wall lines were observed. These curved walls are incomplete but appear to represent rounded features with projected diameters of about 10 m (see Fig. 4).

The interior structure of one of these rounded features is preserved and takes the form of ashlar built components lining a rectangular slot which measured 4.80 by 0.90 m. This feature, although unexcavated and partially observed, bears a significant similarity to ancient water-lifting devices known as *saqiya* which have been observed archaeologically from broadly contemporary Greco-Roman sites in the region such as Abu Mina located some 15 km south of the island (Schiøler 1973: 129-136; Oleson 2000: 263; see Fig. 1), and Tuna Al-Gabal near Hermopolis in the Nile Valley (Schiøler 1973: 141-148). There are further *saqiya* features in the Mareotic region which have not been published in detail; examples in the immediate vicinity of the island are described as having a "circular stone platform and oblong well" (De Cosson 1935: 130).

Waterwheels were in common use in Egypt from Hellenistic through to medieval times, and are simple devices using a gear mechanism to convert the horizontal movement of an animal walking round a circular track into vertical movement for lifting water. The water was held in pots called '*qudus*' which are connected to the wheel. *Saqiya* are used predominantly in agricultural contexts (Oleson 1984: 126) but have also been recorded in the water-house buildings, as at Abu Mina (see Fig. 1). Waterwheels are also known to occur in many configurations;

Schiøler identifies 14 different types of *saqiya* from Roman, Islamic, and modern contexts (Schiøler 1973: 13), including wheels with *qudus* pots attached directly to the rim, and wheels which powered a 'pot-garland' or bucket chain. In the case of the features associated with the western settlement it seems that the curved walls represent part of the animals' circular track, while the ashlar lined pit is likely to be associated with either the wheel or the gear mechanism.

Many sherds of *qudus* pots were observed along the northern flank of the limestone ridge adjacent to the plain but were not recorded anywhere else on the island; the location directly adjacent to the water is also appropriate for this interpretation of water management, and places the northern coastal plain in an agricultural setting.

In the light of this interpretation it is possible to reinterpret the long linear walls between the ridge and the quay wall; these may potentially be seen as boundaries demarking areas of farmed land irrigated by *saqiyas*. Oleson concludes that rudimentary *saqiyas* from modern contexts could usefully irrigate similar portions of land to those possibly represented by the area of land contained within the linear walls (Oleson 1984: 369).

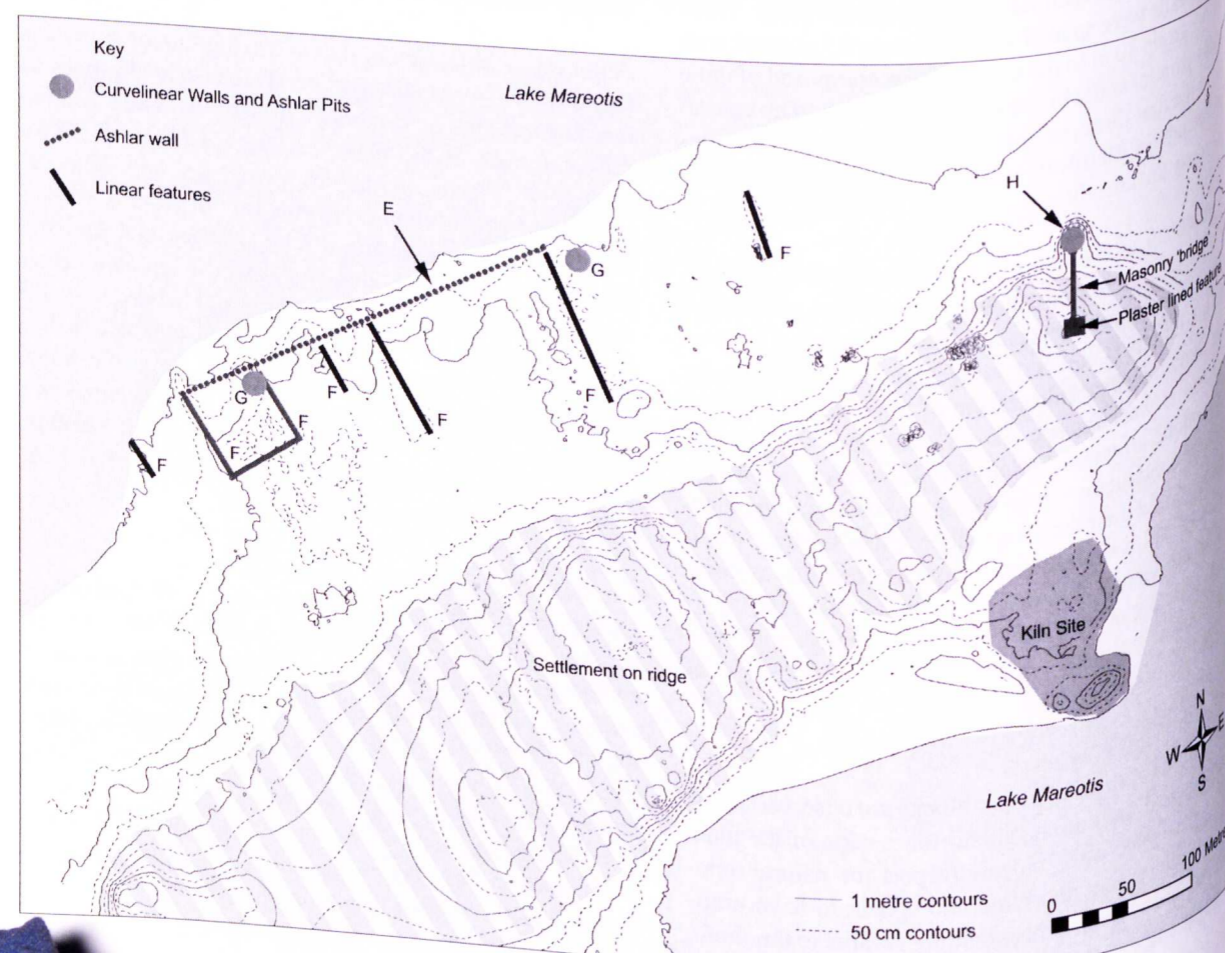
Linear Mole Extending into the Lake towards a Small Island

At the north-eastern extent of the western settlement in the marshy ground of the shoreline plain is a site that is unique on the island (see Fig. 2). This is significant because it is the only ancient feature on Mareotis Island that currently extends into the lake, and as such it represents a useful indicator of lake levels in antiquity. The feature is a 250 m long linear mole construction that extends out into the lake to join with a small island that measures roughly 30 by 15 m. This small island supports a rectangular building measuring 20 x 10 m that was built from substantial masonry blocks. Three jetties extended from the north of this building into the lake measuring between 7 and 15 m in length. The feature extends towards a promontory settlement on the opposite side of the lake where there is a similarly built reciprocal linear construction that extends for a short distance into the lake on the same alignment towards the small island. These features imply a functional relationship with the lake perhaps for controlling the movement of transport along the lake as well as between the two settlements.

Tower-like Feature (Feature H)

A final feature in the western settlement is worthy of mention, this is a small artificial mound of collapsed building material some 4 m in height which lies just northeast of the main ridge on which the settlement is located. After the main ridge on which the settlement is located, masonry elements were observed that formed a structure similar to the ashlar lined pits mentioned above. Rather than having a single pit slot this feature had a pit that was divided into two separate apertures with overall dimensions very close to the *saqiya* discussed above.

Fig. 4: The littoral features mentioned in this paper and topographic survey of the western settlement of the island (Hopkinson).



Archaeology of the Western Settlement

The western settlement occupies a similar location to the eastern settlement, situated on the high ground of the limestone ridge which measures 820 by 200 m (Fig. 4). The area exhibits the remains of various buildings, with a mixed function suggested by the construction materials and surface finds. Overall the preservation of these structures is not good; a large area in the extreme west has been heavily damaged by earthmoving machines, and in other instances only patchy areas of construction and dislocated wall lines survive. As a result, it is not possible to identify any zoning of functionality or social organisation, although a few significant groups of structures were observed. As in the eastern settlement the northern coastal plain appears to be the focus of activities. Once again it is the lakeside features that are the focus of interest in this paper although some of the structures on the ridge will be discussed.

The features of the coastal plain are sparsely distributed and appear to fall into three clear categories: a section of ashlar wall aligned along the shoreline; long, thin linear walls forming low ridges perpendicular to the coastline; and localised masonry features typified by curvilinear walls and associated ashlar lined pits, there is an overall lack of secondary activities such as the coastal buildings on the eastern coastal plain, which makes interpretation somewhat easier.

Ashlar Shoreline Wall Alignment (Feature E)

The area along the waterline is densely overgrown with water reeds and has silted up making the water level very shallow and the ground marshy. Amongst the reeds can be seen the upper surface of sections of a long straight wall (see Fig 4). All the shoreline features in the western settlement appear to respect this northern boundary. The wall is built from limestone ashlar laid as stretchers with a flush north-facing aspect, suggesting that it was laid in a specific relation to the lake. The various sections of this feature appear to suggest a continuous wall with overall dimensions 0.40 m by as much as 245 m in length. No excavations of this feature were undertaken so it is not possible to indicate the number of courses or the height of the wall.

The location and construction of this wall suggest that it has a significant relationship to the shoreline if water levels similar to those seen today are assumed. It appears to be a lakeside wall protecting the land behind or creating a working platform from which to conduct activities related to the lake. Some of the other features close to this wall appear to butt against this wall suggesting that it may also form part of a larger pattern of structures.

Linear Walls (Group F)

The second group of features located on the coastal plain of the western settlement, is a series of roughly paral-

lel linear features aligned perpendicularly to the current coastline; they are constructed from faced ashlar blocks that in some cases have degraded to stone rubble and in some areas only survive as low earthen ridges. Seven potential features were observed in this group (see Fig. 4), all of which have some connection with the current coastline and appear to respect the alignment of the possible lake-side wall. These linear features extend back from the coast, south towards the main ridge; their lengths vary between 25 and 100 m but on average only reach halfway across the plain and appear to show no direct relationship with the ridge itself. Two of these walls are connected by a linking wall at their southern ends.

These walls have much in common with similar features at the eastern end of the island, they have the same orientation relative to the coastline and occupy the ground between the coast and the ridge, with their coastal terminus closely associated with sections of ashlar wall aligned along the coast. This suggests that the walls could have potentially functioned as jetties when lake waters were high or as boundary markers potentially prescribing plots of land along the coast that butt against the ashlar wall.

Curvilinear Walls and Ashlar Lined Pits (Features G)

The land between the linear walls had a sparse distribution of ashlar constructed features that form the third group of structures. They are represented by sections of curved wall in two locations where additional associated wall lines were observed. These curved walls are incomplete but appear to represent rounded features with projected diameters of about 10 m (see Fig. 4).

The interior structure of one of these rounded features is preserved and takes the form of ashlar built components lining a rectangular slot which measured 4.80 by 0.90 m. This feature, although unexcavated and partially observed, bears a significant similarity to ancient water-lifting devices known as *saqiya* which have been observed archaeologically from broadly contemporary Greco-Roman sites in the region such as Abu Mina located some 15 km south of the island (Schjoler 1973: 129-136; Oleson 2000: 263; see Fig. 1), and Tuna Al-Gabal near Hermopolis in the Nile Valley (Schjoler 1973: 141-148). There are further *saqiya* features in the Mareotic region which have not been published in detail; examples in the immediate vicinity of the island are described as having a "circular stone platform and oblong well" (De Cosson 1935: 130).

Waterwheels were in common use in Egypt from Hellenistic through to medieval times, and are simple devices using a gear mechanism to convert the horizontal movement of an animal walking round a circular track into vertical movement for lifting water. The water was held in pots called 'qudus' which are connected to the wheel. *Saqiya* are used predominantly in agricultural contexts (Oleson 1984: 126) but have also been recorded in the bath-house buildings, as at Abu Mina (see Fig. 1). Waterwheels are also known to occur in many configurations;

Schjoler identifies 14 different types of *saqiya* from Roman, Islamic, and modern contexts (Schjoler 1973: 13), including wheels with *qudus* pots attached directly to the rim, and wheels which powered a 'pot-garland' or bucket chain. In the case of the features associated with the western settlement it seems that the curved walls represent part of the animals' circular track, while the ashlar lined pit is likely to be associated with either the wheel or the gear mechanism.

Many sherds of *qudus* pots were observed along the northern flank of the limestone ridge adjacent to the plain but were not recorded anywhere else on the island; the location directly adjacent to the water is also appropriate for this interpretation of water management, and places the northern coastal plain in an agricultural setting.

In the light of this interpretation it is possible to reinterpret the long linear walls between the ridge and the quay wall; these may potentially be seen as boundaries demarking areas of farmed land irrigated by *saqiyas*. Oleson concludes that rudimentary *saqiyas* from modern contexts could usefully irrigate similar portions of land to those possibly represented by the area of land contained within the linear walls (Oleson 1984: 369).

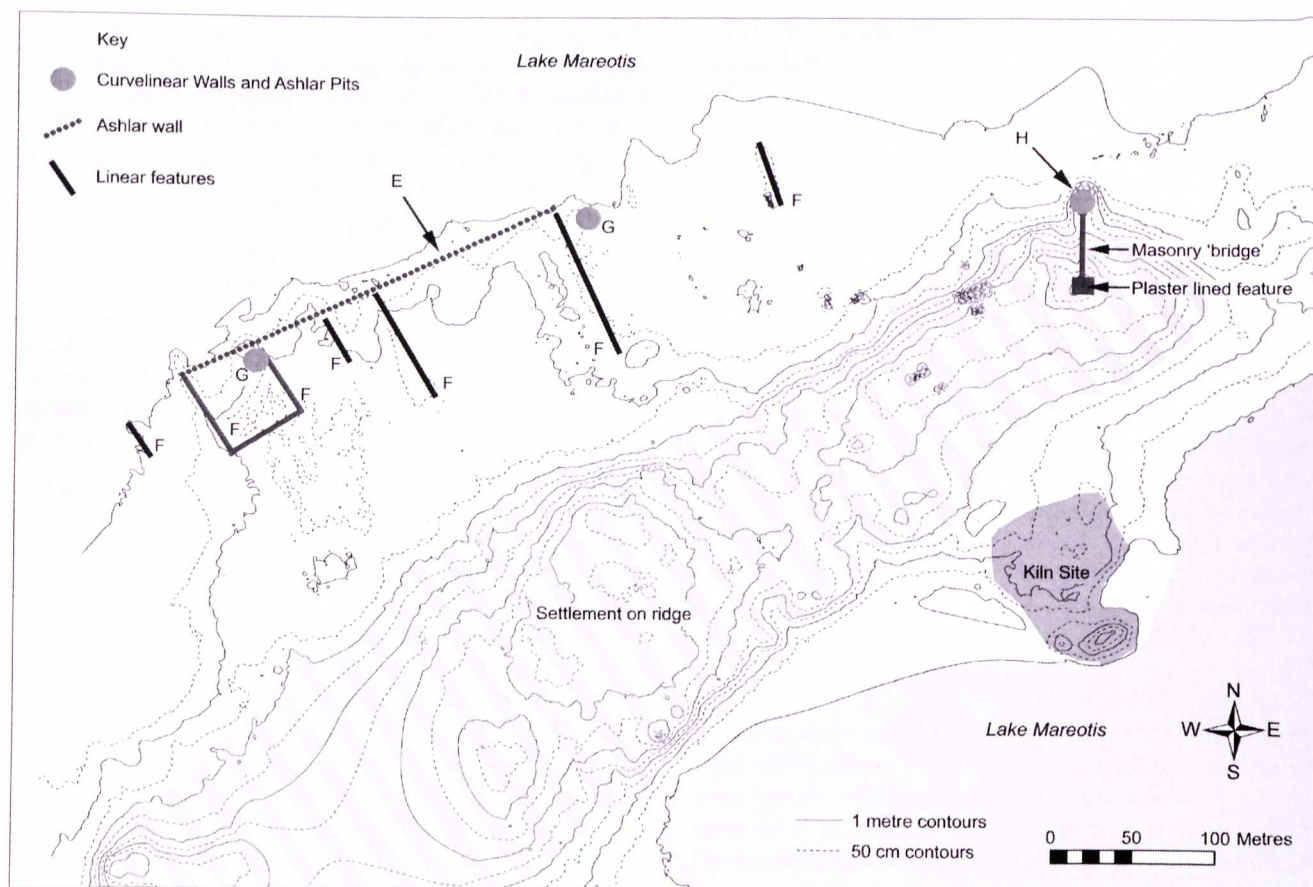
Linear Mole Extending into the Lake towards a Small Island

At the north-eastern extent of the western settlement in the marshy ground of the shoreline plain is a site that is unique on the island (see Fig. 2). This is significant because it is the only ancient feature on Mareotis Island that currently extends into the lake, and as such it represents a useful indicator of lake levels in antiquity. The feature is a 250 m long linear mole construction that extends out into the lake to join with a small island that measures roughly 30 by 15 m. This small island supports a rectangular building measuring 20 x 10 m that was built from substantial masonry blocks. Three jetties extended from the north of this building into the lake measuring between 7 and 15 m in length. The feature extends towards a promontory settlement on the opposite side of the lake where there is a similarly built reciprocal linear construction that extends for a short distance into the lake on the same alignment towards the small island. These features imply a functional relationship with the lake perhaps for controlling the movement of transport along the lake as well as between the two settlements.

Tower-like Feature (Feature H)

A final feature in the western settlement is worthy of mention, this is a small artificial mound of collapsed building material some 4 m in height which lies just northeast of the main ridge on which the settlement is located. After cleaning the flat top of the mound, masonry elements were observed that formed a structure similar to the ashlar lined pits mentioned above. Rather than having a single pit slot this feature had a pit that was divided into two separate apertures with overall dimensions very close to the *saqiya* discussed above.

Fig. 4: The littoral features mentioned in this paper and topographic survey of the western settlement of the island (Hopkinson).



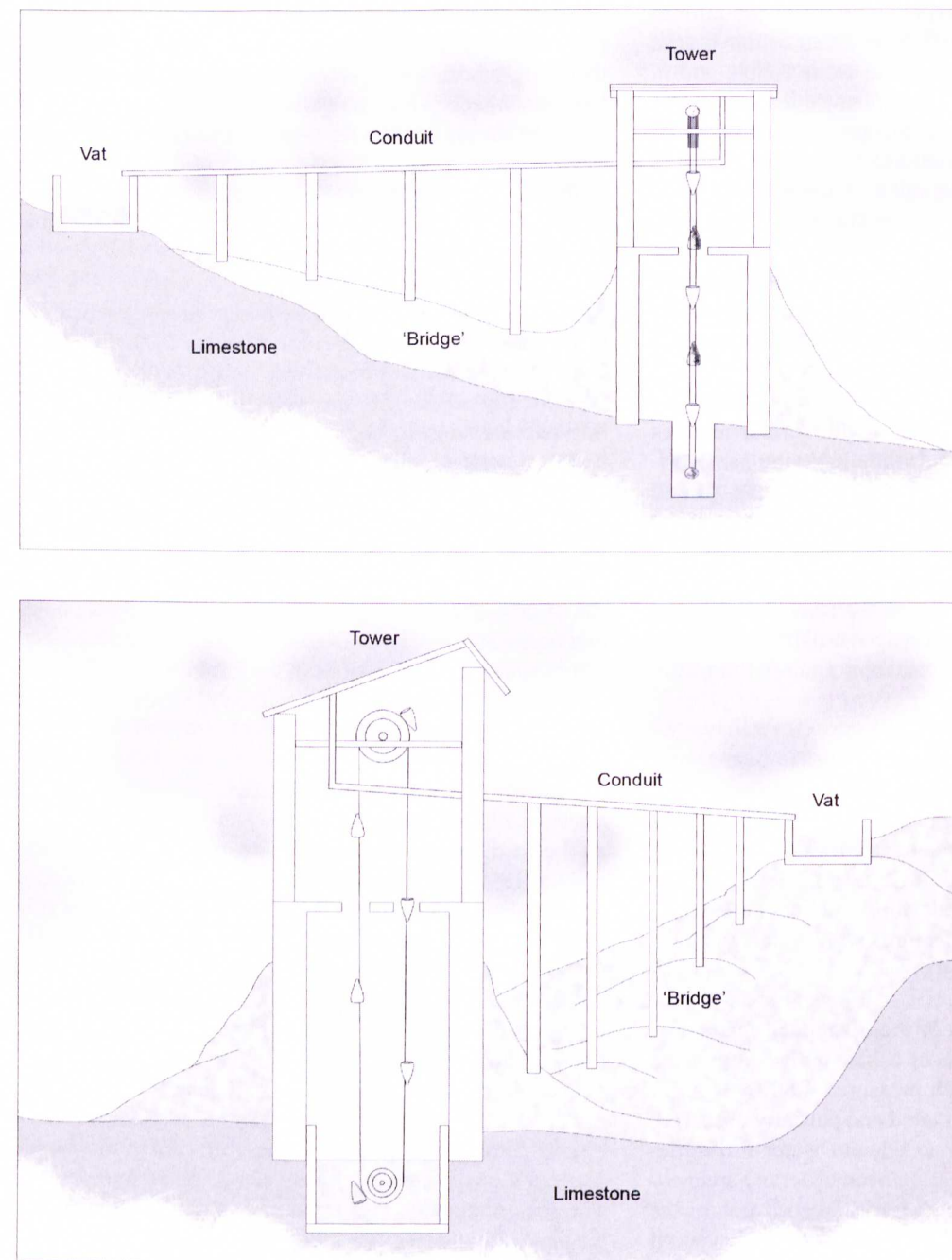


Fig. 5: Longitudinal and transverse schematic sections through the 'water tower' on Mareotis Island (Hopkinson, after McCann, et al. 1987).

It is possible that this feature is the top of a tower used to lift water from a well known to exist close to the bottom of the mound using a pot-garland passing through each aperture. An elevated 'bridge' constructed from earth and masonry blocks connects the tower to the main ridge at a point where a plaster lined vat is located as part of a larger building complex that could potentially represent a public bathhouse or cistern and water management feature (Fig. 5). An example of such a tower from the late 1st century AD is known from the port of Cosa in Italy (Oleson 2000: 258). The so called 'spring house' at Cosa initially lifted water to a height of 3 m but it burnt down and was replaced with a structure that lifted water over a height of 10 m to an elevated conduit. If this hypothesis is correct the structure on the mound would have lifted water to about 4 m to the

top of the tower and a further 1.5 m to the vat on top of ridge, an overall height in the order of some 5.5 m, the additional height of about 1.5 m being accounted for by the assumed superstructure which held the *qudus* pot-garland above the surviving tower.

Summary

The western settlement is generally poorly preserved, however there is an apparent lack of secondary activities on the northern plain which makes it easier to interpret the features that survive. The presence of water lifting devices and possible plots of agricultural land suggest that the majority of the coastal plain was above the mean water-level in antiquity. As such an alternative interpretation of the linear walls as possible jetties is not so well supported,

although they could have served this function during the flood season. The absence of further buildings on the plain may suggest that this community did not have a strong association with the lake for their subsistence; however the presence of the promontory towards the small island may suggest that at some point the settlement had a significant role in administering activities on the lake.

Archaeology of the Central Island

The land between the eastern and western settlements on the island is roughly 2 km long and appears to have been sparsely utilised in antiquity for industrial and agricultural activities. There are four sites of large scale pottery manufacture (see Fig. 2; Kiln "A" & Kiln "B"), each with extensive associated storage rooms, and large mounds of ceramic sherds wasted during the firing process. It seems that these potteries, like many identified near the coast on the southern mainland, were exclusively producing amphorae forms known to have been used for making and packaging the large quantities of wine for which the region is renowned (Empereur & Piccon 1986). Two of the kilns originated in the Hellenistic period (see Fig. 2; Kiln "A"), one close to both the eastern and western settlements. These sites continued in use through to the mid-1st century AD, when amphorae production switched to two adjacent sites (see Fig. 2; Kiln "B"). Production of amphorae at the new sites continued from the late 1st to the 5th centuries AD.

Further evidence of light industry on the island is indicated by two small quarrying sites on the limestone ridge (see Fig. 2), although their capacity is very small compared to the quantity of stone used in the settlements and it is more likely that the majority of the building stone was transported across the lake from the large quarry sites known to exist in antiquity on the Abusir Ridge to the north (Oliver & De Cosson 1938: 169-170).

In the middle of the island, associated with the kiln sites, there are a group of structures that occupy the top of the ridge that could have been workshops or accommodation for the workmen involved in these industries. A number of features from these structures extend down towards the northern coastline, although on the plain below there is only one visible structure. This is a 75 m long section of ashlar laid as stretchers aligned with the current coastline (see Fig. 2). The wall lies 70 m inland from the current coastline, which is surprising since the flush face of the wall at first suggests a coastal function similar to the sections of lake wall or quay found associated with the eastern and western settlements. However, if this was its function then the land directly north of the wall equates to a large area of siltation and aeolian soil deposition. Small scale excavations either side of the wall in 2008, however, indicated that there was only one course of stones surviving and that the soils surrounding the feature appeared to display similar sediment regimes and were not deposited underwater. It therefore seems that this section of wall had no direct association with the lake, and its purpose is unclear. This finding is also significant since the construction of a flush face apparently respecting the coastline has im-

plications for the interpretation of the other 'coastal' walls on the island.

To the south of the central ridge of the island, there are two adjacent 'plots' of land which are enclosed by low walls of faced stone and rubble (see Fig. 2). These features resemble 'karum' or vineyard plots; features that are usually found inland in a 15 km wide band south of the Gebel Mariout Ridge, as indicated on *Survey of Egypt* maps from 1927. *Karum* are features that are poorly researched but the author believes they were used to raise the depth of topsoil on agricultural plots with the advantage of increasing the space for healthy root growth and for storing rainwater in the soil reservoir (Hopkinson 2007). There seems then to have been some small scale industry and subsistence agriculture in the middle of the island that is not directly related to either of the main settlements.

Water Levels and Connection to the Mainland

One important consideration for the interpretation of the features on the island is the relationship between the island and the mainland to the south, and the local hydrological environment throughout its occupation. The island is currently largely surrounded by water but it should not be assumed that this was the situation in antiquity because modern irrigation and dyke formation have modified the movement of water. A number of the features that have been identified on the island may suggest a greater connectivity to the mainland to the south. All of the potential maritime focused features such as the possible jetties, quays and lake walls are located on the north facing shores of the island, and the absence of these features on the southern shores suggests the absence of water in this area that could be usefully exploited. Moreover the features that are observed along the current southern shore appear to be associated with dry land activities. The 'karum' plots are agricultural features thought to be concerned with collecting and maximizing the use of precipitation and as such suggest that there is no alternative readily available water resource in close proximity. The second feature that appears to preclude the existence of a significant southerly body of water in antiquity is the large kiln structure observed in the west of the island (see Fig. 4; 'kiln site'). These kilns are known to have significant subterranean fire chambers up to 4 m deep where the fire was lit, with a perforated firing plate above to allow the hot air to circulate (El-Fakharani 1983). However, the firing plate of this kiln is currently only a short height above the lake waters to the south allowing little room for the firing chamber and indicating that it could only have been used if the land to the south between the island and the mainland had been dry. The inference that there was connectivity between the island and the southern shores of the lake, is supported by what we know about the organisation of wineries of the region, consisting of three essential elements: the kiln, the winery, and the estate villa (Empereur & Piccon 1992). At least three winery structures are known in the immediate vicinity of the island on the southern mainland, and no structures suitable for the production of wine have been identified on the island itself. It is possible to suggest therefore that

the kilns on the island were producing amphorae for the wineries on the southern mainland. However, the recent geomorphological enquiry undertaken as part of the Lake Mareotis Research Project has confirmed that the body of water that currently extends from the southern shores of the island was in fact waterlogged in antiquity (Flaux forthcoming). The island ridge was an extension of the Marea Ridge and thus enclosed a body of shallow water to the south. How continually waterlogged this area was in antiquity has yet to be determined but the geomorphological survey has indicated that there was continuous lake sedimentation between the island and the southern shores since antiquity. Thus, it is assumed that access from this area into the main body of the lake was restricted by the ridge, thus deterring settlement on the southern shores of the island, as witnessed by the lack of archaeological sites in this region. It is clear however that the situation is very complicated and that our understanding of the archaeology of the island is incomplete.

Conclusion

The archaeology of Mareotis Island consists of two settlements which appear to be concerned with agricultural, industrial and water management activities as well as lacustrine focused features which may indicate that fishing activities or lake transportation services were conducted from the island. The island represents a largely unexplored archaeological asset that has the potential to give insights into daily life in a non elite community; when looked at in conjunction with other known sites in the area it may provide an opportunity to begin to address settlement distributions and social organisation and make comparison between the lake region and those communities on the Delta, and perhaps archaeological findings from the Fayum or Nile Valley, where the most studied examples of agricultural settlements are known. Such comparisons with sites from the Egyptian interior may prove to be less than representative of ordinary Egyptian practices where the majority of the population was located on the Nile Delta (Bagnall 2007: 227). There is a great potential for future research on Mareotis Island and the broader Mareotis region and these provisional findings only begin to scratch the surface of what the island and Mareotic region in general has to offer.

Bibliography

Bagnall, R.S., 2001, Archaeological Work on Hellenistic and Roman Egypt, 1995-2000. *American Journal of Archaeology* 105. 2: 227-243.
 Ball, J., 1942, *Egypt in the Classical Geographers*. Cairo.
 Brooks, C.E.P., 1949, *Climate through the ages*. New York.
 De Cosson, A., 1935, *Mareotis: Being a Short Account of the History and Ancient Monuments of the North-Western Desert of Egypt and of Lake Mareotis*. London.
 El-Fakharani, F., 1974, The "Lighthouse" of Abusir in Egypt. *Harvard Studies in Classical Philology* 78: 257-272.

El-Fakharani, F.A., 1983, Recent Excavation at Marea in Egypt. In G. Grimm, H. Heinen & E. Winter (eds.), *Aegyptiaca Trevernsia II. Das Römisch-Byzantinische Ägypten. Akten des internationalen Symposiums 26.-30. September 1978 in Trier*, 175-186. Mainz.
 El-Fakharani, F., 1984, The Kibotos of Alexandria. *Studi Miscellanei* 28: 23-28.
 El-Falaki, Mahmoud Bey, 1872, *Memoire sur l'antique Alexandrie, ses faubourgs, ses environs*. Copenhagen.
 Empereur, J.-Y., 1986, Un atelier de dressel 2-4 en Égypte au IIIe siècle de notre ère. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'École française d'Athènes, 11-12 décembre 1988*: 599-608. Athens, Paris.
 Empereur, J.-Y., 1998, *Alexandria Rediscovered*. New York.
 Empereur, J.-Y., & Picon, M., 1986, A La Recherche des Fours d'Amphores. In J.-Y. Empereur & Y. Garlan (eds.), *Recherches Sur Les Amphores Grecques. Actes du colloque international organisé par le Centre national de la recherche scientifique, l'Université de Rennes II et l'École française d'Athènes, 10-12 Septembre 1984*: 103-126. Athens, Paris.
 Empereur, J.-Y., & Picon, M., 1998, Les ateliers d'amphores du Lac Mariout. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'École française d'Athènes, 11-12 décembre 1988*: 75-88. Athens, Paris.
 Empereur, J.-Y., & Picon, M., 1992, La Reconnaissance des Productions des Ateliers Céramiques: L'Exemple de La Maréotide. *Extrait des Cahiers de la Céramique Égyptienne* 3: 145-152.
 Flaux, C., forthcoming, Geomorphological survey of the south-west shores of Lake Mareotis. In L. Blue & E. Khalil (eds.), *A Multidisciplinary Approach to Alexandria's Economic Past: the Mareotis Case Study*. Oxford.
 Hopkinson, D.J., 2007, *An Assessment of Greco-Roman Lakeside Agriculture and Trade in the Mareotic Region of Egypt*. Unpub. MA diss., University of Southampton.
 Khalil, E.K.H., 2005, *Egypt and the Roman maritime trade: a focus on Alexandria*. Unpub. PhD thesis, University of Southampton.
 McCann, A.M., Bourgeois, J., Gazda, E.K., Oleson, J.P., & Will, E.L., 1987, *The Roman Port and Fishery of Cosa: a Center of Ancient Trade*. Princeton.
 Murray, G.W., 1951, The Egyptian Climate: An Historical Outline. *The Geographical Journal* 117.4: 422-434.
 Oleson, J.P., 1984, *Greek and Roman Mechanical Water-Lifting Devices: The History of a Technology*. London.
 Oleson, J.P., 2000, Water-Lifting. In Ö. Wikander (ed.), *Handbook of ancient water technology*, 217-302. Leiden

Oliver, F.W., & De Cosson, A., 1938, Note on the Taenia Ridge – with especial reference to quarries, sites and an ancient road between Alexandria and Abu Sir. *Bulletin de la Société Royale d'Archéologie d'Alexandrie* 32: 163-175.
 Rodziewicz, M.D., 1983, Alexandria and District of Mareotis. *Graeco-Arabica* 2: 199-216.
 Rodziewicz, M.D., 1990, Taenia and Mareotis: Archaeological Research West of Alexandria. *Annual of the Egyptian Society of Greek and Roman Studies* 1: 62-78.
 Rodziewicz, M.D., 1998a, From Alexandria to the West by Land and by Waterways. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'École française d'Athènes, 11-12 décembre 1988*: 93-103. Athens, Paris.
 Rodziewicz, M.D., 1998b, Classification of Wineries from Mareotis. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS,*

le Laboratoire de céramologie de Lyon et l'École française d'Athènes, 11-12 décembre 1988: 27-36. Athens, Paris.
 Rodziewicz, M.D., 2002, Mareotic Harbours. In C. Décobert (ed.), *Alexandrie Médiévale 2. Etudes Alexandrines* 8: 1-22.
 Schiøler, T., 1973, *Roman and Islamic Water-lifting Wheels*. Denmark.
 Strabo, *Geography*, H.L. Jones (transl.), 1949. London.
 Survey of Egypt (27/135) 1:100,000 Map; Sheet 88/48 "El Ghayata". Survey of Egypt/Ministry of Finances, Cairo.
 Tomber, R., & Thomas, R.I., forthcoming, Pottery from the Lake Mareotis Research Project. In L. Blue & E. Khalil (eds.), *A Multidisciplinary Approach to Alexandria's Economic Past: the Mareotis Case Study*. Oxford.
 Warne, A.G., & Stanley, D.J., 1993, Late Quaternary Evolution of the Northwest Nile Delta and Adjacent Coast in the Alexandria Region, Egypt. *Journal of Coastal Research* 9.1: 26-64.

The City of Marea/Philoxenité. Reflections on the Alexandria University Excavations, 1977-1981

Mona Haggag

In 1977 Alexandria University patronized an expedition under the direction of the late Prof. Fawzi El-Fakharani to search for the ancient city of Marea, mentioned by different classical authors as the capital of the Mareotic Nome during the late Pharaonic period (Thucydides I.68; Herodotus II.30; III.12; 15; IV.161; Diodorus I.68.).

Mahmoud Bey El-Falaki located the site of Marea some 45 km west of Alexandria on the southern shores of the western extremity of Lake Mareotis near El-Hawaria (El-Falaki 1872: 85, 86, 91, 96, 97, 101; see other Haggag chapter in this volume). El-Falaki based his identification of the site according to its location on the map of Ptolemy the Geographer (IV.5. 16.17). This location is confirmed by Ball (1942: 25-30), Breccia (1922: 337), De Cosson (1935: 131-135), Rowe (1954: 128-145) and Fraser (1972: 143-146) due to four visible jetties which still project into the lake today. The jetties are associated with a broad ridge of hard limestone extending from east to west across the town parallel to the southern coast of the lake and bordered, from both north and south, by calcarenite land.

The Survey

As part of the 1977 campaign and in collaboration with the University of Guelph, Canada, Mohamed Sadek conducted a proto-magnetometer survey at the site, concentrating on the shoreline area from which the four jetties projected. Data was collected in lines parallel to the lakeshore from west to east in a grid of 800 m long and 100 m wide at intervals of 4 m. Soundings were taken in the area west of the first quay, and some trial trenches were investigated in three locations on the waterfront near the jetties. The trenches went deep into the bedrock which was found at intervals of 4.6-6.00 m below the present ground surface.

Fig. 1: Kibotos harbour structure on the south shore of Lake Mareotis (Site 9 – Lake Mareotis Research Project) (photo M. Haggag).

1. It is worthy of notice here that Gauthier, referring to some hieroglyphic text, stated that the ancient city of Marea was located on an island in the lake (Gauthier 1925-1931: vol. III, 53-54).

Sadek concluded that all the remains identified were not earlier than the 4th-5th centuries AD (Sadek 1978: 67-80). All trial trenches proved to have remains of stone buildings dating to the Byzantine period. Pot sherds were entirely of Byzantine manufacture (Shahin 1983). The same is true for the architectural material, construction methods and techniques. These results raised a major question about the location of the pre-Byzantine town mentioned in classical literature (Thucydides I.68; Herodotus II.30; III.12; 15; IV.161; Diodorus I.68).

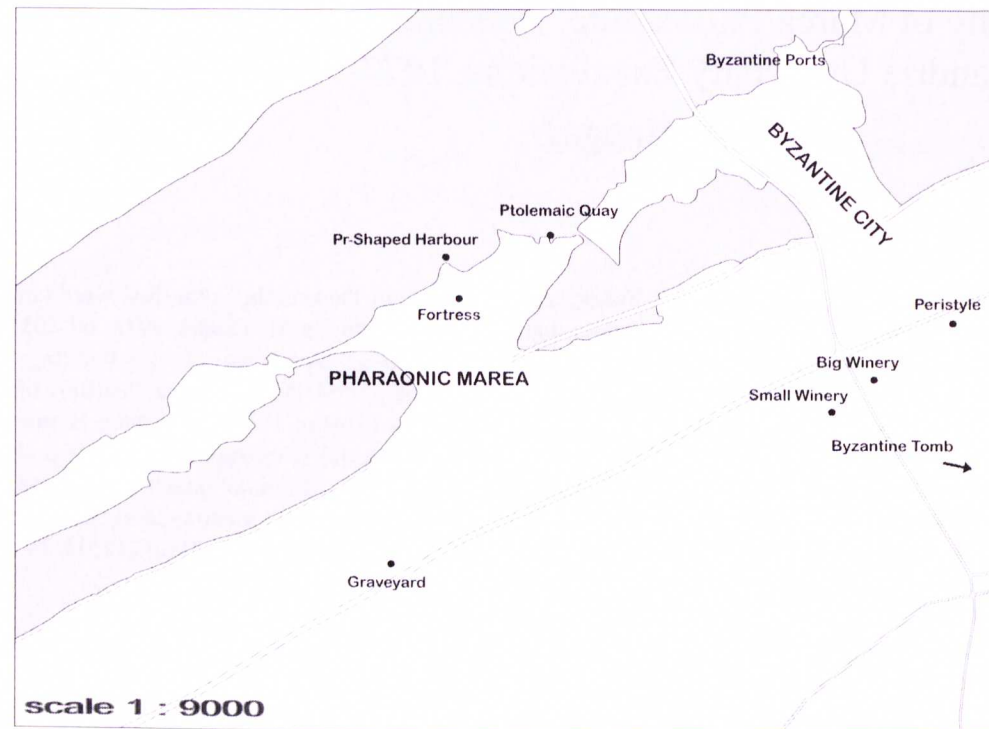
The Pre-Byzantine Remains (Map 1)

By exploring the area some 5 km west of the Byzantine remains, earlier remains of Marea proved to exist beyond the main perimeter of the Byzantine site. A group of harbour installations were found on an island to the west.¹

The 'Pr'-Shaped Harbour (Fig. 1, Map 1)

The main harbour of the island is a three sided structure projecting into the lake basin about 30.5 m wide and 57 m long. It is built of undressed blocks of limestone of Cyclopean size. A number of the upper blocks in this structure have drilled cylindrical holes which were either bollard holes or mooring rings (Fig. 2). According to the traditions of ancient Egyptian harbour architecture, ports of rectangular plan in the shape of the sign "pr" were designed for harbours facing the open seas. Earlier examples existed in the seaport of Alexandria (Jondet 1916: 13-20; El-Fakharani 1991: 25), the most conspicuous of which is the one inside the Western Harbour mentioned by Strabo as the Kibotos (*Geography*, Xvii, I, 10), another one is associated with the Island of Antirrhodes which lies inside the Eastern Harbour of Alexandria discovered by Goddio (Goddio, et al. 1998: 21-29, pl. 1). This feature consists of two rows





Map 1: Marea in Lake Mareotis (V. Atef).



Fig. 2: Kibotos harbour structure, mooring ring (photo M. Haggag).



Fig. 3: Rock-cut Kibotos harbour structure at Ikingi Mariut (photo M. Haggag).

of stakes or piles approximately parallel, running south-west to north-east, along the axis of the main branch of the island, that forms a rectangular shaped-harbour against the island's shoreline. A third one, hewn in the rock at Ikingi Mariut, about 20 km west of Alexandria (Fig. 3), was identified by El-Fakharani² (2002: 203-208).

The Fort (Map 1)

To the south-west of the pr-shaped port remains of a substantial structure built on a monolithic platform about 21 m wide and 24 m long was uncovered. The structure has an L-shaped plan. The walls seem to have consisted of rough core masonry with outer casing walls. The blocks of the outer casing are carefully cut and fitted together in oblique joints without using any mortar except for a foliage layer of non reddish mortar used in some of the courses to facilitate the sliding of such gigantic sized blocks. These external walls are slanting inward at an angle of about 40 degrees, and are based on larger foundation blocks with squared edges. The building is approached from the south by means of a ramp of dressed and carefully fitted stone blocks (Haggag 1984: 277-280). The use of rough masonry for the core while the huge blocks of the facing are very carefully polished, the oblique joints of the blocks, the use of such a thin layer of mortar, the inward slanting of the outer walls as well as the general plan of the building, are clear indications to a Late Pharaonic date. The building is interpreted as the fort of Psammaticus III (525 BC), from which his son Inaros sailed with his army, aided by some Athenian troops (Thucydides I.104), against the Persians in 465 BC, in an unsuccessful attempt to liberate Egypt.

The Ptolemaic Quay (Map 1)

To the east of the island, a stone built jetty about 104 m long extends into the lake. Near its southern end, the jetty inclines to the east at an angle of about 175 degrees to extend a further 20 m in length. It is constructed of local regularly sized rectangular blocks, arranged in alternate courses of headers and stretchers (Haggag 1984: 280-283). The fine workmanship, medium size nature of the blocks as well as the ashlar masonry construction style with its vertical joints, are indications of a Ptolemaic date for the quay.

The Cemetery (Map 1)

To the southwest of the island on the limestone ridge, the team came upon a group of burials that have nothing in common with Byzantine tomb types. The cemetery consists of some anthropoid pit tombs. A square shaft tomb is carved into the limestone ridge to a depth of 6 m. Loculi with gabled ceiling are cut either side of the shaft. A nearby chamber tomb is composed of a sloping passage hewn into the rock that ends with six steps leading to an open court. An opening cut in one side of the court leads

2. For detailed discussion of this pr-shaped ports of Pharaonic date as well as examples, see Haggag 1984: 263 ff.; El-Fakharani 1991: 25, fig. 1,2.

to a dromos. Another similar dromos on the opposite side leads to a funerary chamber. The ceiling is carved to imitate wooden beams in the manner common to Pharaonic cemeteries. False doors were also carved in the walls with a shaft in front of each one leading to the burial chamber below. All tombs have been looted. The only remains were a few local pointed bottom jars which are likely to be Late Pharaonic in date (El-Fakharani 1983: 176-178).

The Byzantine Harbours (Fig. 4, Maps 1 & 2)

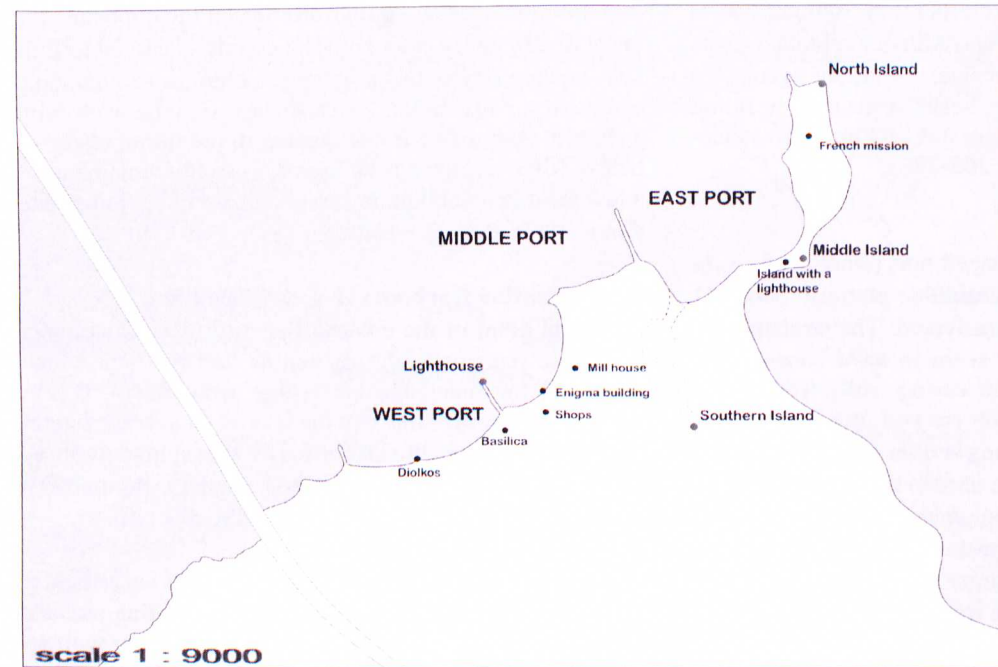
The focal point of the town to the east of the Pharaonic/Ptolemaic remains is the Byzantine harbour area which extends 2 km along the lake shore with four well preserved jetties projecting into the lake at an average height of nearly 2 m above the lakebed. The area comprises three harbours marked by the jetties and a natural promontory namely the west port, the middle and the east port.

Along the shore there is a stone built seawall occasionally interrupted by either steps or stone ramps leading directly down to the water. The wall extends some 500 m with an average width of 1 m.

At the outer extremity of the western quay of the middle port, there are a number of circular foundations about 4 m in diameter. These features are assumed to have been the base of a light beacon or lighthouse that would have aided navigation at night. Some mooring features can be detected on the upper course of this jetty in the shape of cylindrical bollard holes (Petrucci & Gabel 1983: 63).

The East Port (Fig. 5, Map 2)

Although the east port was completely buried under the sands of the lake which by the time of excavation had dried out, digging revealed that it differs from the other ports of Marea in both shape and function. It is located between the promontory and a north-easterly island which has its own landing place formed by a short artificial dyke to the north-east and a natural promontory to the north-west. This northern island is connected to another smaller one to its south-west. A third quay connects this island to the promontory forming a wide entrance to the eastern port, at least in its first stage of construction. In the second stage, the shape, size and function of the port seem to have been modified. Almost 100 m of the quay that extended from the eastern small island to the promontory were removed and an extension to this quay constructed to the south. It was located parallel and adjacent to the eastern shore of the promontory and was about 200 m in length. Thirty metres before reaching a third island to the south, the quay ends forming an opening between its southern extremity and this small island. This opening provides an exit or entrance to the east port by way of the southern body of the lake, which extended considerably inland at this point. By this modification, the very long quays of the east port became totally isolated from both the mainland and the promontory. Accordingly, the link between the anchored ships with their cargoes and the town was severed. This fact is very important as far as the function of the port is concerned.



Map 2: Marea's public buildings on the lake shore (V. Atef).



Fig. 4: Byzantine harbour of Marea (photo M. Haggag).

El-Fakharani's interpretation of the function of the east port (1983: 181) is that it worked as a one way traffic harbour for transit navigation: so that seafaring ships carrying goods from different parts of the Mediterranean could enter the east port via its northern opening, their cargoes were to be unloaded on the long quays in order to be re-loaded on board river boats to transport goods to the Nile and vice versa.

The Public Buildings (Map 2)

Many, if not most, of the public buildings of Byzantine Marea were mainly erected along the shoreline. Parallel to the lake shore in front of the harbour installations runs the main arcaded street of the city. This *decumanus* (Fig. 6) extends eastward until it reaches the natural promontory which forms the eastern part of the middle port. It is 10 m wide marked on its southern side by an arcade of which some of the bases of columns can still be seen *in situ*. The street is paved by big rectangular limestone blocks. At a

depth of 0.25 m below the pavement, a square drainage canal, coated with a thick layer of plaster and covered by a row of huge rectangular blocks, extends across the *decumanus*. This drains into a similar canal that extends under an unpaved side street and from south to north crossing the *decumanus* at a right angle. Thus, the drainage waters pour directly into the lake (El-Fakharani 1983: 178-179).

The Shops (Map 2)

The arcade of the *decumanus* lines a group of 12 constructions (Fig. 7), with different ground plans. The buildings are located side by side with doors that opened out onto the sheltered arcade. They seem to have been built to function as shops with residential quarters for their owners. Remains of white plaster coating are still visible on some of the walls. An upper storey for each of the shops is confirmed by the existence of stairs at the rear of some of the shops and also in some of the back rooms (El-Fakharani 1983: 178-179; Soleiman 2004: 145-164).

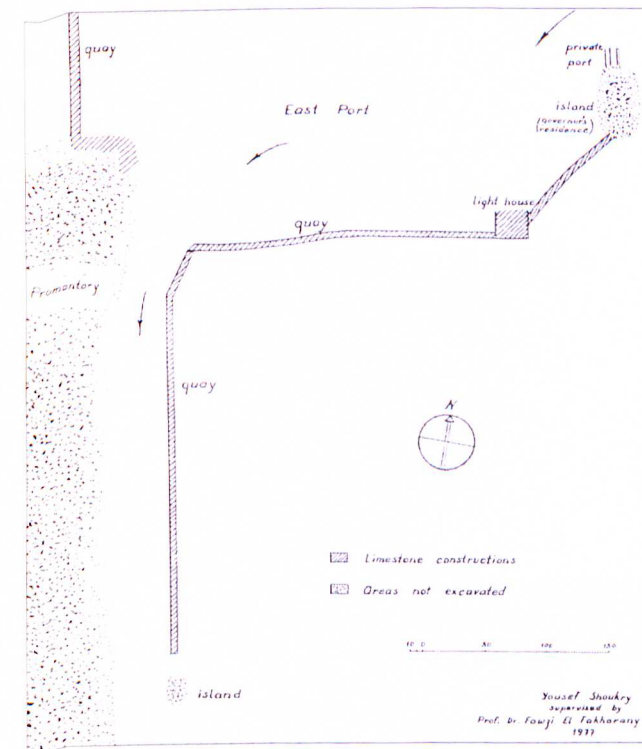


Fig. 5: (above) Plan of the eastern harbour of Marea, after El-Fakharani 1977 (thanks to El-Fakharani).



Fig. 6: Decumanus between the eastern and middle ports of Marea (photo M. Haggag).

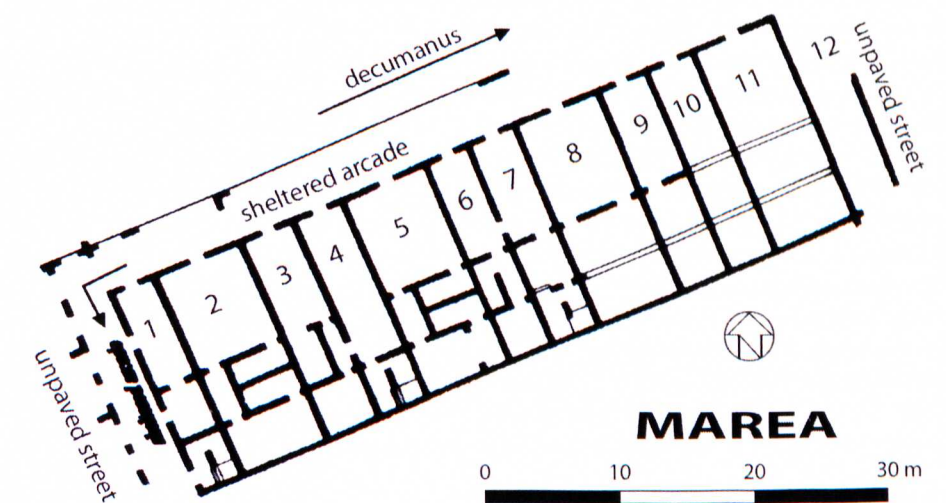


Fig. 7: Plan of shops off the main decumanus (thanks to El-Fakharani).

The Basilica (Fig. 8, Map 2)

To the west of the *decumanus*, at the intersection of the western side street, a huge complex of structures came to light during excavations (Sadek 1992: 549-554). The structures consist of two conjoined apsidal basilicas furnished with what seems to be public bathing facilities for sanitary purposes, similar to those discovered and interpreted by Grossman at St Menas (Grossmann 1986: 12-13; Haggag 1984: 284-289).

The Bakery

At the promontory which forms the eastern extremity of the middle port, a huge building with an area of about 700 m² was uncovered. A large granite mill inside one of the building's multiple rooms indicates the relation of this building with grain grinding processes. Inside one of the rooms, a marble tile with a carved Greek cross was uncovered. In a compartment annexed to one of the rooms in this building, a clay jar containing a hoard of coins was also found. Courses of Byzantine burnt bricks are inserted in the stone masonry of the walls. The building is surrounded by an external wall supported with buttresses typical of Byzantine methods of construction (Moussa 2002: 479-480).



Fig. 8: Basilica, Marea (photo M. Haggag).



Fig. 9: Enigma Building, Marea (photo M. Haggag).

The Enigma Building (Fig. 9, Map 2)

Next to the western edge of the promontory at its meeting point with the lakeshore along the middle port, an enigmatic building has been uncovered. The building stands completely in the water. It is composed of podia and walls leaving canals 0.75 m broad between them. Some of the canals run in parallel lines with the coast, while others run at right angles with it and the other canals. The entire building is sliding towards the water leaving the outer parts of the podia under water. The canals were studded with small artefacts. The finds, which were mostly intact, included nearly one thousand pieces of small bronze coins, about 200 jugs of red or yellowish clay, St Menas ampulae, other ampulae with crosses, small statuettes of horsemen, fishing hooks and broken glass bottles. This unusual plan made scholars differ in their interpretations of the building's function. Some suggestions included its possible function as a dry-dock owing to its distinct slope into the lake water (Sadek 1978: 70), but the huge amount of finds inside the canals stands against this hypothesis. Another explanation is that it served as a fishery (Nikkos Lianos pers. comm.). While the discoverer tended to interpret it as a building for votive offerings in honour of both St Menas

and St Marcus, due to the large quantity of coins, ampulae and other artefacts that were found inside (El-Fakharani 1977: 16; Soleiman 2004: 121-138).

Boston Field School

In 1979, the Boston University's *Summer Term and Study Abroad Program* supported an archaeological field school at the site of Marea. Their work lasted for three consecutive seasons, one month each year.³ In addition to the fruitful student training, the mission made new and important discoveries, the most important of which was the Diolkos of Marea.

Along the shore between the middle and western jetties, the team of Boston University came upon remnants of a dockyard (Petruo & Gabel 1982: 12). It consists of two sloping walls, each is over 7 m wide and 20 m long,

3. The team was directed jointly by Profs. El-Fakharani & Gable in collaboration with Petruo and the architect, Boyd. The author of this article had the honour of participating in this field school first as an undergraduate trainee and then as an assistant archaeologist.

Fig. 10: Winery excavated by El-Fakharani 1983 (photo M. Haggag).



emerging from massive stone foundations going down to the bedrock, to a depth of about 2 m. The runners slip into a central aisle that lies between the jetties. This aisle has some sort of drainage facilities in the form of holes cut into the floor in order to drain water and keep the floor dry. The entire building slides down into the lake basin at a gradient of approximately 1:16 which allows for the use of manpower and log rollers to haul ships out of the water (Petruo & Gabel 1983: 76).

The City's Residential Area

Far from the harbour area to the south of the limestone ridge and south of the modern highway leading to Borg El-Arab, in the area now called "Hawariya". During a second season conducted by the Alexandria University expedition team in 1977, various buildings were uncovered in this region which seem to relate to residential and daily life activities.

The Peristyle Complex (Map 1)

Adjacent to the modern highway (Map 1), some 2.5 km to the south of the harbour, a peristyle court which leads to a variety of rooms, was uncovered. One of the rooms has a staircase leading to an upper floor of the building. It seems that the building went through two stages in its construction; the first stage is indicated by a layer of white plaster coating on the façade. The second stage is marked by the addition of a massive thick walled façade with two windows which have tunnels underneath leading to watercourses that are connected to cisterns. A modern ditch for irrigation water that was dug through the rooms halted a complete investigation of the remains. In 1980, Rodziewicz⁴ replaced that ditch with a pipe in order to continue uncovering the rest of the building. On com-

pletion of the excavation of the building, it proved to be a huge double peristyle that occupied an area of more than 1,500 m². Both El-Fakharani (1983: 184-186) and Rodziewicz (1988a: 175-178, 1988b: 267-276) asserted that this discovery represents the first and largest peristyle built for residential purposes to be discovered in Egypt hitherto.

In the middle of the town, some Byzantine dwellings were uncovered. Each is composed of two rooms. Byzantine local pottery ware were scattered inside. Muslim burials were dug inside the room. Green glazed pottery sherds of the Islamic period were found as well as one piece of a Fatimid coin.

Wineries (Map 1)

About 200 m to the southwest of the peristyle building, in the middle of the town, a big elaborate winery (Fig. 10) was uncovered (El-Fakharani 1983: 182-184). Another identical in layout but smaller than the first, was also discovered 2 km to the southwest (Arafa 1985: 78-80). Both are of the type known in other places in the Mareotic region.⁵ They represent the archaeological testimony for the excellence of the Mareotic wine praised by the classical authors (see Dzierzbicka this volume). Each of the two buildings comprises two rooms separated by a low screen wall for squeezing grapes. One is smaller than the other. Both are entirely coated by four layers of red plaster to prevent any possible seepage of the juice. In the center of the smaller room is a raised round base covered with plaster possibly to support a movable squeezer or a hand press. By means of a lion headed spout, the juice from both rooms pours into a large square basin which is dug in the ground, with another smaller and deeper basin dug in its floor for collect-

4. Rodziewicz was then a consultant for the Egyptian Antiquity Service (EAO) and was in charge of the restoration of the area.

5. A third smaller one that lies to the south of the big winery has been reported by Rodziewicz, see Rodziewicz 1998a: 27-36.

ing residues. The inner surface of the big basin's walls is scratched to allow the plaster coating to hold firm. The inner sides of the basin are surrounded by a shelf approached from all sides by a flight of steps. Other steps lead to the basin's floor. It is thought that this shelf is designed to support wooden beams that held a piece of cloth for filtering the juice poured from the lion shaped spout. In the middle of the north side above the spout, there is a small podium with two funnels pierced each by a hole opening at the basin. El-Fakharani's hypothesis is that these funnels acted as measures for adding certain amounts of some aromatic flavours that produced the famous taste of Marea's wine⁶ (1983: 182-184).

The Byzantine Tomb (Map 1)

To the north of the railway line, and at the southern boundaries of the inhabited area of Byzantine Marea, lies a rock cut chamber tomb (El-Fakharani 1977: 19-22). The entrance to the tomb is an arched doorway with basalt jams and lintel. It opens onto a passage with a staircase leading to a square mourning chamber. The ceiling of the passage is barrel vaulted with a helicon vault covering the part which turns to the east towards the arched entrance of the mourning chamber. The latter is surrounded by a stone bench and covered with a cross vault with pendentives. Three burial chambers with cross vaulted ceilings are cut into the walls of the tomb, forming a trefoil plan for the *Hypogeum*.⁷

The Name of the City

More than two centuries before the establishment of Alexandria, Marea, according to Herodotus (II.30, IV-161; III.12, 15), Thucydides (I.104) and Diodorus (I.68) functioned as a strategic staging post on Egypt's northern frontiers. After the establishment of Alexandria, the former military role of Marea appears to have come to an end and the city takes on a more civic and commercial role (Rodziewicz 1998b: 101-103). Excavation works yielded neither weapons nor fortifications of neither Ptolemaic or Roman date. At the same time, classical authors, such as Athenaeus (I.33), Vergil (*Georgics*, II.91-92), Horace (*Odes*, I.37) and Columella (*De Rustica*, III.24), give us glimpses of the reputation of Mareotic wines. Marea became an agricultural centre as well as an intermediate station for goods moving between Alexandria and the Nile Valley (Rodziewicz 1983: 199-208).

After the time of Strabo (XVII.1.14) who spoke of the city's wealth in papyrus, bean and vine plantation, the city seems to have shrunk to a small village as stated by Athenaeus (I.33) and as could be inferred from Ptolemy the Geographer who mentioned it as "Palae-Marea" by which name he indicates the existence of the earlier Pharaonic

town (Ball 1942: 114, 117, fig. 17, pl. II, III). More than two and a half centuries after Ptolemy, we hear nothing about Marea.

From the 5th century onwards, Byzantine Marea appears. During this time, the city has to play another vital role in Egypt's history. The town in which the Martyr Abu Mina was buried lies about 15 km to the south of Marea. The sanctuary of St Menas was famous for its miraculous healing capacities. The importance of the area increased gradually until it reached its climax at about the end of the 5th and beginning of the 6th centuries (Kaufmann 1910: 103). Flux of pilgrims and patients from all over the Roman provinces headed to the place seeking cures for their ailments (Grossman 1986: 12-13). Flasks (ampulae) filled with the holy waters of Abu Mina were specially made for pilgrims to take with them on their way back home as a blessing.⁸

The most suitable and more convenient way for those who are coming from both the Mediterranean and the Nile is to reach the lake harbour of Alexandria and navigate the lake to the nearest harbour before taking the land route to St Menas. In this respect, Marea is the nearest point. At that time, Marea's earlier harbours were isolated on an island and pilgrims had to be ferried to the southern coast of the lake in order to take the caravan route to the sanctuary. To solve this problem, the old town of Marea was shifted 2.5 km to the east of the earlier harbour area, where the line of the ridge inclines far from the lake shore leaving a larger area including a promontory, a bay and several islands in front of the shoreline, that combined offer a naturally sheltered harbour. This area seemed more suitable to quickly establish the new harbour facilities and provide accommodation for pilgrims (Rodziewicz 1998b: 101-103). Other factors may have contributed to the shifting of the site, the most important of which is the changing lake levels, a fact indicated by the different levels of rising water during the flood seasons over many centuries.

This leads us to the question that Rodziewicz (2003: 27-39) first raised: Was this new site of Byzantine Marea the city of Philoxenité?⁹ Philoxenité was built by the Praetorian Praefect Philoxenus upon orders of the Emperor Anastasius (AD 491-518) in order to serve the needs of pilgrims on their way to the shrine of St Menas. Rodziewicz counted on the Coptic *Encomium* in praise of St Menas, first published by Drescher (1946: 35-72; 126-149), to reach the conclusion of interpreting the later site of Byzantine Marea as the city of Philoxenité. According to the text of the *Encomium*, Drescher placed Philoxenité on the shores of the main basin of the lake, somewhere close to Kom Truga 35 km to the east of the Holy Shrine. Rodziewicz believes

that the site of the Byzantine harbours at Marea accurately fit the location of the landing place of pilgrims seeking accommodation, food and beverage, before taking the short caravan route to the shrine.¹⁰ In this respect, it is important to point out that the *Encomium*, which is the sole source we know of to date about the city of Philoxenité, includes the following passage:

"...When it was finished he gave it the name Philoxenité... He ordered to build water stations, where he placed water jars, every ten miles along the route between the hospices and the shrine in order to serve the needs of these multitudes" (Drescher 1949: 15-16).

Yet, the distance between the Byzantine harbours of Marea to the sanctuary do not exceed 15 km, that is less than 10 miles, a distance that can not take more than a few hours if riding on camels and half a day if walking on foot. Then, why did the Praefect order the building of water stations every ten miles along this route?¹¹ Rodziewicz's hypothesis is mainly based upon believing that there is nothing evident at the site to be dated earlier than the Byzantine era. This assumption has been proved to be incorrect through what was discovered on the island and the ridge by the Alexandria University expedition. More recently our Polish and French colleagues have also uncovered some pre-Byzantine remains (Szymanska & Babraj 2001: 37-42, 2002: 47-58; see Babraj & Szymańska this volume; Pichot 2004). Moreover, if the newly established Byzantine centre had the name of Philoxenité, why did a Christian author, who lived and wrote after the time of Anastasius and his Prefect, Stephanus of Byzantium (Augusti Meinekii 1849: 432), retain the old name of Marea in his writings?¹²

Finally, one would say that it is not unusual for a certain town in antiquity to have more than one name over the different periods of its history. Rhacotis/Alexandria, Thonis/Heraclion, are very distinctive examples in this respect. It seems reasonable that the old town of Marea shifted eastward to build new facilities suitable for the new role the city had to play.¹³ Whether the new site took a new name or not is a question that cannot be answered yet with any certainty. In this respect, further readings of the original *Encomium* are required as well as any other material evidence that may appear through investigations currently being undertaken by different missions at the site.

10. Haas and Empereur share Rodziewicz's opinion, see Haas 1997: 349; Empereur 1998: 229-239.

11. Whether this is due to miscalculations of the wording of the text, as Rodziewicz mentions, it is something that cannot be judged unless further readings of the original *Encomium* are undertaken, see Rodziewicz 2003: 27-39.

12. It is not evident that the various citations of Marea in the ancient literature refer to exactly the same spot as in the case of Procopius: Iacobus Haury 1913: vol. III 2, 171. We find some confusion in the use of "Marea" and "Mareotis" used to describe both the town and the lake or sometimes the whole lake district (Petruso & Gabel 1980: 1-27).

13. In 1902 Botti stated that there were two towns named Marea, the ancient and the new (Botti 1902: 73-75).

Bibliography

Ancient Sources

- Athenaeus, *Deipnosophists*, C. Burton (transl.), 1927. London.
 Augusti Meinekii, 1849, *Stephani Byantii, Ethnicorum quae supersunt*, I. Berlin.
 Columella, *On Agriculture*, H. Boyed (transl.), 1931. London.
 Diodorus Siculus, *Library of History*, C.B. Welles (transl.), 1963. London.
 Herodotus, *Histories*, H. Carry (transl.), 1912. London.
 Horace, *The Odes*, C.H. Bennet (transl.), 1925. London.
 Ptolemy, *Geographica*, E.L. Stevenson (transl.), 1932. New York.
 Strabo, *Geography*, H.L. Jones (transl.), 1949. London.
 Thucydides, *History of the Peloponnesian War*, C.F. Smith (transl.), 1969. London.
 Virgil, *Georgics*, J. Jackson (transl.), 1908. Oxford.

Secondary Sources

- Arafa, D., 1985, *Wine Production in Egypt from Alexander to the Arab Conquest: As Compared to the Graeco-Roman World*. Unpub. MA diss., Alexandria University.
 Ball, J., 1942, *Egypt in Classical Geographers*. Cairo.
 Botti, G., 1902, Studi sul III Nomo dell'egitto inferiore E piu specialmente sulla regione Mareotica. *Bulletin de la Société Archéologique d'Alexandrie* 4: 41-84.
 Breccia, E., 1922, *Alexandrea ad Aegyptum*. Bergamo.
 De Cosson, A., 1935, *Mareotis: Being a Short Account of the History and Ancient Monuments of the North-Western Desert of Egypt and of Lake Mareotis*. London.
 Drescher, J., 1946, *Apa Mena: A Selection of Coptic Texts Relating to Saint Menas*. Cairo.
 Drescher, J., 1949, Topographical Notes for Alexandria and Distric. *Bulletin de la Société Archéologique d'Alexandrie* 38: 13-20.
 El-Fakharani, F.A., 1977, *A Preliminary Report on the First Season of Excavation at Marea*. Excavation Report presented to the Antiquities' Department, Egypt. Cairo.
 El-Fakharani, F.A., 1983, Recent Excavation at Marea in Egypt. In G. Grimm, H. Heinen & E. Winter (eds.), *Aegyptiaca Trevernsia II, Das Römisch-Byzantinische Ägypten. Akten des internationalen Symposions 26.-30. September 1978 in Trier*, 175-186. Mainz.
 El-Fakharani, F.A., 1991, The Kibotus of Alexandria. *Studi Miscellanei* 28: 21-28.
 El-Fakharani, F.A., 2002, The Pharaonic Port on the Mediterranean: Its Shape, Development and Importance. In Z.A. Hawass & L.P. Brock (eds.), *Egyptology at the Dawn of the Twenty-first Century, Proceedings of the 8th International Congress of Egyptologists*, Vol. 2: 203-208. Cairo.
 El-Falaki, Mahmoud Bey, 1872, *Memoire sur l'antique Alexandrie, ses faubourgs, ses environs*. Copenhagen.
 Empereur, J-Y., 1998, *Alexandria Rediscovered*. New York.

6. For more detailed interpretations, see Rodziewicz 1998a: 27-36.

7. Various rooms on top of the *Hypogeum* and its vicinity were uncovered by a team of the Supreme Council of Antiquities (SCA) later in 1987/88. They represent a complex of funerary chapels for the tomb (Soleiman 2004: 283-286).

8. Just as Muslims nowadays do with the waters of the holy well of Zamzam at Mecca.

9. Before tackling this problem, it is worth noting that Rodziewicz in addition to his responsibility for the restoration works carried on at the site of Marea, made additionally impressive discoveries at the site.

- Fraser, P.M., 1972, *Ptolemaic Alexandria*, Vol. I. Oxford.
- Gauthier, H., 1925-1931, *Dictionnaire des noms géographiques contenus dans les textes Hiéroglyphiques*, Vol. III. Le Caire.
- Goddio, F., Bernard, A., Bernard, E., Darwish, I., Kiss, Z., & Yoyotte, J., 1998, *Alexandria: The Submerged Royal Quarters*. Oxford.
- Grossmann, P., 1986, *Abu Mina: A Guide to the Ancient Pilgrimage Center*. Cairo.
- Haas, C., 1997, *Alexandria in Late Antiquity: Topography and Social Conflict*. Baltimore.
- Haggag, M., 1984, *Ports in Ancient Egypt till the Arab Conquest*. Unpub. MA diss., Alexandria University.
- Haggag, M., 2002, Two Religious Buildings at Byzantine Marea. In Z.A. Hawass & L.P. Brock (eds.), *Egyptology at the Dawn of the Twenty-first Century, Proceedings of the 8th International Congress of Egyptologists*, Vol. 2: 284-289. Cairo.
- Jondet, M.G., 1916, *Les Ports Submergés de l'ancienne Ile de Pharos*. Le Caire.
- Kaufmann, C.M., 1910, *Die Menasstadt und der national heiligtum der altchristlichen Ägypter*, I. Leipzig.
- Moussa, F.S., 2002, Quelques aspects de la vie quotidienne représentés à Marea Byzantine. In Z.A. Hawass & L.P. Brock (eds.), *Egyptology at the Dawn of the Twenty-first Century, Proceedings of the 8th International Congress of Egyptologists*, Vol. 2: 478-486. Cairo.
- Petruso, K.M., & Gabel, C., 1980, Marea: An Environmental and Cultural Study at Lake Maryut, Lower Egypt: A Research Prospectus. *Boston University African Studies Center Working Papers* 25: 1-27.
- Petruso, K.M., & Gabel, C., 1982, Marea: A Byzantine Port in Northern Egypt. *Boston University African Studies Centre, Working Papers* 62: 1-23.
- Petruso, K.M., & Gabel, C., 1983, Marea: A Byzantine Port on Egypt's Northern Frontiers. *Archaeology* (Sept./Oct.): 62-77.
- Pichot, V., 2004, *La fouille de l'île de Marea: Le site, Prospections et campagnes de fouille*: <http://www.cealex.org/sitecealex/activities/terrestre/marea/genef.htm>, CEAlex (accessed March 2008).
- Rodziewicz, M.D., 1983, Alexandria and District of Mareotis. *Graeco-Arabica* 2: 199-208.

- Rodziewicz, M.D., 1988a, Remarks to the Peristyle House in Alexandria and Mareotis. *Praktika, International Congress of Classical Archaeology in Athens, September 4th-10th, 1983*: 175-178. Athens.
- Rodziewicz, M.D., 1988b, Remarks on the Domestic and Monastic Architecture in Alexandria and Surroundings. In E.C.M. vanden Brink (ed.), *The Archaeology of the Nile Delta*: 267-276. Amsterdam.
- Rodziewicz, M.D., 1998a, Classification of Wineries from Mareotis. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'École française d'Athènes, 11-12 décembre 1988*: 27-36. Athens, Paris.
- Rodziewicz, M.D., 1998b, From Alexandria to the West by Land and by Waterways. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'École française d'Athènes, 11-12 décembre 1988*: 95-102. Athens, Paris.
- Rodziewicz, M.D., 2003, Philoxénité - Pilgrimage Harbour of Abu Mina. *Bulletin de la Société Archéologique d'Alexandrie* 47: 27-47.
- Rowe, A., 1954, A Contribution to the Archaeology of the Western Desert: II. *Bulletin of the John Rylands Library* 36: 128-145.
- Sadek, M., 1978, The Ancient Port of Marea. *Cahiers des Études Anciennes* VIII: 67-80.
- Sadek, M., 1992, The Baths at the Ancient Harbour of Marea. *The Sesto Congresso Internazionale di Egittologia*, Vol. I: 549-554. Turin.
- Shahin, B., 1983, *Local Pottery in Byzantine Egypt: A Study of the finds at the City of Marea*. Unpub. MA diss., Alexandria University.
- Soleiman, N.M.S., 2004, *Marea: An Archaeological Study and the Manner of its Tourist Investment*. Unpub. PhD diss., Alexandria University.
- Szymanska, H., & Babraj, K., 2001, Marea: First Interim Report, 2000. *Polish Archaeology in the Mediterranean* XII: 37-42.
- Szymanska, H., & Babraj, K., 2002, Marea: Second Interim Report, 2001. *Polish Archaeology in the Mediterranean* XIII: 47-58.

Marea Peninsula: Occupation and Workshop Activities on the Shores of Lake Mariout in the Work of the Center d'Études Alexandrines (CEAlex, CNRS USR 3134)

Valérie Pichot

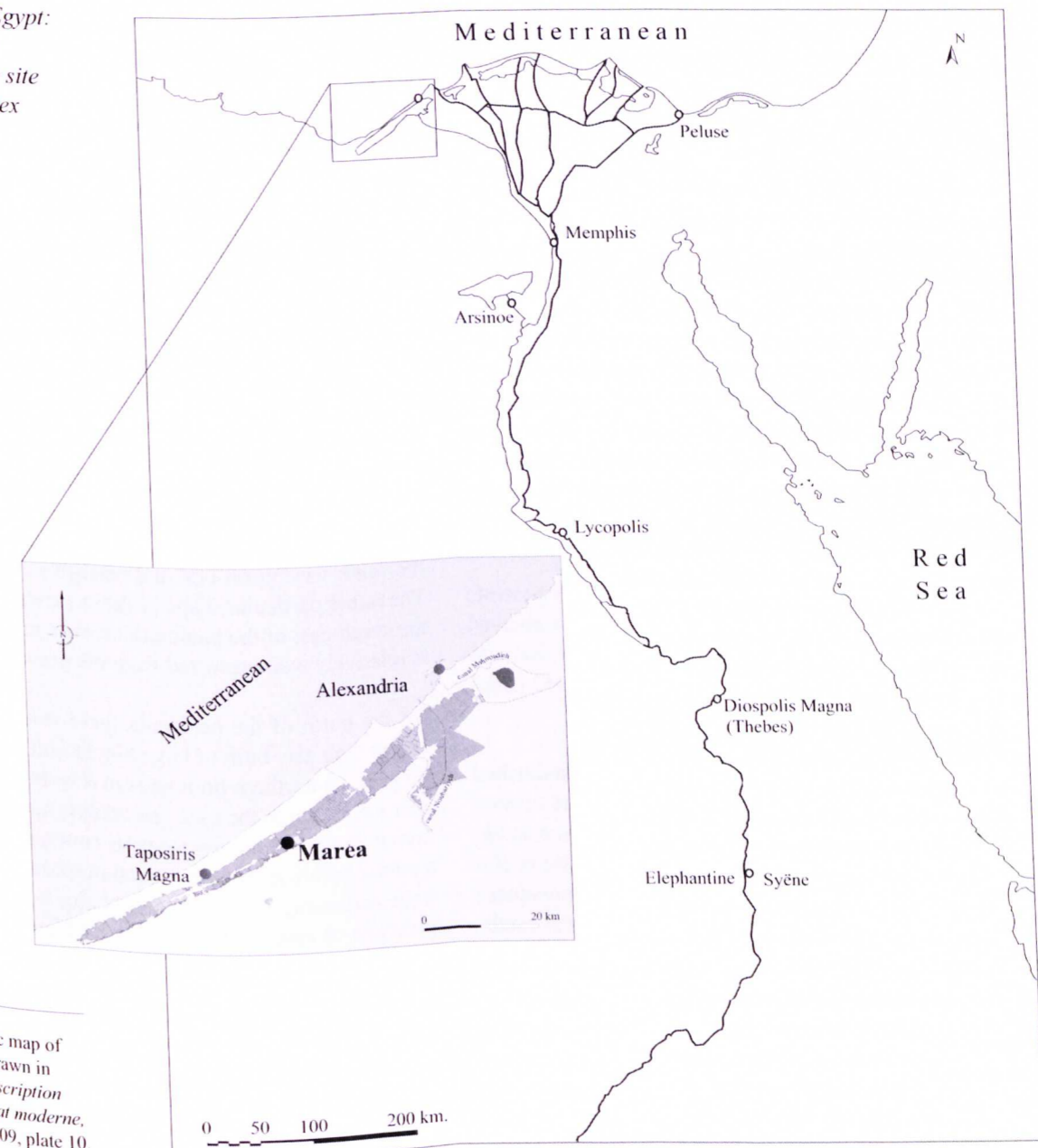
the width of the lake from north to south is less than one kilometre (Fig. 1).

Since 1977 the site of Marea has been the subject of archaeological excavations and those discoveries made prior to 2003 all suggested a somewhat late occupation of the site. The excavated remains, dating from the 5th to 7th centuries AD, indicate a harbour town of considerable capacity with large storage facilities as well as public buildings of high quality (Fig. 2) (El-Fakharani 1983;

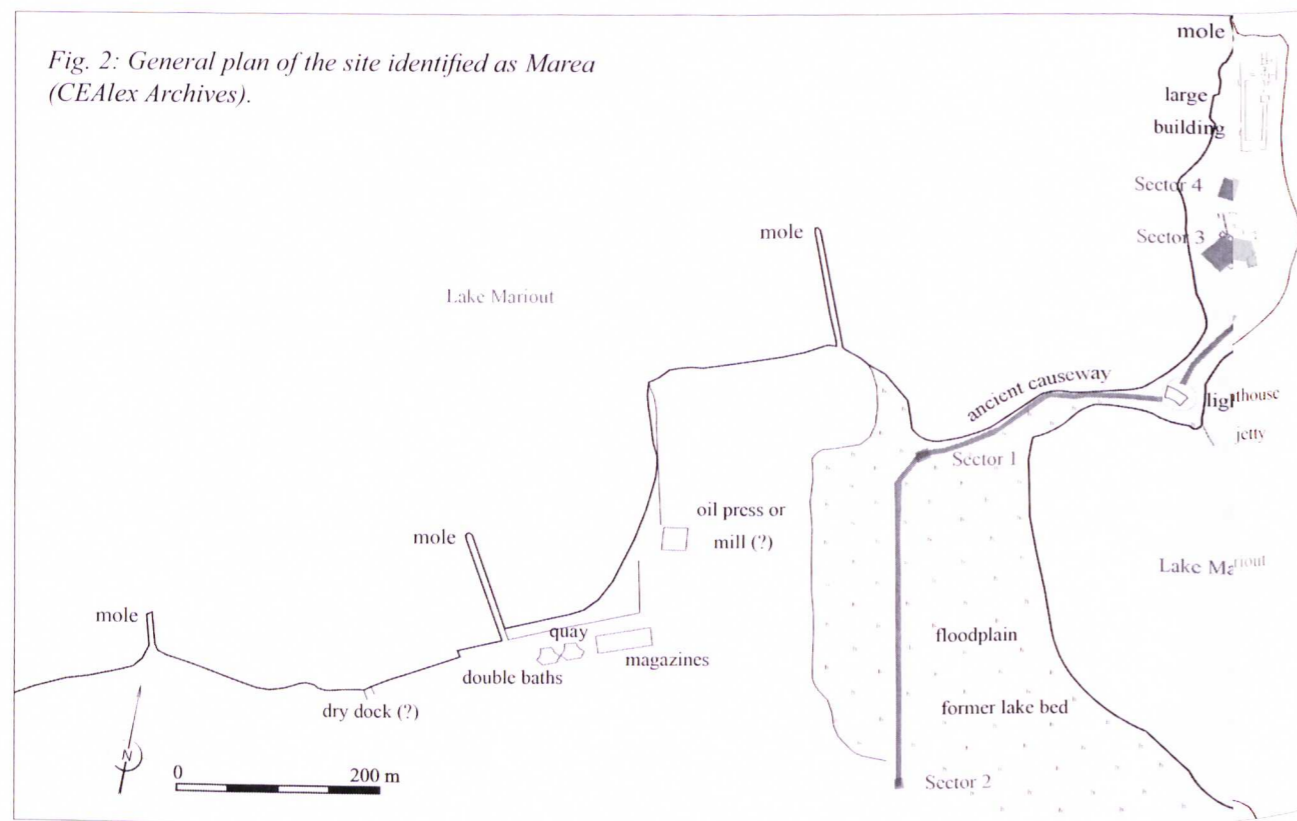
General Introduction to the Site of Marea

The site, identified as Marea on the plate of Alexandria in the *Atlas géographique d'Égypte*¹ (*Description de l'Égypte* 1809: Pl. 10) and then by Mahmoud Bey El-Falaki in 1866 (El-Falaki 1872: 96), is one of the rare examples of a harbour town on the shores of Lake Mariout that has essentially remained untouched since antiquity and accessible for archaeological studies. Situated some 40 km to the south-west of Alexandria, it stretches more than 25 ha along the southern shore of Lake Mariout at a point where

Fig. 1: Map of Egypt: location of Lake Mariout and the site of Marea (CEAlex Archives).



1. Hydrographic map of Lower Egypt drawn in 1801-1802. *Description de l'Égypte, Etat moderne*, vol. I, Paris, 1809, plate 10.



Petruso & Gabel 1983; Sadek 1992; De Cosson 1935: 131; Rodziewicz 1983, 1998; Szymanska & Babraj 2008).

Since 2003, the Centre d'Etudes Alexandrines (CEAlex) has been working on the peninsula situated some 100 m to the northeast of the ancient town of Marea: topographical surveys, prospecting on foot, geophysical examinations and archaeological excavations have all begun to reveal the general organisation of the peninsula and the existence of a large workshop quarter that extended over much of its surface.

General Organisation of the Peninsula (Fig. 3)

Originally an island, access to the peninsula was possible either from the lake onto a pier to the north that allowed for boats to moor, or by land across a causeway that was some 5 m wide that connected with the mainland (Figs. 4a & 4b).

In 2003 the first two excavation sectors were established upon this causeway. Sector 1 (Figs. 3 & 5) was opened on a very badly preserved part of the track. This excavation allowed us to reveal the presence of foundations of a structure probably associated with controlling movement on and off the causeway. Sector 2 (Figs. 3 & 6) was established at the point where the track disappears toward the southern part of the concession. The causeway effectively stops at this point and ends in a sort of platform made of numerous amphora fragments and mortar. The archaeological material found here was relatively homogenous and dates the construction of the causeway to between the 1st and 3rd centuries AD. The chronology of its construction

will be more precise once we have the results of the ceramicological and numismatic studies presently underway.

An imposing building constructed of large blocks and hydraulic mortar stood on this causeway about 100 m before its junction with the peninsula. It is usually interpreted as a lighthouse or landmark. A jetty stretching 26 m into the lake is situated to the south-east of this (Figs. 3 & 7). The ancient causeway is far from straight. Oriented south/north for less than 300 m, it takes a turn to the east to follow firstly, a south-west/north-east direction then west for the point of the lighthouse or landmark. It then returns to the south-west/north-east and reaches a workshop quarter. The rather particular shape of the causeway and the jetty to the south-east of the landmark create a mooring basin that is relatively well protected from the prevailing winds.

On the north of the peninsula there was a building over 100 m long also built of large blocks and hydraulic mortar (Fig. 3). Its northern limit ends in a system of terraces and stairways cut into the rock and leading to a pier. Its general layout around a large rectangular courtyard might suggest a public building for commercial purposes concerned with trade and storage, though it might also be a rich villa. The presence of cistern(s) under this building is attested by a descending passage situated in the centre of the west wing. Structures in brick and hydraulic mortar visible on the surface of the east wing could be connected with the cisterns. Surveys and drawings have not yet made it possible to understand the exact role and organisation of this building or the function of its associated hydraulic system.



Fig. 3: The peninsula of Marea (CEAlex Archives).



Fig. 4: A) (above) pier to the north of Marea peninsula, view from the north-west. B) (right) ancient causeway connecting the peninsula to the mainland, view from the west. Photo V. Pichot (CEAlex Archives).



Fig. 5: (left) Ancient causeway under excavation of Sector 1, view from the east. Photo V. Pichot (CEAlex Archives).

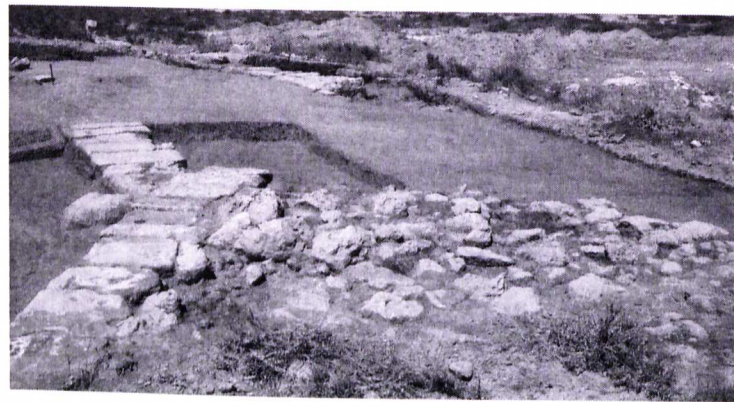


Fig. 6: Ancient causeway under excavation of Sector 2, view from the north. Photo V. Pichot (CEAlex Archives).



Fig. 7: Landmark and jetty to the south of the peninsula, view from the south-west. Photo V. Merle (CEAlex Archives).



Occupation and Workshop Activities

CEAlex is currently focusing upon the central part of the peninsula where a quarter developed and evolved during the Hellenistic and Roman periods. This was principally a workshop quarter the presence of which is attested from the 3rd century BC.

Geophysical magnetic surveys undertaken on the central part of the peninsula have revealed the existence of three major orientations, subsequently confirmed by excavation, that correspond more or less to the layout of the area at different periods (Fig. 8). In the Hellenistic period (3rd-1st centuries BC) there are two orientations: one south-west/north-east for the low-lying part of the peninsula and the other north-north-west/south-south-east for the elevated part. At the end of the Hellenistic period and the beginning of the Roman era, the major orientation used within the low-lying areas follows a north-north-east/south-south-west axis, while the north-north-west/south-south-east orientation appears to continue in the elevated areas. At

a later period, occupation re-adopts the north-north-west/south-south-east orientation present during the Hellenistic period on the elevated part of the peninsula.

Survey of the peninsula led to the discovery of numerous archaeological vestiges connected to light industry. Many zones with concentrations of slag and furnace walls, point out the presence of what were workshops, the greater part of which appear to have been connected to metallurgical activities. The numerous plots showing clear anomalies detected by the magnetic survey certainly correspond to areas of intense metallurgic activity. Other anomalies may possibly represent the presence of potteries and more certainly chalk furnaces from the later era (5th-6th centuries AD), as has been shown by the excavations.

Metallurgic activities

The excavations undertaken in Sector 4 (see Fig. 3) have revealed extensive furnace activity: extensive not so much in terms of production, which is still difficult to estimate,

MAREA
 Topographic survey: Cécile Shaalan
 DAO: Isabelle Hairy & Valérie Pichot
 Geological prospection: Tomasz Herbich

0 50 m

Notes:
 - Horizontal coordinate system attached to the mileage system
 - Elevations attached to the general leveling of Alexandria
 - Contours: 50 cm

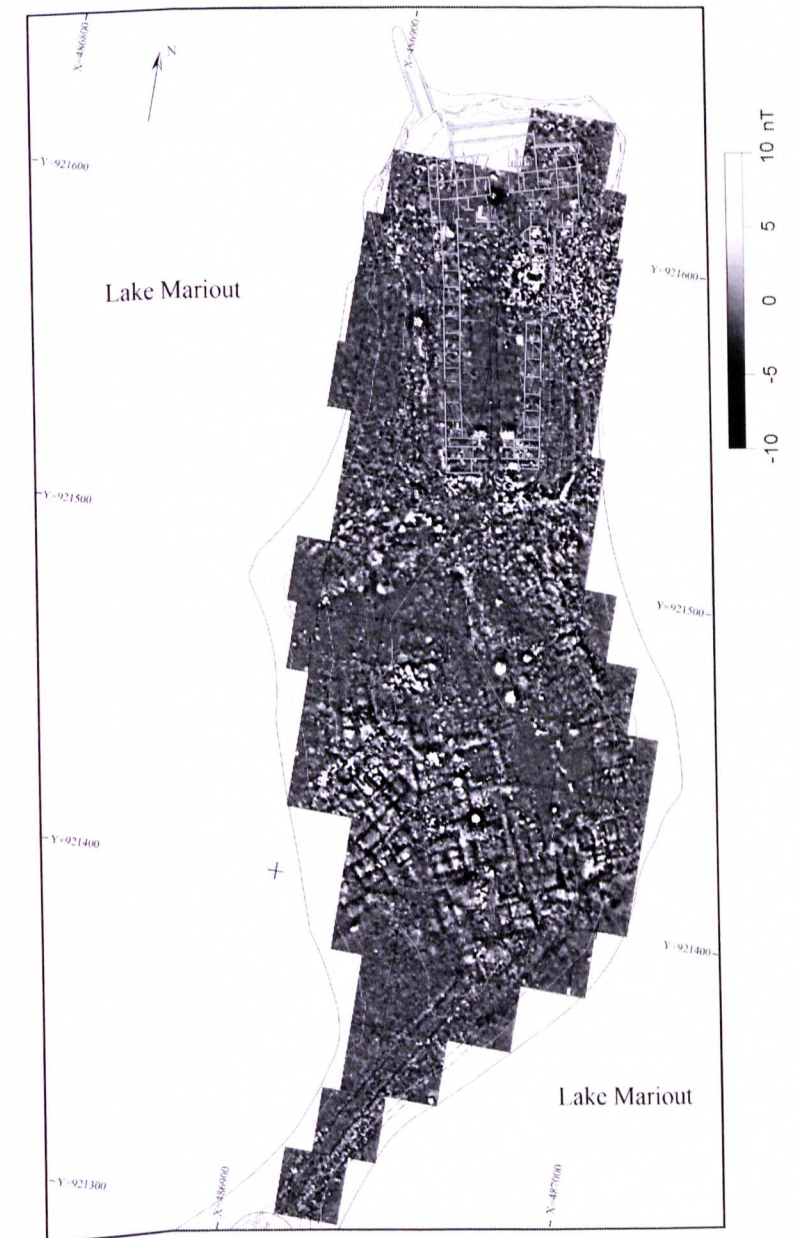


Fig. 8: Results of the geophysical survey undertaken on the Marea peninsula. (T. Herbich & CEAlex Archives).

but rather in the number of hearths discovered. In fact, in this sector where explorations both geophysical and visual suggested an empty terrain, except for a ditch situated to the western edge, some 40 hearths have been unearthed most of which are lying a mere 0.15 m beneath the surface and all are concentrated in the west and north-western part of the sector. Of different sizes – the size depending to a large part on the extent of destruction – they are either circular in plan or occasionally rectangular. While certain examples still hold fragments of objects and/or slag, others are practically destroyed. They are not all contemporary, but they may have functioned in groups of two, three or four, several groups being in operation at the same time.

The best preserved hearths were cleared when excavating rubbish ditch FS4024 situated on the western edge of the sector. Its fill composed fragments of amphora, ceramics, bones, some fragments of faience objects, charcoal, some fragments of iron and seashell. The majority of the material unearthed was characteristic of the 1st centuries BC and AD, however, certain elements can be dated to an earlier Hellenistic period, e.g. a worked lamp of the 3rd century BC and amphora and ceramic fragments of the 3rd and 2nd centuries BC.

This ditch (FS4024) was cut by several groups of hearths (Fig. 9). Among these structures, two features are quite well preserved (FR4034 and FR4035). Although made up of hearths with different plans – one is composed of rectangular hearths, the other of circular – they are constructed in a similar fashion: a hearth of 0.30 m diameter to which is attached a much smaller but deeper hearth, the exact function of which remains to be determined. These features were constructed of clay in which fragments of ceramics and amphorae were placed to act as support. The structures are well constructed and the interior walls are perfectly smooth. Their fill is of charcoal, baked clay, small fragments of iron and small furnace slag. The debris discovered suggest that metal working activity was taking place, associated with the fabrication and/or repairing of small iron objects with the use, in certain cases, of copper alloys and lead.

Associated with the hearths, traces of post-holes reveal the presence of light structures that could have been more or less permanent. Stake holes near the hearths, however, indicate the probable use of fireguards, windbreaks and/or walls marking out certain specific zones, e.g. for storage.

The remains of certain furnaces consisted of no more than the very bottom traces of stakes and posts, a few strips of beaten earth floors and a part of the first foundation course of a wall (MR4040 oriented west/east) set upon the bedrock. The vestiges of this sector are very worn down, hence the difficulty in envisaging the spatio-temporal organisation of these workshops. Without going into considerations of contemporaneity of function and the length of occupation, and having yet to complete the study of the archaeological material, the important metal working activity in this zone, implanted upon the remains of Hellenis-



Fig. 9: Sector 4 - Hearths in FS4024, under excavation. Photo V. Pichot (CEAlex Archives).

tic period occupation itself potentially related to workshop activities, can be broadly dated to the first centuries of the Roman era.

Sector 3, presently under excavation (see Fig. 3), was opened in 2003 on the western part of the island and was extended in 2007 into a zone of noticeable magnetic anomalies towards the east. Work on the western part was temporarily suspended to allow, firstly, for the completion of the study of Sector 4 and then the excavation of the eastern part of Sector 3. In 2003 two ensembles of buildings separated by an alley were unearthed in the western part of the sector (Fig. 10). The ensemble oriented north-north-east/south-south-west was disturbed in its north-eastern part by large constructions orientated on a north-north-west/south-south-east axis. Each building is composed of small workshop rooms opening onto the alley, while at the back there was a large room used for storage or habitation. One of the activities identified in this workshop quarter is poly-metallurgical (Cu and Fe). This is attested by the remains of hearths, flooring and occupation layers characteristic to this type of activity, but also by the discovery of refuse material connected to metallurgical activity (slags, drips, hammerscales, unfinished objects, etc.).

Four workspaces are presently being excavated. The outline of walls marking out storage and circulation zones, have been recognised in three of these rooms. In Space 10 a series of re-laid beaten earth floors have been revealed beneath the last occupation level. According to the initial studies of the archaeological material, it seems that levels of workshop activity can be dated to the 1st century BC to the 1st century AD. A limited trench has been opened in the low-lying zone to the south of Sector 3. The water table was quickly reached at a little more than 1 m below the surface. Three successive floors and associated metallurgical activity layers (lots of charcoal, numerous small metal drips) dating to the 2nd to 1st centuries BC were revealed, as well as a wall whose orientation revealed the existence of an ensemble laid out on a north-west/south-west axis.

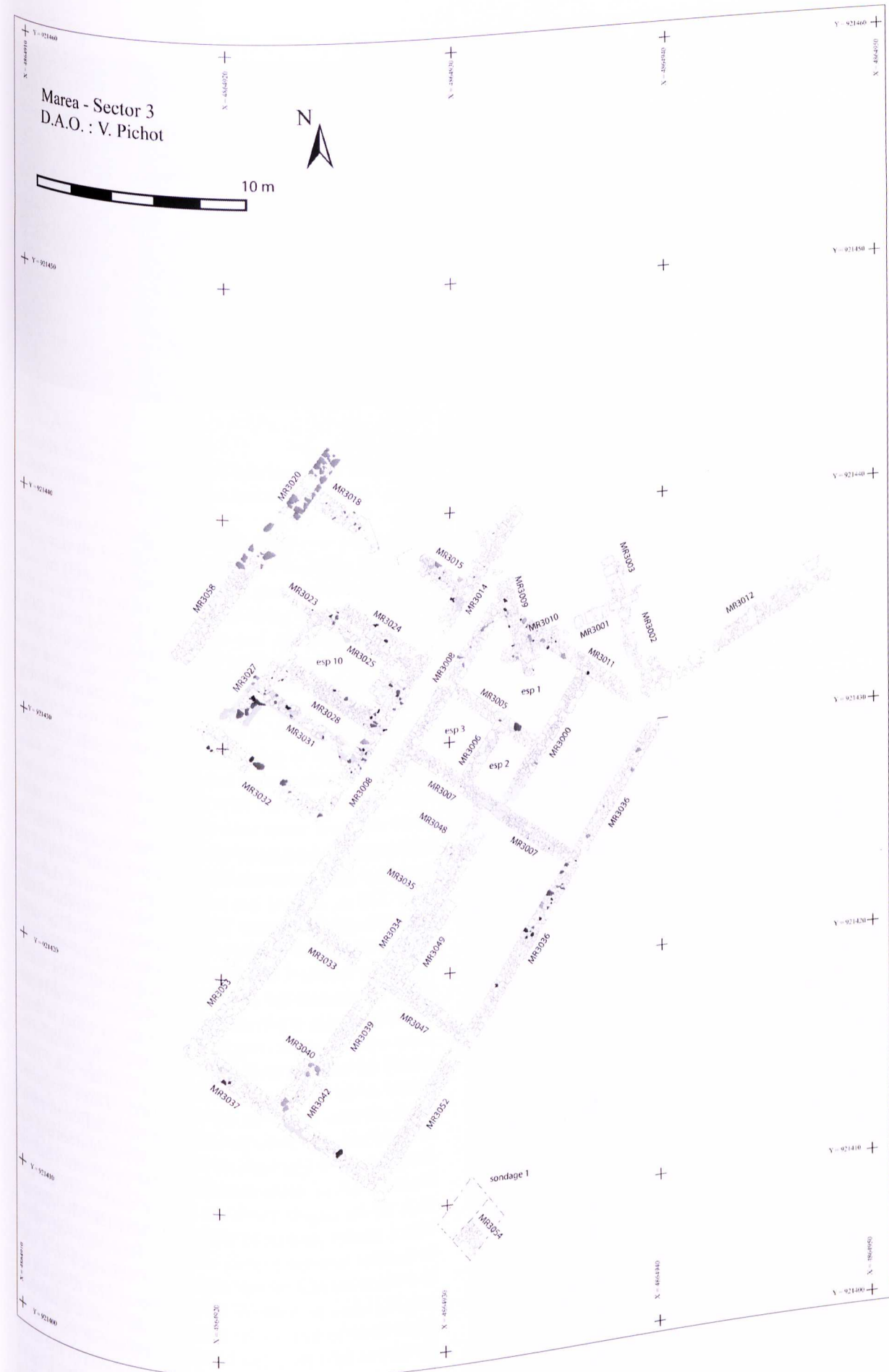


Fig. 10: Overall plan of the western zone of Sector 3 (CEAlex Archives).



Fig. 11: Overall plan of the eastern zone of Sector 3 (CEAlex Archives).

Area Devoted to Cult Activity

This occupation is contemporary with that of a construction (ST300) partially unearthed in 2007 in the eastern part of Sector 3 (Figs. 11 & 12). A paved way some 1.15 m wide situated to the north, leads to the entry of the building. The building² is rectangular in shape approximately 10.35 m by 11.75 m, oriented north-north-west/south-south-east along its longitudinal axis. The peripheral walls of an average thickness of 1.4 m and with concave external surfaces, enclose a space divided into several cells separated by walls that are 0.8 and 0.9 m thick.

In the north-eastern part of the building, the double-faced masonry is composed of medium sized cut blocks of limestone with an inner filling. This construction method differs clearly from the *opus incertum* of the other walls of the construction. This could represent an act of restoration during a possible second phase of the building's use. The upper part of the walls were built of mud-brick that were found fallen and disintegrated in the interior of the building.

2. The preliminary study of this structure was undertaken by I. Hairy, architect-archaeologist, CNRS, USR3134, Centre d'Etudes Alexandrines.

The building consists of five different spaces. From the "outside" one enters into a large rectangular room of 3.5 m by 7.55 m, divided into two by a pavement of slabs that cuts through the middle. This pavement is approximately 0.85 m wide, thus narrower than the opening of the doorway (1 m approx.), and is paved with irregular limestone slabs. It connects the entrance with the only door within the building that is pierced through the interior transversal cross-wall. Its slight irregularity and the fact that is deliberately off the axis of the room, leads one to consider the nature of the flooring that once lay on either side. There are few clues left to satisfy this query. Three fragments of slabs attached to the pavement at three different points along its line might indicate that the missing flooring was made up of the same materiel as the pavement itself, at least on the edges. The walls of this room were covered with a plaster painted to represent alabaster. The remains of another painted coating made to represent red, white and black marble facing might have belonged to a later stage or more probably to the decoration of a room on the upper floor. In front of the interior door, a rectangular cavity 0.33 m by 0.18 m had been dug into one of the slabs of the pavement. It is centred on the median axis of the doorway and in the bottom one can see in the middle, a small depression, oval in plan and conical in section, which is filled with a plug of unbaked clay. This rectangular cavity



Fig. 12: (left) Eastern zone of Sector 3 under excavation. Photo V. Pichot (CEAlex Archives).

Fig. 13: (below) Sector 3 - One of the two limestone sphinxes discovered in the tower building ST300. Photo V. Pichot (CEAlex Archives).

Fig. 14: (bottom) Sector 3 - Bronze candelabra after restoration in the CEAlex laboratory. Photo A. Hussein (CEAlex Archives).

probably held a support, a base bearing either an element of decoration, e.g. statuary, or a functional object.

The interior doorway was framed by two pilasters, of which only the bases remain, that bore two little, limestone sphinxes (Fig. 13) that were found dismantled in the next-door room. This interior doorway opens onto a room some 2.40/2.35 m by 4.45 m. At the end of this space, to the south, two small assemblies of blocks, the sides of which have been covered by cleanly cut stone facing, stood against the walls in the corners. These two assemblies form the base of two staircases that led to the upper floors. The two lateral spaces situated to each side of this distribution space are completely closed and inaccessible at this level. The eastern space was filled with clay and other rubble, while within the filling of the other space there is a block of masonry in *opus incertum* that most probably supported the weight of a now-disappeared superstructure.

When considering the different aspects of this construction, its interior layout, as well as the archaeological material discovered here, a hypothesis may be that the function of this building could relate to the representations of the "tower-house" on Nilotic mosaics, or that it was religious.

This building was part of a much bigger ensemble, the extension of which to the north-west was partially uncovered by excavation in 2008 and was still relatively intact beneath the construction levels of building ST301. Two spaces clearly similar in size and limited to the east by wall MR3114, were discovered. Their western limit has not yet been determined. The most southerly space is difficult to interpret. It was practically destroyed in its entirety by the implantation of wall MR3082 that lies in part upon wall MR3121 that separates the two spaces. The excavation of the northern space, delimited to the north by MR3116, has revealed the remains of flooring of compact clay in which were set several ceramic storage jars. Although we do not yet know for sure the duration of its use, the evidence of the archaeological material, including a Hellenistic lamp with seven wick-holes, a faience pendant and a bronze candelabra (Fig. 14), would suggest that this ensemble was

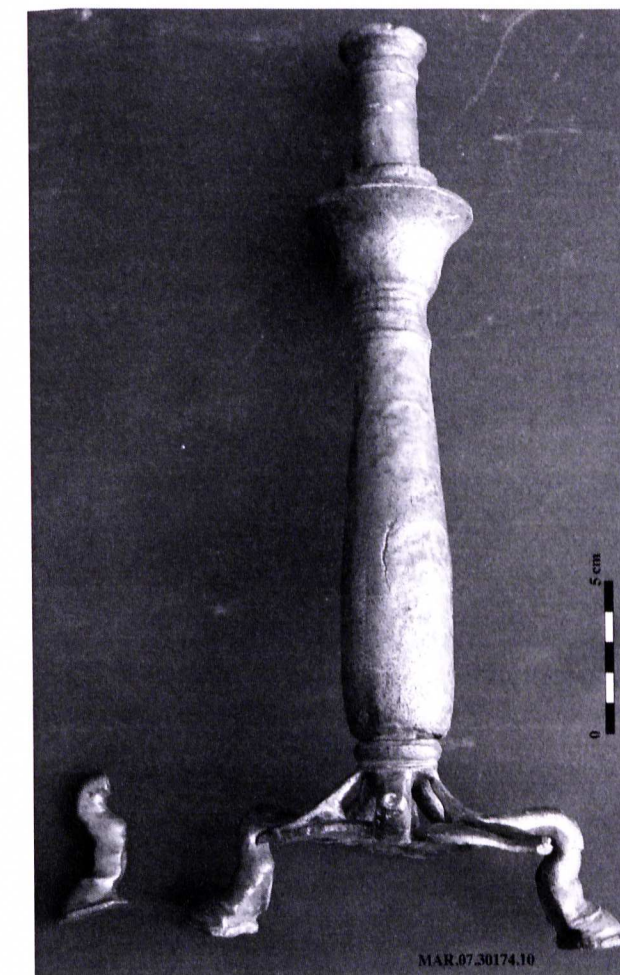




Fig. 15: Sector 3 - Hoe chalk burner. Photo V. Pichot (CEAlex Archives).

in use from the end of the 3rd century BC. It was partially destroyed by the installation of one or several occupations to the north during the Roman period that were in part connected to workshop activity,³ and thereafter by chalk burners that were active in a later period (Fig. 15), most probably in the 5th and 6th centuries AD, and that largely destroyed all construction in this zone.

Conclusion

The Mareotis area, today semi-desert, was once a fertile region with widespread agricultural activity. In the Graeco-Roman era, Lake Mariout was a veritable inland sea with intense traffic. As a zone of movement and exchange, it was connected to the Nile by canals and with the sea at several points through the course of its history. A passage also allowed traffic access to the canal of Alexandria. The Ptolemaic capital had a lakeside port with quays and warehouses that Strabo (17.1.7) considered richer than the maritime harbours of the city.

Marea is one of the best examples of Mariotic lakeside towns whose development was tied to exchange between Alexandria and its hinterland: exports of agricultural production and local industry (glass, metal, etc.), imports of raw materials and pilgrimages during late antiquity. Its state of preservation allows us to study the problems of

3. The mission of 2008 has brought to light numerous structures connected to workshop activities of the Roman era to the west and north of the tower building. They are presently under study and will be the object of a supplementary mission in 2009.

settlement and organisation of a sizeable town on the lake-shore.

Up until the present, our knowledge of the occupation of the site of Marea was limited to the Byzantine period (5th to 7th centuries AD). The work of the CEAlex on the peninsula has proven a settlement existed here well before the 5th century AD. The excavations undertaken in Sectors 3 and 4 have revealed a large occupation dating to the end of the Hellenistic and the beginning of the Roman era, as well as numerous signs of a Hellenistic occupation prior to the 2nd century BC.

The opportunity at Marea to excavate and study a workshop quarter of this size, in an environment so well defined by the fact that it stands on a peninsula, is really quite exceptional. In addition to gathering information on the production itself and on the production lines, it is also possible to study the spatio-temporal organisation of the site in the very heart of the peninsula and to resituate it within its immediate environment (habitation, religious area, etc.).

Bibliography

- De Cosson, A., 1935, *Mareotis: Being a Short Account of the History and Ancient Monuments of the North-western Desert of Egypt and of Lake Mareotis*. London: Description de l'Égypte, Etat moderne, Vol. 1, 1809. Paris.
- El-Fakharani, F.A., 1983, Recent Excavation at Marea in Egypt. In G. Grimm, H. Heinen & E. Winter (eds.), *Aegyptiaca Trevernsia II, Das Römisch-Byzantinische Ägypten. Akten des internationalen Symposiums 26.-30. September 1978 in Trier*, 175-186. Mainz.
- El-Falaki, Mahmoud Bey, 1872, *Memoire sur l'antique Alexandrie, ses faubourgs, ses environs*. Copenhagen.
- Petruso, K., & Gabel, C., 1983, Marea: A Byzantine Port on Egypt's Northwestern Frontier. *Archaeology* 36.5: 62-63, 76-77.
- Rodziewicz, M.D., 1983, Alexandria and district of Mareotis. *Graeco-Arabica* 2: 199-216.
- Rodziewicz, M.D., 1998, From Alexandria to the West by Land and by Waterways. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'École française d'Athènes, 11-12 décembre 1988*: 93-103. Athens, Paris.
- Sadek, M., 1992, The baths at the ancient harbour of Marea. *Sesto Congresso internazionale di Egittologia*. Vol. 1: 549-554.
- Strabo, *Geography*, A. Meineke (transl.), 1877. Lipsiae.
- Szymańska, H., & Babraj, K. (eds.), 2008, *Byzantine Marea. Excavations in 2000-2003 and 2006*. Marea. Vol. 1. Kraków.

On Interpretations of Archaeological Evidence Concerning Marea and Philoxenite

Mieczyslaw D. Rodziewicz

The largest and best preserved ancient lake harbour south-west of Alexandria was located on the map of the Mariout region by Mahmoud El-Falaki in 1872 with a description and interpretation of the site as the centre of the ancient Mareotic district being identified as the site of Marea (El-Falaki 1872: 96). For a long time this interpretation was considered as correct and unshakable. It was expected that with continuous advances and development of field archaeology in the region, this interpretation would be substantiated by more archaeological evidence. However, in the first half of the past century the site was not investigated by the most active archaeologists in Alexandria such as Breccia and Adriani. Instead, two other sites in the Mareotic region captured the attention of these great archaeologists of the last century. The first such place was Abu Mina discovered in the desert south of Alexandria and excavated from 1905 by German archaeologist C.M. Kaufmann (1908). The second important site was the large city of Taposiris Magna, west of Alexandria, that spread around the Ptolemaic temple of Osiris, with the neighbouring site of Plinthine, where Breccia (1922: 353) and Adriani (1940) concentrated their field research in the first three decades of the last century. There was also a short German campaign near Amreyia, situated in the desert south of Alexandria, where very informative architectural remains of early Christian date have been uncovered (Eilmann, et al. 1930).

The most complete description of the whole area was offered by Anthony De Cosson, the former director of the railway west of Alexandria, in the 1930s. His book on Mareotis was based on then available literature on the subject and his extensive knowledge of the land from Alexandria westwards far beyond Marsa Matruh (ancient Parrethionium) (De Cosson 1935: 131). In his description of Marea he follows the description and name of the extensive lake port remains situated south-west of Alexandria given by Mahmoud El-Falaki. In both, El-Falaki's and De Cosson's descriptions, the site was presented as 1.5 km long, but not very broad, and limited to the chain of visible ruins of fallen walls along the lake shore. Nevertheless, in their opinions the place was the most important centre of the historical Mareotic region, as mentioned in ancient literary sources. Other modern publications concerning ancient Mareotis have dealt very little with the largest lake harbour in the region. Yet, in the first half of the last century the site was recorded on several maps of the *Survey of Egypt* series, but was rarely presented in published photographs. The best known are pictures showing the western jetty of the harbour surrounded not by water, but instead by marshes. In the most popular books of that time writ-

ten by Breccia (1922: 335) and Forster (1922), the port of Marea is hardly mentioned compared with such important places west and south of Alexandria as Taposiris Magna and Abu Mina.

The best equipped excavations in the Southern Desert were made by expeditions organized by the German Archaeological Institute in Cairo in the 1930s. They were carried out near the modern market place and settlement of Amreyia (Eilmann, et al. 1930). Specific rural types of early Christian structures characteristic of the region, although rather modest and of an introductory nature, were recorded and published very quickly. It is a great loss that the excavators did not come back to the region after the second world war to continue the research. In the second half of the past century, excavations at Abu Mina, undertaken by the German Archaeological Institute at Cairo, were resumed under the direction of architects, Müller-Wiener and later Grossmann. They extended the area of research around Abu Mina, the largest pilgrimage centre of early Christian Egypt, and surveyed the neighbouring territory of the Lake Mariout harbour. Müller-Wiener (1967) and Röder (1967), devoted their time to investigating not only the ancient settlements in the region, but also the sources of local building material, including ancient quarries located along the southern shore of the lake, particularly one located near the modern village of Bahig (Müller-Wiener 1967: 104-117; Röder 1967: 118-131). Their interests also extended to an analysis of the building materials visible on the surface of the land along the southern shores of Lake Mariout and the surrounding area, with the clear intention of identifying a link between the chain of settlements in the desert and the pilgrimage centre at Abu Mina. The article of Müller-Wiener (1967), entitled "Siedlungsformen in der Mareotis", was based on rational observation and the description of visible remnants of ancient structures on the surface (Figs. 1 & 2). In the harbour of so-called Marea, prior to any excavations, he identified on the surface, a double bath, structured frames of the quays, with accompanying buildings, and the most important construction, the monumental three apsidal church (Müller-Wiener 1967: 106).¹ All his identifications were correct, and they have not altered as a result of later excavations. More im-

1. Müller-Wiener 1967: 106, n. 16: "In Marea sind – obwohl das aufgehende Mauerwerk weitgehend fortgeschleppt zu sein scheint – noch zahlreiche Bauten erkennbar (groses Doppelbad, Hafenbefestigungen mit Kaianlagen und drei langen Molen, Kirche mit drei-apsidalem Grundriss usw.usw.); eine nähere Untersuchung des Ortes wäre – ausserst wünschenswert."

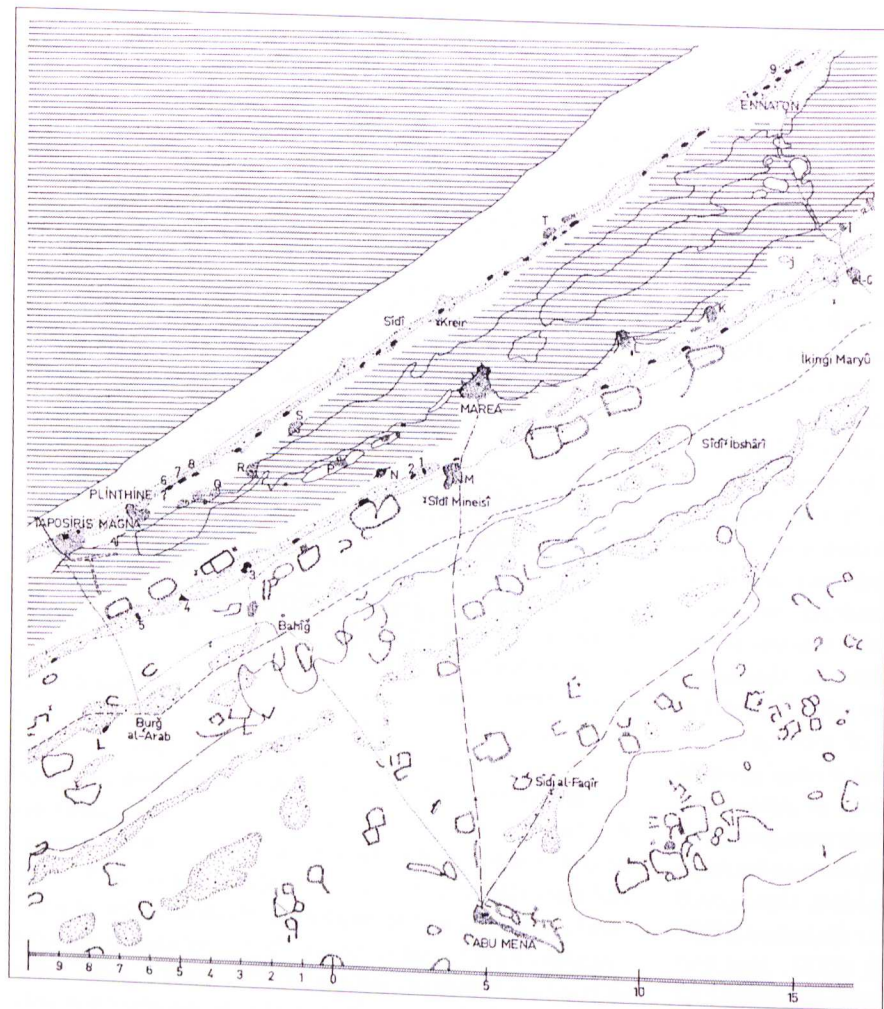


Fig. 1: Central part of the plan of Mareotis drawn by Müller-Wiener in 1966, with the pilgrimage road from the lake harbour to Abu Mina and settlements, among them settlement "M" in Huwaryia village (after Müller-Wiener 1967: Fig. 1).

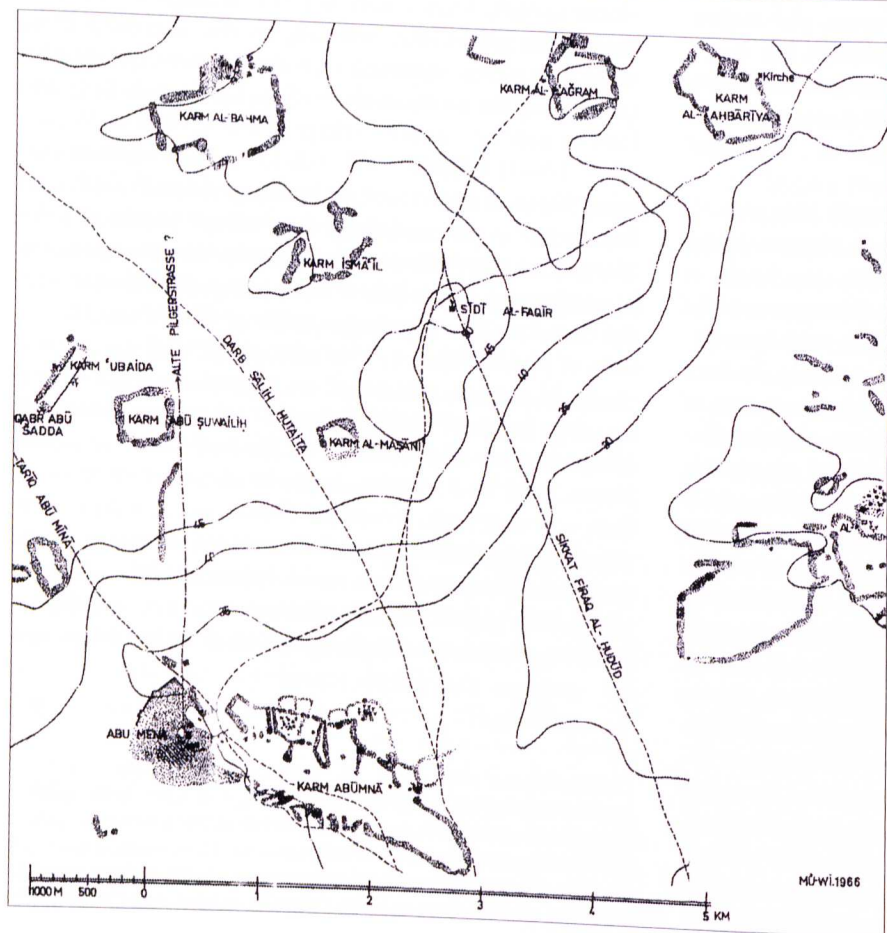


Fig. 2: Abu Mina with surrounding settlements/karms, and pilgrimage road towards the lake harbour (after Müller-Wiener 1967: Fig. 4).

portantly, he identified a separate settlement ("M" on the plan reproduced on his Fig. 1) (see Fig. 1), at a distance of 1.5 km south from the ruins of the lake harbour known as Marea (Müller-Wiener 1967: 110). He presented its dimensions (600 x 800 m) and described briefly the remains of a brick cistern located at the edge of the modern road, the same that later was identified as a water reservoir serving the double peristyle building, published by its first excavator El-Fakharani, as the Byzantine House (El-Fakharani 1983: 175). Thus, Müller-Wiener clearly separated all these inland situated structures from the harbour to the north, and very clearly stated that settlement "M" was not a part of a larger town plan comparable with ancient Alexandria, as was to be suggested a decade later, and supported by his successor heading the excavations in Abu Mina (Grossmann 2003: 13).

In 1978 the first archaeological excavations of the so-called site of Marea were financed by Alexandria University under the direction of Professor of Archaeology, Dr Fawzi El-Fakharani, a very energetic organizer and gifted speaker. In a very short time his discoveries at the site became very popular both nationally and internationally. Prof. El-Fakharani published in 1983 an extensive report on the survey and excavations of a vast area of Mareotis, about 6 km long and 4 km broad. Other publications of the site of "Marea" by Sadek (1978: 67) and Petruso and Gabel (1983: 62) followed, although analysis of available material and structures excavated there were not completed. At that time, there arose the notion of a very large and prosperous city of Marea around the existing remains of the lake harbour, which some supposed to be equal in size to ancient Alexandria. The Mareotic settlements 1.5 km south of the port, and the Ptolemaic rock-hewn tombs situated about 5 km west (at the site called Quassimiyia), previously investigated by Müller-Wiener, were included by El-Fakharani in the city of "Marea" (El-Fakharani 1983: 176, 186). The lack of any continuation and evolution of these distant places was not taken into consideration by the enthusiasts of this notion of the great city of "Marea".

In 1972 Fraser, the author of a major work on Ptolemaic Alexandria, wrote, "Although Marea had been an important town in Pharaonic times, these remains are evidently late structures, they are not Ptolemaic and may be Byzantine or early Arab" (Fraser 1972: 146). Some years later an essential question arose about the location of the pilgrimage lake harbour, known from the Coptic *Encomium on St. Menas* as Philoxenite, a place that is also mentioned in other Christian sources (Drescher 1946: 147-148, 1949: 15-16; Rodziewicz 1983, 2003).

The next phase of research connected with the lake harbour, went together with the protective work undertaken by the Egyptian Antiquities Organization in 1982, which required a factual analysis of all preserved archaeological material essential for planning and intensifying the protection of the cultural heritage in this area. I was involved in this process, particularly in the protective works, which

saved most of the monuments excavated by the Alexandria University Expedition, headed by Prof. El-Fakharani. The winery in Huwaryia village, excavated in 1977, received limited reconstruction (mainly for protection but also didactic reasons), and was covered with a roof. The excavation of the so called Byzantine House, which most probably served as a hospice for pilgrims heading to Abu Mina, was completed. It was partly reconstructed to prevent further damage and also for didactic requirements. The remains of buildings at the lake harbour were treated similarly (Rodziewicz 2002, 2003). During these works many previously completely unrecognised structures were identified, thus extending the possibilities of defining more features of the local topography, its culture, economy and technology. If they would have been known to Prof. El-Fakharani at the time of his activities in the area, he would certainly have changed some of his first hypothetical identifications, and his general opinion of the site.

The most required change in the general knowledge of the site concerns the extension of the urban area of "Marea" to the west, i.e. to the tombs of the Ptolemaic period (at modern Qassimiyia site, ca 5 km from the city), which is still considered by some archaeologists as a part of the western necropolis of the capital of the whole Mareotis region (El-Fakharani 1983: 176; Bagnall & Rathbone 2004: 75).² Of three *hypogea*, still well preserved in the 1970s, only traces of the largest, located on the southern slope of the rocky ridge, are still recognisable. The identification of the rocky ridge of Qassimiyia site as the western necropolis of "Marea" is not archaeologically substantiated, because similar *hypogea* existed on the rocky ridge near Huwaryia village (1.5 km from "Marea"), and all along the same ridge were located other types of tombs such as chambers, shafts or pit tombs, which were dispersed over the area, also considered by some archaeologists as belonging to the city of "Marea". Furthermore, the extensive ancient ruins with a subterranean tomb, now located near the modern Huwaryia railway station, which supposedly delimited the southern urban area of ancient "Marea", are according to the results of the survey of 1990s EAO Delta West Inspectorate (unpublished), the remnants of an isolated structure with a church inside, which may indicate one of the numerous Christian monasteries that existed here in the early Christian period.³ There were no detectable traces of urban features such as street connections between this structure and the group of low quality houses with an associated wine press, that were excavated and published by El-Fakharani (1983: 183-184). This site was earlier identified by Müller-Wiener as a separate settlement (Müller-

2. El-Fakharani 1983: 176: "The discovery of burials in the west and south marked the limits of the town westwards and southwards since ancient cemeteries were customarily located outside of inhabited area"; Bagnall & Rathbone 2004: 75: "In the cemetery to the west of the town ...".
3. Compare these structures to those excavated by the Swiss at Kellia, Kasser 1983, 1986 with further references in *Actes du Colloque de Geneve, 13 au 15 aout 1984*, Geneva 1986.

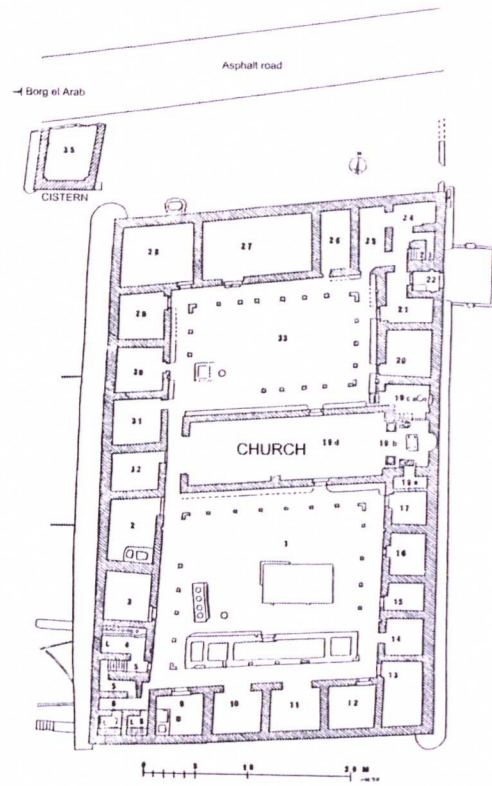


Fig. 3: Byzantine House/Hospitium at the pilgrimage road from the lake harbour to Abu Mina (drawn by M. Rodziewicz).

Wiener 1967: 110) (see Fig. 1). In the southern part of this settlement an underground water cistern, a group of low quality rooms and, further to the west, a medium-sized winery, were partly uncovered by EAO in 1992/3. They were associated with pottery of the late 1st century BC to the middle of the 2nd century AD (author's identification). This winery appeared to be much older than the winery discovered by Prof. El-Fakharani (1983: Taf. 36). Other architectural remains from this settlement are younger. At the most northern part of the ruins typical Muslim burials were located, which, according to Prof. El-Fakharani, were associated with glazed pottery sherds and a probable Fatimid coin (El-Fakharani 1983: 176-177).⁴

Further to the north, an extensive building identified by El-Fakharani as the Byzantine House was separately built outside the settlement (El-Fakharani 1983: 184-186). It occupied a surface of over 1,500 m² and was surrounded on all sides by cultivated land (Rodziewicz 1983, 1988a: 267-277, 1990, 2002: 1-22) (Fig. 3). The house was not covered by structures belonging to other buildings, which means that it was situated in a typically rural environment, at the far edge of the older, but still inhabited village, hav-

ing a now horizontal stratigraphy, unlike most of the Egyptian ancient settlements which grew upwards and form characteristic hills called "koms". Contrary to the first and still valid identification of this archaeological site by Müller-Wiener in the 1960s (in particular the water cistern belonging to the big Byzantine House that he published), as a separate construction in a rural environment, the site is still directly or indirectly considered by some archaeologists as a centre of the urban area of an extended town called "Marea" (Bagnall & Rathbone 2004: 74-76).⁵

Thus, despite the growing archaeological evidence that strongly opposes the identification of the lake port as Pharaonic Marea, we still read about the remains of an ancient town ("Stadtanlage") located as far south as the modern village of Huwaryia (Grossmann 2003: 15). As a consequence of such interpretations of the ancient village, general conclusions were formulated concerning the location of wineries in urban environments (Bagnall & Rathbone 2004: 74-76; Grossmann 2003: 15, n. 27). Furthermore, another conclusion drawn, was that the so-called (by Prof. El-Fakharani) Byzantine House at Huwaryia is the most convincing archaeological document attesting the existence of the urban centre of ancient Marea, where in reality at this location there existed a large building structured in a rural manner, surrounded by cultivated land. Judging from its huge dimensions and the church built inside, it may have served as a very comfortable and safe pilgrimage hospice from the early 6th to late 7th century AD, i.e. exactly at the time of prosperous pilgrimage activities to Abu Mina (Rodziewicz 2003: 27-47). No older or younger constructions in the area of the building have been registered. The proper understanding of the function of this large building is crucial for the interpretation of the character of the area, which was described by Müller-Wiener (1967; who undertook a detailed survey of the area in the 1960s), as a rural settlement, not the centre of any larger town. He mentioned visible surface remains of a brick built water cistern that was located right on the edge of the modern road, that are still visible today (see Fig. 3). In late antiquity, this cistern was situated in a garden or in an open space surrounding the large double-peristyle building (the Byzantine House of El-Fakharani). Müller-Wiener thought that the cistern may eventually be connected with the bath (Müller-Wiener 1967). However, the extensive neighbouring building (the Byzantine House), whose excavation was completed in the EAO in the early 1980s, appeared to be the largest residential edifice known hitherto in the whole Mareotis region. It was equipped with a church in the central, eastern wing, between the two extensive colonnaded peristyles. The church had multi-

5. Bagnall & Rathbone 2004: 74-76; p. 76: "Archaeological evidence for wine production has also come to light. South of the limestone ridge are the remains of two wine-producing establishments. The larger and more interesting is aligned with the middle of the town". However, such installations as wine factories and pottery kilns are not known in the very centres of ancient towns, where life was regulated by city law. Quite the contrary, these are very typical rural establishments.

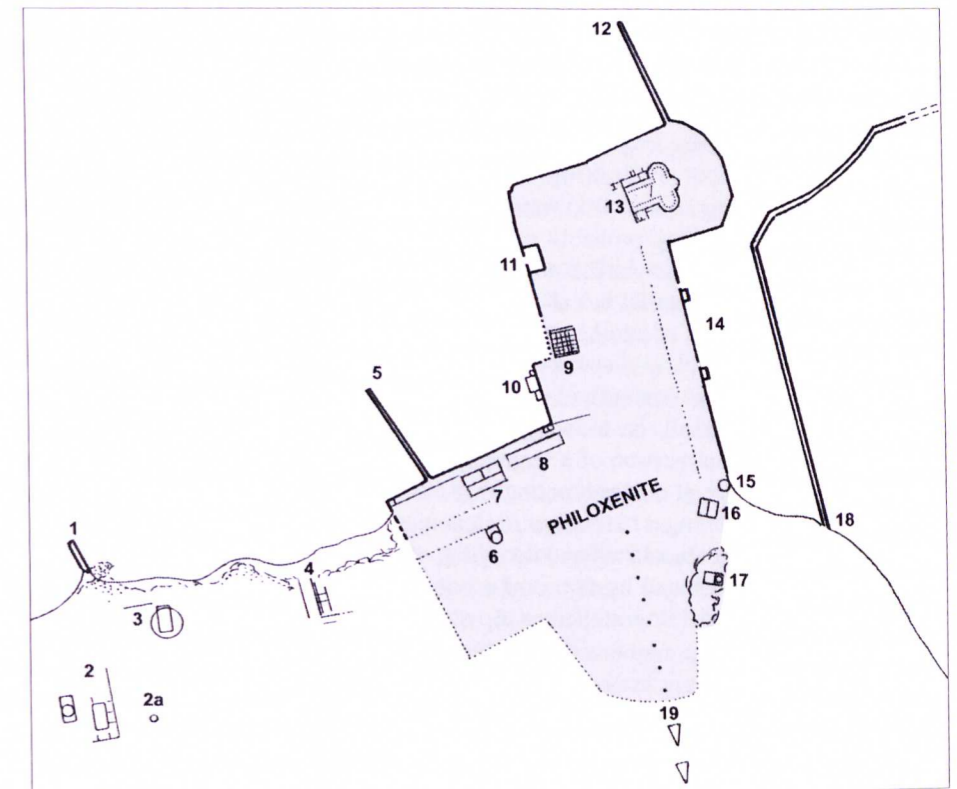


Fig. 4: Byzantine pilgrimage harbour/Philoxenite (Nos. 5-17) and western/coastal rural remains (Nos. 1-4). On the eastern side, structured causeway (No. 18) (drawn by M. Rodziewicz).

KEY

- 1 – Jetty of pre-Byzantine date
- 2 – Rural estate with large water wheel
- 2a – Small kiln
- 3 – Unidentified structure of rural character
- 4 – Structures with mooring place

Structures identified in the pilgrimage harbour:

- 5 – Pier
- 6 – Water wheel (saqia)
- 7 – Public double bath
- 8 – Insula with shops
- 9 – Public building
- 10 – Public lavatory
- 11 – Kibotos?

- 12 – Pier
- 13 – Transept Basilica (after Grossmann 2002: Fig. 9)
- 14 – Eastern harbour
- 15 – Water wheel (saqia)
- 16 – Public bath
- 17 – Rock-hewn tomb/hypogeum
- 18 – Causeway leading to the island
- 19 – Pilgrimage track to Abu Mina

coloured, geometrical *opus sectile* mosaics on the floor and a richly ornamented northern baptistery (Rodziewicz 1983, 1988a, 1988b). The baptistery floor was made of mortar and painted red in a geometrical pattern composed of triangles. After extensive cleaning of the area, it appeared that beside the large church in the centre and numerous rooms around an extensive courtyard (and probably on the upper floors), a collective (nine seat) lavatory existed there with two smaller ones aside. They were all built in the southern part of the edifice, by the staircase leading to the upper floors, and close to the bathing equipment located in the south-western corner of the house. The bathing facilities were not sufficient to serve the needs of pilgrims eventually stationed there, but a full programme of cold and hot baths was available just about 1 km to the west, in the large public bath that was surveyed, excavated and restored by EAO Delta West Inspectorate in the early 1990s.⁶ The bath, datable to the Byzantine period, was not attached to

any architectural remains. It was built in an open area and surrounded by cultivated land. The area of the settlement, which extended from the uplands to the lake, bears traces of various human activities, such as limestone quarrying, various burials on the rocky ridge, clay extraction, pottery firing in the numerous kilns registered there, and cultivation down to the shores of the lake (Röder 1967: 118-131). The individual buildings, whose traces have been excavated and surveyed there, were built in a rural manner.

Strictly urban construction methods of building are identifiable only around the lake harbour, erroneously identified as Pharaonic Marea (El-Falaki 1872: 96). Most of the buildings at the port were constructed in one phase, with similar construction principles (Fig. 4). The construction methods are comparable to buildings at Taposiris Magna, Alexandria and also the pilgrimage centre of Abu Mina (Grossmann, et al. 1982; Grossmann, et al. 1984: 123-151). They are not similar to the structures of neighbouring rural settlements and the "karms/karum" located further south.

West of the Byzantine passenger harbour Philoxenite ("Marea"), on a rough natural rocky coastline, are the pre-

4. El-Fakharani 1983: 176-177: "Few pieces of Islamic pottery sherds with green glaze and some white lines, and a piece of Fatimid coin were discovered just above the dead".

6. The results of which were presented by Ahmed Abd El-Fatah at the Balnéorient conference, held in Alexandria, December 2006 (in press).

served traces of a small size mooring facility and a quite well preserved short but wide and relatively high, jetty that differs remarkably from the two long Byzantine quays of the pilgrimage port (Fig. 4.1). The jetty is constructed from very large sandstone blocks without hydraulic mortar. In front of it a cluster of ruins (Fig. 4.2) is still visible, which surround a large courtyard, water wheel (*saqia*), cistern and channels. They probably mark structures of a coastal rural estate similar to the one at Borg el-Arab. Early Roman building material has also been recorded. In addition, there are traces of another water wheel, a small kiln (Fig. 4.2a), and widely dispersed traces of furnace activities. These remains depict the kind of rustic-coastal human activities with small size mooring places (Fig. 4.4), created prior to the construction of a large passenger harbour at the promontory. It is worth noting that during the very last era of the passenger harbour of Philoxenite, with large buildings already abandoned and decaying, old local activities returned, motivated by the rural economy, with an oil press and a pottery kiln installed on top of the ruined constructions.

It is the author's belief that the lake port in Mareotis should be interpreted as a disembarkation point for Christian pilgrims travelling to Abu Mina, and not as a town with a long tradition matching the history of the ancient capital of a Pharaonic nome (Rodziewicz 1983, 1988a, 1988b, 2002). This opinion was formed on the back of extensive personal study of the whole lake harbour area from the late 1970s to the mid-1990s. The text of the Coptic *Encomium* and other Christian sources serve to support this view (Drescher 1946: 147). Since, in the early 1980s, the water of Lake Mariout was at a very low level, all jetties and other structures at the harbour were dry, and research, as well as all necessary examination of the construction phases, was much easier than nowadays. For identification of the chronology of the site I used my knowledge of the pottery acquired on other excavations in Egypt and elsewhere, but primarily Alexandria (Rodziewicz 1976). The most informative and numerous sherds were those spotted in the mortar of the lowest parts of the jetties. They belonged to Late Roman Amphora 1, which clearly fixes the chronological horizon of the big harbour in the Byzantine period and parallels the chronology of Abu Mina. The types of the structures, the extension of the urbanised surface, three large water wells (Fig. 4.6, 4.15) and a very small local cemetery hewn in a rocky hill (Fig. 4.17), and a very large church (Fig. 4.13) and extensive harbour, lead me to conclude that the site did not develop gradually, but that it was constructed in a short time and according to a very specific programme. Furthermore, there were no older or younger pottery sherds collected at the site.

Thus, in 1983 at a conference in Athens (Graeco-Arabica) I interpreted the harbour as a specialised port for pilgrims travelling to Abu Mina, as described in the Coptic *Encomium*, which also mentions its name as Philoxenite (Drescher 1946: 15). The description of the site in the Coptic *Encomium* matches quite well the preserved Byzantine struc-

tures at the lake port (Grossmann 2003: 13-20).⁷ Arguments against this proposition vary from self-contradictory to those based on out of date, unproven archaeological theories, particularly that of the existence in that place of a large town, "Marea", the Pharaonic capital of the district, with a generalised opinion that the old town experienced an unprecedented economic boom in a period of well-documented and steady economic decline of Egyptian cities.⁸

With a new round of excavations at the lake port starting in 2000, we expected a flow of new information and objective interpretations of freshly unearthed structures and artefacts.⁹ However, this was not to be and the lack of a rational argument in the presentation of newly excavated material from the harbour during the conference on Medieval Alexandria in 2002, motivated me to publish a paper entitled "Philoxenite-Pilgrimage Harbour of Abu Mina" (Rodziewicz 2003). Three years later, I found a statement in the pamphlet published by the Polish Mission (2006) saying that there are several reasons to assume that Philoxenite was built within the city of Marea, thus supporting the interpretation of the site as that of the location of Philoxenite, which I had first suggested in 1983 (Rodziewicz 1983: 202, 2002). However, the belief that Marea lies under the Byzantine buildings of Philoxenite, despite the lack of any older urban structures there that should date back at least to the time of Psametic I, is still maintained. In the

7. Grossmann 2003: 13-20, considers my opinion unacceptable, but his arguments are not backed by any factual documentation concerning the chronology of the artefacts in the lake harbour and pilgrimage centre in Abu Mina (which are mostly not yet published). Thus, his opinion on differences in chronology of the bath in the lake port and of the pilgrimage centre at Abu Mina can be taken only as his personal supposition, not supported by the necessary documentation and study of the pottery collected there.

8. According to Bagnall (1993: 108), despite continuous economic decay in late antiquity, not all cities in Egypt suffered regress, and Marea in the immediate hinterland of Alexandria enjoyed a period of prosperity. He says that "the flourishing development at Marea, on the lake which served Alexandria's back door by water, points to vigorous commerce by this route in the late period". So, the old Pharaonic city of Marea, of which we still do not have any archaeological evidence and whose location is still unknown, in Bagnall's publication flourished in the 3rd century AD.

9. The Polish Mission, active there since 2000, is headed by Dr. Hanna Szymanska from the Archaeological Museum in Krakow. With great sadness, we observe subjective methods of interpretation of the archaeological evidence obtained there. At the conference devoted to Medieval Alexandria organized by CEAlex in 2002, Mrs. E. Wipszycka from the Polish Mission spoke about the identification of Philoxenite in the light of new discoveries. Her weak documentation mobilised me to publish the 2003 the article "Philoxenite-Pilgrimage Harbor of Abu Mina". In 2006, a special exhibition was prepared by the Polish team about the excavations in Marea. It accompanied the conference "Baldorion" at which Mrs. Szymanska presented a paper on a new bath from the harbour. This exhibition entitled "Marea - Polish Excavations in Egypt 2000-2004 conducted by archaeologists from the Archaeological Museum in Krakow under the auspices of the Polish Centre of Archaeology of Warsaw University", was supported by a pamphlet with a short text signed K.B. in which we can find the passage: "Marea or Philoxenite? Identifying the accurate name of the town is a challenge that the Polish Archaeological Mission has undertaken. We have several reasons to assume that it was within Marea that the city of Philoxenite was built."

same pamphlet, the author presents important archaeological evidence, previously published by Grossmann (1993). The pamphlet informs us that:

"The most interesting structure in the town is a basilica situated on an eminence overlooking the lake shore near the longest of the harbour piers...The greatest surprise however was concealed under the apse. About 1.80 m below the surviving tops of the apse walls, the floor of the firing chamber of a great kiln for the production of amphorae was discovered. The part of the church where liturgical ceremonies were held had been founded on these manufacturing remains. The kiln, which is one of only a few known from the Delta so far, turned out to be 8 m in diameter and the firing chamber floor was ca. 50 cm thick. Inside it, fired amphorae of the 2nd-3rd century were discovered next to clay stacking rings that had separated the vessels during firing."

Because no further evidence was presented, I feel obliged to conclude that, firstly, this kiln alone proves that the hill is to a great extent artificial, because it was formed by industrial refuse produced by the ruins of a vast pottery workshop; but that secondly, these ruins should be understood as part of an extensive rural establishment of Early Roman type, comparable to several groups of similar remains hitherto uncovered around the lake (Rodziewicz 2002: 12, Fig. 3; Abd-el Fatah 1998; El-Ashmawi 1998; Abd El-Aziz Negem 1998). One site discovered in the 1980s by the Marsa Matruh Inspectorate of the Egyptian Antiquities Organization, was located on the southern shore of this same Lake Mariout, near modern Borg el-Arab village (El-Ashmawi 1998).¹⁰ Thus, the kiln discovered under the church in "Marea" (Fig. 4.13) belongs to a chain of Early Roman rural enterprises located all along the southern shore of the Mareotis Lake and has nothing to do with the great city of Marea. Therefore, we should retain the view that the Byzantine port of Philoxenite, created for pilgrims travelling to Abu Mina, which was built not upon the urban ruins of Marea – ancient capital of Mareotis as described by Herodotus (II.149) – but on the ruins of a nameless, extensive Early Roman rural estate, similar to many others in the region, a number of which have been located along the shores of Lake Mariout.¹¹

10. El-Ashmawi 1998. I had the privilege to work there in 1987/88 as an adviser in the protective works of this large Early Roman rural estate, situated on Lake Mariout.

11. Preliminary reports on excavations in Marea are scarce (see *Polish Archaeology in the Mediterranean XII-XVII, 2001-2007*, Warsaw University Press). The exhibition illustrating results of the Polish excavations in Marea presented in the Bibliotheca Alexandrina, December 2006, was supplied with texts describing photos. A pamphlet was also presented. Both ignored all previous extensive research and restoration contributions to the site done by individuals and institutions. Reconstruction done at the site in the 1980s (shown there on big panels) that was carried out by the Egyptian Antiquities Organization was not properly described and the suggestion was that the works had been done recently by the Polish Mission. See Szymanska & Babraj 2007, with references to previous reports.

Bibliography

- Abd el-Aziz, M., 1998, Recent Excavations around Abu Mina. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'Ecole française d'Athènes, 11-12 décembre 1988*: 65-73. Athens, Paris.
- Abd el-Fatah, A., 1998, Recent Discoveries in Alexandria and the Chora. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'Ecole française d'Athènes, 11-12 décembre 1988*: 37-53. Athens, Paris.
- Adriani, A., 1940, *Annuaire du Musée gréco-romain 1935-1939*. Alexandria.
- Bagnall, R.S., 1993, *Egypt in Late Antiquity*. Princeton.
- Bagnall, R.S., & Rathbone, W., 2004, *Egypt from Alexander to the Copts*. London.
- Breccia, E., 1922, *Alexandria ad Aegyptum: Guide de la Ville Ancienne et Moderne et du Musée Gréco-Romain*. Alexandria, Bergamo.
- Décobert, C., 2002, Maréotide médiévale. Des Bédouins et des chrétiens. In C. Décobert (ed.), *Alexandrie Médiévale 2, ÉtudAlex 2*, 127-167. Le Caire.
- De Cosson, A., 1935, *Mareotis: Being a Short Account of the History and Ancient Monuments of the North-Western Desert of Egypt and of Lake Mareotis*. London.
- Drescher, J., 1946, *Apa Menas. A Selection of Coptic Texts Relating to St Menas*. Cairo.
- Drescher, J., 1949, Topographical Notes for Alexandria and District. *Bulletin de la Société Archéologique d'Alexandrie* 38: 13-20.
- Eilmann, R., Langsdorff, A., & Stier, H.E., 1930, Bericht Über die Voruntersuchungen auf den Kurûm El-Tiawal bei Amriyr. *Mitteilungen des Deutschen Archäologischen Instituts Abteilung Kairo* 1: 106-129.
- El-Ashmawi, F., 1998, Pottery Kiln and Wine-Factory at Burg el-Arab. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'Ecole française d'Athènes, 11-12 décembre 1988*: 55-64. Athens, Paris.
- El-Fakharani, F.A., 1983, Recent Excavation at Marea in Egypt. In G. Grimm, H. Heinen & E. Winter (eds.), *Aegyptiaca Trevernsia II, Das Römisch-Byzantinische Ägypten. Akten des internationalen Symposiums 26.-30. September 1978 in Trier*, 175-186. Mainz.
- El-Falaki, Mahmoud Bey, 1872, *Memoire sur l'antique Alexandrie, ses faubourgs, ses environs*. Copenhagen.
- Empereur, J.-Y., & Picon, M., 1998, Les ateliers d'amphores du Lac Mariout. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'Ecole française d'Athènes, 11-12 décembre 1988*: 75-91. Athens, Paris.

- Forster, E.M., 1922, *Alexandria: A History and a Guide* (5th edn.). New York.
- Fraser, P. M., 1972, *Ptolemaic Alexandria*, Vol. I. Oxford.
- Grossmann, P., Kosciuk, J., Severyn, G., & Severyn, H.G., 1984, Vorl. Bericht. *Mitteilungen des Deutschen Archäologischen Instituts Abteilung Kairo* 40: 123-151.
- Grossmann, P., Jaritz, H., & Romer, C., 1982, Vorl. Bericht. *Mitteilungen des Deutschen Archäologischen Instituts Abteilung Kairo* 38: 131-154.
- Grossmann, P., 1986, *Abu Mina. A Guide to the Ancient Pilgrimage Center*. Cairo.
- Grossmann, P., 1993, Die Querschiffbasilika von Hauwariya und die Bauten dieses Typus in Ägypten als Repräsentanten der verlorenen Frühchristlichen Architektur Alexandriens. *Bulletin de la Société Archéologique d'Alexandrie* 45: 107-121.
- Grossmann, P., Arnold, F., & Kosciuk, J., 1997, Report on the Excavations at Abu Mina in Spring 1996. *Bulletin de la Société d'Archeologie Copte* 36: 83-98.
- Grossmann, P., 2002, *Christliche Architektur in Ägypten*. Leiden.
- Grossmann, P., 2003, Nochmals zu Marea und Philoxenite. *Bulletin de la Société d'Archeologie Copte* 42: 13-20.
- Herodotus, *The Histories*. A. de Sélincourt (transl.), 1971. Middlesex.
- Kasser, R., 1983, *Survey Archeologique des Kellia (Basse-Egypte). Rapport de la Campagne 1981*, Vol. I-II. Louvain.
- Kasser, R., 1986, *Le site monastique de Kellia. Sources historiques et explorations archeologiques*. Geneva.
- Kaufmann, C.M., 1906, *Die Ausgrabung der Menas-Heiligtümer in der Mareotiswüste*. Cairo.
- Kaufmann, C.M., 1908, *La Découverte des Sanctuaires de Ménas dans le Désert de Maréotis*. Cairo.
- Kaufmann, C.M., 1924, *Die Heilige Stadt der Wüste. Unsere Entdeckungen, Grabungen und Funde in der altchristlichen Menasstadt*. Kempten.
- Müller-Wiener, W., 1967, Siedlungsformen in der Mareotis. *Archäologischer Anzeiger* 82.2: 103-117.
- Petruso, K., & Gabel, C., 1983, Marea. A Byzantine Port on Egypt's Northwestern Frontier. *Archaeology*, Sept/Oct: 62-63, 76-77.
- Röder, J., 1967, Antiken Steinbrüche der Mareotis. *Archäologischer Anzeiger* 82.2: 118-131.
- Rodziewicz, M.D., 1976, *La céramique romaine tardive d'Alexandrie, Alexandrie I*. Varsovie.
- Rodziewicz, M.D., 1983, Alexandria and District of Mareotis. *Greco-Arabica* 2: 199-216.
- Rodziewicz, M.D., 1988a, Remarks on the Domestic and Monastic Architecture in Alexandria and Surroundings. In E.C.M. van den Brink (ed.), *The Archaeology of the Nile Delta. Proceedings of the Seminar held in Cairo, 19-22 October 1986*: 267-276. Amsterdam.
- Rodziewicz, M.D., 1988b, Remarks on Peristyle House in Alexandria and Mareotis. *Praktika* 1983: 175-178.
- Rodziewicz, M.D., 1990, Taenia and Mareotis, Archaeological Research West of Alexandria. *Acta of the First International Colloquium of the Egyptian Society of Greek and Roman Studies* I: 62-81. Cairo.
- Rodziewicz, M.D., 1995, Eco-Archaeology of Ancient Alexandria and Mareotis. In A.A. Hussein, M. Miele & S. Riad (eds.), *Proceedings of the Seminar on Geosciences and Archaeology in Mediterranean Countries, Cairo, November 28-30/1993*: 127-139. Cairo.
- Rodziewicz, M.D., 1998a, Classification of Wineries from Mareotis. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'Ecole française d'Athènes, 11-12 décembre 1988*: 27-36. Athens, Paris.
- Rodziewicz, M.D., 1998b, From Alexandria to the West by Land and by Waterways. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'Ecole française d'Athènes, 11-12 décembre 1988*: 93-103. Athens, Paris.
- Rodziewicz, M.D., 2002, Mareotic Harbours. In C. Décobert (ed.), *Alexandrie Médiévale 2, ÉtudAlex* 8: 1-22.
- Rodziewicz, M.D., 2003, Philoxenite – Pilgrimage Harbour of Abu Mina. *Bulletin de la Société Archéologique d'Alexandrie* 47: 27-47.
- Sadek, M., 1978, The ancient port of Marea. *Cahiers des Études Anciennes* VIII: 67.
- Szymańska, H., & Babraj, K., 2007, Marea. Sixth Season of Excavations. *Polish Archaeology in the Mediterranean* XVII. Reports 2005: 55-66.

Marea or Philoxenite? Polish Excavations in the Mareotic Region 2000-2007

Krzysztof Babraj & Hanna Szymańska

Harbour installations of all kinds can be identified all along the south-western shores of Lake Mareotis. The most imposing ruins of Byzantine date located just 45 km south-west of Alexandria, extend along the coast for 1.5 km and are currently under exploration by a Polish mission (Fig. 1).

In 2000, excavations at the site were undertaken by a Polish team working under the auspices of the Polish Centre of Mediterranean Archaeology of Warsaw University and the Archaeological Museum in Kraków. The license granted by the Supreme Council of Antiquities (SCA) of Egypt, covers an area of c. 19 ha. A hypsometric grid was put in place and a surface survey of architectural remains carried out (16 objects were found; Szymańska & Babraj 2008: Fig. 1). In the course of the following eight field campaigns, the team has fully cleared a Byzantine bath of the 5th to 7th century connected with a well that supplied it with water, and a funerary chapel. The present focus is on the exploration of a huge Christian basilica standing on the promontory above the port.

History of the Site

The site was identified as ancient Marea (Μαρεία) by Mahmud Bey El-Falaki, court astronomer to Egypt's Viceroy Ismail Pasha (El-Falaki 1872: 96; Kees 1930: 1676-1678; Amélineau 1973: 241-243; Calderini 1980: 233; Gomaà 1980: 647), but today this identification is being reevaluated as indicated in the discussion below. The extensive town ruins situated on Lake Maryut (ancient Mareotis), 45 km from Alexandria, near the village of Hauwariya, have fascinated researchers for a long time. De Cosson prepared one of the first maps of the coast presenting the location of mainly architectural remains (De Cosson 1935: 131). The history of this imposing harbour town with four grand jetties for ships to dock and port basins to protect against wind and waves, can be traced in the ancient sources. Herodotus (II, 30, 2) reported that in the times of Psammetich I of the 26th Dynasty, Marea was a strategic position garrisoned by troops defending the border with Libya. General Amasis defeated the armies of Pharaoh Apries at Marea and took the throne in 570 BC (Diodorus Siculus I, 68). Under Persian rule, the town was allegedly the capital of an independent Libyan-Egyptian kingdom extending from the Canopic Branch of the Nile to Cyrenaica. Its ruler by the name of Inaros, challenged the Persians and lost his life after the fall of Memphis in 454 BC (Thucydides I, 104; Winnicki 2006: 135-142).

Marea never lost its importance as a commercial harbour despite the founding of Alexandria, and the Mareotis re-

gion remained the most important agricultural producer in northwestern Egypt (Haas 2001: 47). The lake was an important communication route in Ptolemaic and Roman times. Goods were transported down the channels from inland, reloaded in Marea and sent to Alexandria, from where they were shipped to other parts of the Mediterranean. The information contained in the Periplus of Pseudo-Scylax (Desanges 1978: 404-405), dated presumably to the early 4th century BC, indicates that Lake Mareotis may have been navigable in Pharaonic times and that the water was potable. Strabo (XVII, 1, 7) reports that the lake port in Marea handled more goods than ever came to Alexandria by the sea route (Yoyotte & Charvet 1997: 83). South of Alexandria, there was a harbour, no longer visible, called *Portus Mareoticus*; it handled the goods that were shipped via the lake. From there they were transported down a canal named Kibotos through Alexandria to the Mediterranean. One of the canals linking Mareotis with the so-called Canopic Branch of the Nile (Rodziewicz 1983, 1998: 101). The fertile Mareotis region was celebrated in antiquity for its vineyards, olive groves, fruit orchards and papyrus plantations. It produced food for the capital city and rich landowners had their estates here. In the mid-7th century it was still a place for Egyptians to come to appease hunger (*History of the Patriarchs* 1. 14, 501). Ancient writers spoke warmly of the quality of the local wine exported to Rome (Virgil, *Georg.* II, 91; Strabo, XVII, 1, 14; Horace, *Odes* I, 37, 14; Athenaeus, *Deipn.* I, 33). Even today one of the most renowned Egyptian grapevine growers and wine producers is based on the southern shores of the lake. Almost 30 furnace sites for firing amphorae from the early Hellenistic to late antiquity have been identified on the southern lake shore (Empereur & Picon 1998: 75-91; El-Ashmawi 1990: 55-64). In 2003, the Polish expedition unearthed beneath the basilica at Marea, a pottery kiln for firing amphorae of 2nd-3rd centuries date (see below). This evidence, when considered together with the numerous remains of glass workshops in the region, gives an idea of the crafts that were an important part of the economic life of the region (Kucharczyk 2008: 129-143).

The channels that fed the lake silted up in the 8th and 9th centuries due to lack of maintenance, and the fact that fresh water from the Nile, mainly the Canopic Branch, was cut off. The lake began to dry up (Rodziewicz 2002: 9) leading to the decline of towns particularly along its southern shores. In 1801, the lake bed was filled with sea water after the English opened the sluices in order to cut off the Napoleonic army from fresh water. The present surface of the lake is c. 90 km², and its depth averages at 1.50 m (Blue & Ramses 2005: 7).



Fig. 1. Remains of structures along the southern shore of Lake Mareotis. (Drawn by M. Niepokólczycki and A. Błaszczak)

KEY

- | | | |
|---|--|---|
| 1. Tholos baths | 6. Steps belonged to the unidentified structure | 11. Remains of saqiya |
| 1a. Stone pier 41 m long | 7. Byzantine baths (Polish excavations) | 12. Granary uncovered by F. El-Fakharani |
| 2. Stone pier 111 m long | 8. Well operated with saqiyah (Polish excavations) | 13. Basilica (Polish excavations) |
| 3. Stone pier 125 m long | 9. Double baths uncovered by F. El-Fakharani | 14. Funerary chapel (Polish excavations) |
| 4. Harbour facilities | 10. Decumanus along the shops cleared by F. El-Fakharani | 15. Tombs carved in the rock |
| 5. Unidentified structure, presumably dry dock uncovered by Petruso | | 16. Remains of the ancient road leading to the island |

Mareotis was Christianised eventually but the relations with the Patriarchate in Alexandria passed through different phases (Timm 1988: 1593-1603). The first evidence of Christianity is linked to waves of repression, the effect of which resulted in adherents of the new religion being banished to the region. In 538, by the power of Justinian's edict, the entire Mareotis region, previously part of the Roman province of *Aegyptus Prima*, was incorporated into Libya (*Edict* 13.1, 9, 17-22). In the period immediately prior to the conquest of Egypt by the Arabs in 641, Mareotis was a Byzantine province. The infrequent reference to Mareotis in Coptic writings is proof that by the

time of Byzantine domination the region had lost its leading role. The town fell due to lack of water as discussed above, but the decline was also due to political and social factors. Mareotis was overrun by semi-nomadic Bedouin tribes who plundered whatever stood in their way (Décobert 2002). At the beginning of the 8th century, in the rule of the Abbasids which coincides with the period when all life seems to have disappeared from the site, a new wave of Arab nomads appeared in the region. These people were politically active and they increasingly took control of local church institutions (Décobert 2002: 137). Obviously, the atmosphere of the place was no longer favourable to

Christians, particularly as a stopover for pilgrims. The wine from Mareotis, however, still retained its reputation through to the 7th century; at least this is what we are led to believe from a story about the abstinence of monks cited by John Moschus (1946).

However, identification of early harbour remains at Marea was questioned mainly on the strength of field survey results, which revealed nothing earlier than 6th to early 8th century pottery. The architectural remains also proved to be essentially Byzantine in nature (Fraser 1972: 146). On these grounds Rodziewicz (1983: 202-204) proposed to identify the ruins recorded on the surface with a town established as a transfer point on the southern shores of the lake for pilgrims on their way to the sanctuary of Abu Minas some 20 km away. The Coptic *Encomium of St. Menas* written by the Patriarch Ioannes IV (775-789), mentions numerous conveniences "like hospices by the lake and rest-houses for those wishing to rest" (Drescher 1946: 147-148), a market place, porticoes and even a facility that we would refer today as a left-luggage office. This impressive rest stop was said to have been founded by Philoxenos, Prefect of the Emperor Anastasius (491-518), hence the town's name of Philoxenite. Wipszycka (2002) has identified this official as the consul Philoxenos Soterichos, who held office in 525 and who is known also from consular diptychs (Martindale 1980: 879-880).

Location of the Site

The geographical coordinates of the site are: 30° 59' 32.85" N and 29° 38' 58.34" E to 30°59'48.84" N and 29°39'28.32" E. The excavation area measures 19.7 ha. To the west it is limited by a double-lane road linking the waterfront with Shakush settlement; the lake is a natural boundary on the north and east, and to the south there is the desert which extends as far as Shakush settlement. The overall height difference does not exceed 8 m anywhere on the site. The site grid consists of 42 geodetic points, mostly dictated by the natural topography. The coordinates were assumed locally, while the heights are listed by the Egyptian state geodetic service. The topographical plan of the site so far only covers the area excavated in 2000-2003 (see Fig. 1).

From a geological point of view, Marea lies in a broad stretch of land between Mallahet Maryût, the long westward arm of Lake Mareotis, and a parallel ridge of oolitic limestone. The soils on either side of the ridge are mostly calcarenite, very favorable for cultivation with proper watering (Warne & Stanley 1993; El-Fakharani 1983: 175; Rodziewicz 1995; Mycielska-Dowgiałło & Woronko 2008: 17-18). A similar ridge lies on the opposite side of the lake, separating Lake Mareotis from the sea. This is the Taenia (τανία) Ridge which extends along the coast from Alexandria all the way to Abu Mina and Libya. Today these ridges are mostly destroyed as a result of heavy exploitation of limestone quarries. In the 4th and 5th century, Christian monasteries appeared in the Taenia; they were called after the mile-stones that served to measure the distance from Alexandria. Their localisation today is very

difficult in view of continued industrialization and numerous tourist villa complexes being built along the shore.

Remains of harbour facilities can be seen along both the southern shore and the northern shores of the lake. The biggest of these is Marea. The quay at the waterfront in the eastern end of the site preserves stone blocks that were used in its construction. Beside it there are four almost wholly preserved jetties where the ships docked. These jetties formed the eastern, central and western harbours. They were built of several courses of stone blocks of different size; three or four courses have still been preserved and can be studied thanks to the overall drop of the level of water in the lake. The dimensions of the jetties are (counting from the west to east):

- I – L. 41 m, W. 6.50 m, blocks averaging: 0.50 m x 1.35 m;
- II – L. 111 m, W. 5 m;
- III – The longest jetty is located by the promontory with the ruins of the basilica, L. 125 m, W. 7 m, blocks averaging 0.65 m x 1.70 m;
- IV – L. 0.35 m (presumably only the part on land has survived), W. 4 m; found next to the island that was connected in antiquity with the mainland by an artificial causeway.

Marea or Philoxenite?

The size of the harbour installations, which are currently being researched by a Greek-Egyptian team of underwater archaeologists (headed by Nikos Lianos from the Hellenic Society for the Study and Preservation of Marine Cultural Heritage and the Department of Underwater Archaeology in Egypt) when considered in connection with the considerable size of the basilica on the lakefront and the innumerable but conclusive evidence of Early Roman potsherds, indicates that a large urban agglomeration flourished on the spot already in pre-Byzantine times. Neither can the extensive sewage network be considered as belonging to a town of little consequence. Philoxenos may have founded his city adjacent to existing harbour installations that had formerly been part of Marea, before it was abandoned as an urban centre prior to the silting up of the fresh-water channels that supplied the lake, but there is little doubt that settlement existed here prior to its foundation. Already in the 2nd century AD Athenaeus (33d) wrote of Marea as the source of a wine of fine quality; he called Marea a village (κώμη). Athanasios (85 col. 400b-c) had the same impression of the town 200 years later. Grossmann (2003: 16) thinks that the Hellenistic architecture of Marea was of mud-brick which is easily disintegrated. It should be noted that at the margins of the settlement mud-brick is a building material used in the lower layers of the basilica, chronologically contemporaneous with the pottery kiln of the 2nd-3rd centuries AD.

There is however, opposition to the idea that this was the site of Philoxenite. The distance from Philoxenite to Abu Mina is one area to question. According to Drescher's (1946) translation of the *Encomium*, the distance amounted to about 30-35 km. The text also mentions rest stops

where water was available, which the Prefect had arranged every 10 miles or so (=14.80 km) between the two towns. However, the distance in reality is some 20 km, not enough for even two water stops. Yet the key argument against the identification with Philoxenite is Grossmann's research on the frequency of pilgrimages to Abu Mina. Pilgrimages to the sanctuary did not peak until the second half of the 5th century, and afterwards surges in the number of pilgrimages accompanied the feast days of St Menas (Grossmann 2003: 18). The ruins currently being investigated on the site are considered earlier; the double baths explored by El-Fakharani (1983; see both Haggag's papers in this volume) originate from the end of the 4th century and the pottery kiln under the apse of the basilica operated in the 2nd-3rd centuries AD. The size of this latter facility is unmistakable proof of a flourishing centre existing on the spot (possibly Marea) prior to the Byzantine foundations, perhaps producing the wine that Mareotis was famous for and expediting it to other towns of the Greco-Roman world in amphorae produced at the site. One of the sherds from the fill of the pottery kiln bore the stamp of a potential owner of the vineyard Διονυσίου (Szymańska & Babraj 2005: 130, n. 41). Many artifacts discovered in the neighborhood of Marea confirm the presence of pottery kilns for firing amphorae in Roman times (Empereur & Picon 1998).

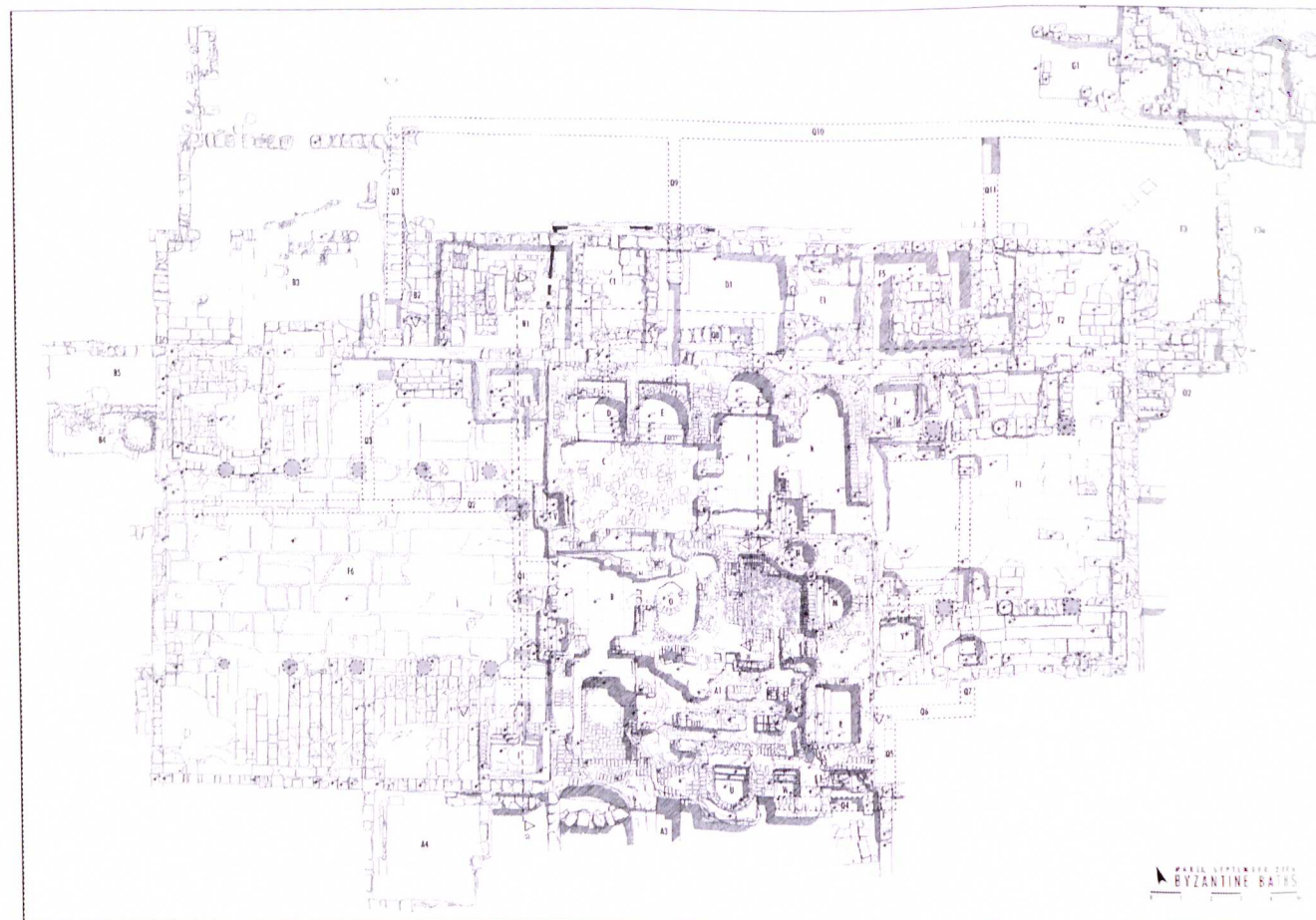
The great jetties are of key importance for the dating of the port. The structural variety of jetty construction (different size blocks) suggests several building stages, but the characteristic imprints left by 'swallow-tail' metal clamps, a

block-joining technique that went out of use in Italy in the 1st century AD, evidently point to an earlier origin (Adam 2008: 57).

Moreover, the apsed funerary chapel, discovered by the Polish mission, with its three chambers intended for an affluent family, could not have been erected by and for pilgrims transiting through the town. On the other hand, there can be no doubt that pilgrimages to the temple of the holy martyr must have passed through this area, if anything because of the close proximity to the lake. More evidence is provided by a Late Roman *villa rustica*, uncovered in Hauwariya village, transformed into a dormitory in the middle of the 6th century and furnished with a small church inside it (Rodziewicz 1988: 271-273, Fig. 2). A large urban centre with developed harbour facilities must have been perfectly suited as a stopover for wayworn and surely often ailing pilgrims.

Décobert (2002: 129) identifies ancient Marea with the locality of Îkinjî Maryût to the east of the site, where excavations are currently being conducted. Yet the only arguments in favour of this theory is the strategic position of this locality, affording control of the road from Cyrenaica and Egypt to Alexandria and being accessible also from the opposite side of the lake thanks to a considerable narrowing of its width at this point.

Fig. 2. Marea. Byzantine baths. (Drawn by D. Tarara).



Baths (Szymańska & Babraj 2008a: 27-83)

The freestanding building follows an orthogonal plan, encompassing the baths itself (Fig. 2) and the well, which is furnished with a *sāqiyah* installation drawing water for the baths. The actual building of the baths, covered an area of 642 m², including two courtyards and was encircled by a wall of stone blocks. The baths itself was built entirely of red brick on a brick foundation (Fig. 3). Shops and a latrine lined the north wall on the outside. Colonnaded courtyards were located to the east and west.

The building was a double bath, consisting of two uneven parts separated by a brick wall: the southern one, for men, bigger than the northern one for women. Each of these parts was heated by a separate furnace supplying warm air to four hypocaust systems. The entrance for men was in the western facade; it led from the courtyard, following widely accepted circulation principles, that is, directly from the *apodyterium* into the *tepidarium*, and then into the two *caldaria*. The women's part was not as extensive, accessible from a rather spacious courtyard to the east side. It consisted of three rooms: *apodyterium* and two *caldaria*. Fourteen small pools were used for bathing, eight of which were located inside the two parts of the baths, by the outer wall of the *caldaria*. Two of them were accessible from the courtyard, leading to the men's part. Four pools were located outside the baths, symmetrically in the two courtyards, abutting the walls. The pools were differentiated in shape, from semicircular through rectangular to round, depending on the rebuilding phase. Calculations made on the basis of six fragments of brick arches found in the debris permit a reconstruction of the width of baths halls, which were presumably covered with barrel vaults. The hypothetical height of the building, derived from the proportions of the surviving walls, was 3.50 m.

Fig. 3. Marea. Baths and western courtyard. View from the south-west (photo P. Suszek).



The underground part of the building included the service area cellars, two heating furnaces and one for heating water in a boiler, finally, there were four hypocaust cellars: two in the men's part and two in the women's part. The interior decoration of the building consisted of marble pavements, columns with Corinthian capitals, and a few coatings of painted wall plaster featuring a colorful vegetal frieze. The floors and selected walls of pools were faced with marble slabs. This was evidently a luxurious complex and definitely not the only one in town to judge by the solid water channel system to which it was connected.

Nowhere in the building was a clear stratigraphy of the construction and occupation of the baths visible and the fact that the building had collapsed (*vide* brick arches from the vaults lay immediately on the floors) precludes precise dating. An analysis of the pottery finds has provided a timeframe for the operation of the complex between the first half of the 6th century and the first 30 years of the 8th century, that is, before the appearance of Islamic Early Lead Glazed wares, of which not unsurprisingly, not one sherd has been found at the site (Majcherek 2008). Arab coins already issued after the monetary reform, that is, after 686, and remaining in circulation for 750 years, confirm the continued operation of the baths after the damages incurred during the Persian occupation and the Arab invasion (Malarczyk 2008). The most intensive use of the baths occurred in the first half of the 7th century, a fact confirmed by both the pottery finds and the prevalence of coins issued by Chosroes II (Lichočka 2008).

Sāqiyah (Szymańska & Babraj 2008: 85-99)

A well operated by a *sāqiyah* stood about 5 m north of the baths. The well itself was 5 m deep, rectangular in plan and built of stone blocks (Figs. 3 & 4). The water in the



Fig. 4. Marea. Well operated with *sāqiyah*. View from the south (photo by T. Kalarus).

well came from a still functioning underground spring in its northwestern corner. The mineral content of this water is much more abundant compared to the lake water. South of the well and level with its rim, there was the floor of a reservoir made of fired bricks in waterproof mortar. The south side of this basin, which was filled with water from the well, was reinforced with a solid platform built of stone blocks. A capacious cistern closed off the complex of the *sāqiyah* to the north. It was presumably intended as a facil-

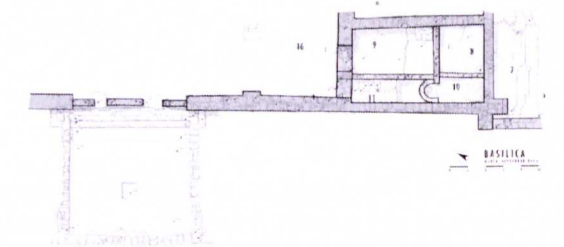
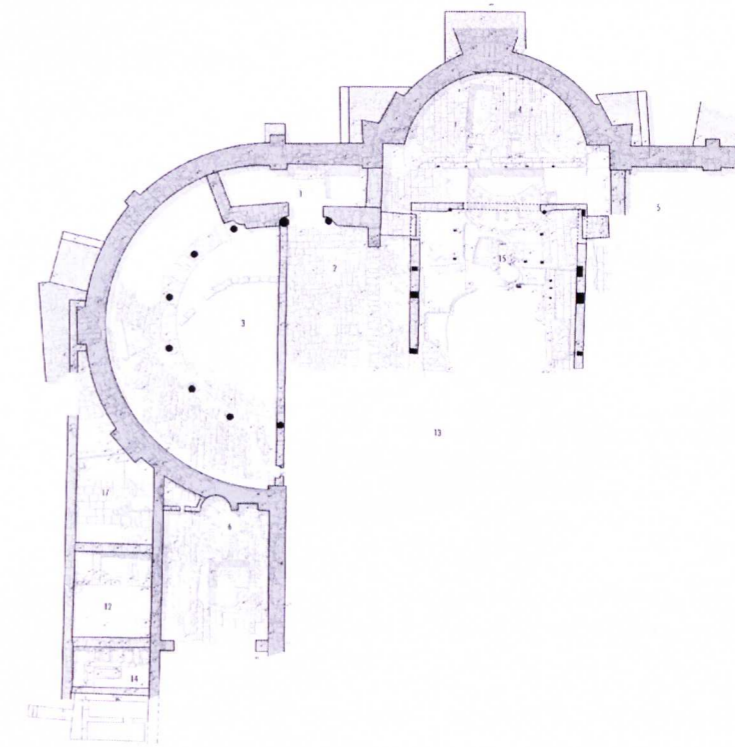
ity for collecting water in case of drought. On top of this installation was a treading circle for the animals turning the *sāqiyah* wheel. A very simple hydraulic system based on connected vessels was employed. Water was collected in the reservoir of the *sāqiyah* and carried to the baths via a system of terracotta pipes

Only one conduit reaching Basin X in the baths south of the *sāqiyah* (see Fig. 3) has been preserved by the west wall



Fig. 5. Marea. Funerary chapel. View from the west (photo P. Suszek).

Fig. 6. Marea. Plan of the basilica (drawn by D. Tarara).



of the baths (see plan in Szymańska & Babraj 2008: Fig. 1). The pipe, a fragment of which is visible under the last block of the *sāqiyah* reservoir with two blocks of the limestone bedding, ran to the north wall of the baths. The pipe turned into Room B1, which it crossed until it reached the south wall, where it was raised c. 1.50 m in order to empty into Basin X. There is every reason to believe that there were more *sāqiyahs* operating in the town complex of Marea. A ground survey of the site has identified the remains of at least one other facility of the kind in the area to the west of the baths (Szymańska & Babraj 2008: 88).

Funerary chapel (Szymańska & Babraj 2008: 177-185). One hundred meters to the south there were the ruins of a building which were identified as a funerary chapel. It was furnished with an east-oriented apse and three masonry grave chambers containing 23 burials associated with very poor grave goods (Fig. 5). They contained both genders of different age, all clearly of family character. It functioned for a little over a hundred years and consequently must have belonged to the town's inhabitants. A Gaza amphora under the floor of the apse verified a 6th century date for the construction of this complex.

Basilica (Szymańska & Babraj 2006: 107-117)

The most interesting building at the site, however, is a basilica situated on the hill near the longest harbour jetty. It was discovered by Müller-Wiener (1967: 106, n. 16), former director of excavations at the nearby sanctuary of Abu Mina. But it was Grossmann who first determined the plan and dimensions of the building in 1986 (Grossmann 1993: 107-121). Surprisingly, none of the ancient written sources mention this church, which was one of largest buildings of its type yet known in Egypt (see Grossmann 2002, *passim*).

It was a squat-shaped building, divided by columns into three aisles, furnished with a wide transept terminating in rounded arms and a relatively tiny apse (Szymańska & Babraj 2004: 53-56, 61-64, 2005, 63-67, 2005a, 43-54). The liturgical rooms were not on the outside, as was the rule at other basilicas, but incorporated into the body of the building on either side of the apse (Fig. 6) (see Grossmann 2002, *passim*). The baptistery with round baptismal font apparently remained from an earlier building, possibly a small chapel, which preceded the great basilica at the site.



Fig. 7. Marea. Apse of the basilica. View from the west. 'A' and 'b' locate the two burials (photo by T. Kalarus).

A kind of money exchange building intended presumably for pilgrims visiting the basilica, was discovered beyond the southwestern corner of the building. Rare examples of bronze weights used to verify coin weight were found inside this room (Szymańska & Babraj 2005a: 54).

Two burial chambers with multiple burials were discovered under the floor of the apse (Fig. 7, a & b). Anthropological examination identified over 100 individuals: men, women, children and even unborn children. They appear to have been buried there during the invasion of Chosroes II in AD 619 when Persian troops torched Alexandria and ravaged the region.

The rich interior decoration of the basilica included several fragmentary column shafts and Corinthian capitals deco-

rated columns of various sizes, all of them in Proconesian marble and probably imported via Alexandria. The interior decoration of the basilica also included pavement mosaics of which small marble cubes found in the building are the only surviving evidence.

Amphora Kiln (Szymańska & Babraj 2004a: 53-56, 61-64, 2004b: 26-28, 2005: 63-67).

A complete surprise awaited archaeologists digging under the church apse. At a depth of 1.80 m below the preserved tops of the walls, a grate belonging to a large amphora kiln was subsequently discovered. The part of the church intended for liturgical practices used this earlier kiln as a foundation (Fig. 8). More of the grate appeared once the floor of the burial chambers under the apse had been cleaned.

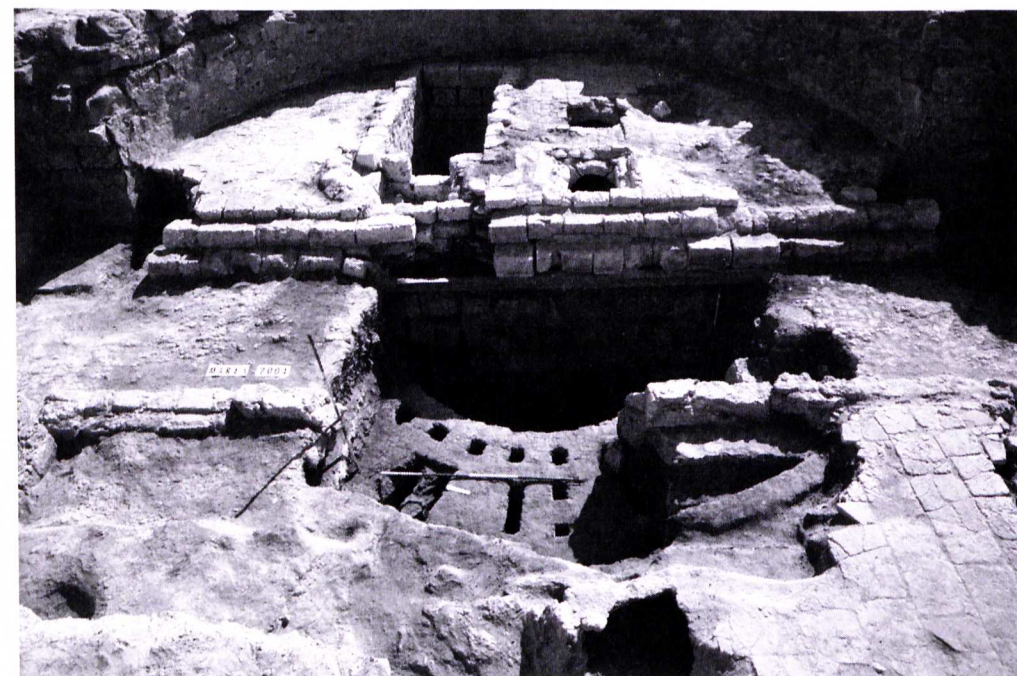


Fig. 8. Marea. Basilica. Amphora kiln. View from the west (photo by J. Kucy).

The kiln had a diameter of 8 m, and the thickness of the grate was 0.50 m. One of only a few discovered in the Nile Delta, this kiln still contained upon discovery the last batch of amphorae. These vessels were dated to the 2nd and 3rd centuries AD. The wall of the kiln still stood 0.93 m high and was built of mud-bricks. The structure of the kiln is not unlike others from the period with pillars under the grate pierced with holes to support easy circulation of hot air (El-Ashmawi 1998: 55-64).

Conclusions

The site of Marea with its Late Antique agglomeration remains a puzzle, generating considerable controversy as to its chronology and even its very name. The identification of the town ruins lying on the southern shore of Lake Mareotis, just 45 km south-west of Alexandria, is amongst the priorities of a team from the Polish Centre of Mediterranean Archaeology of Warsaw University and the Archaeological Museum in Kraków, which have conducted excavations here since 2000, based on a concession granted by the Supreme Council of Antiquities of Egypt that covers an area of 19.7 ha.

The Polish expedition has concentrated on the extant ruins, investigating the role and importance of this Byzantine town as a religious center built around a huge basilica. During nine field seasons (2000-2008), three independent architectural complexes have been investigated: the baths with *sāqiyah*-well, a funerary chapel, and the Christian basilica. All the structures were dated to the 6th (end of 5th) through early 8th centuries. A site survey included an inventory of all the ruins discernible on ground level within the limits of the SCA concession (see Fig. 1).

This large port operated in Roman and later Byzantine times and perhaps also in the Ptolemaic era. However, the question of the actual identity of the site remains still uncertain. The current excavated ruins of Byzantine date extend along the coast for 1.5 km. The great jetties are of key importance for the dating of the port. The size of the harbour installations, the small but important quantity of Early Roman potsherds, as well as huge sewage network of substantial build, indicates that a large urban agglomeration flourished on the spot from pre-Byzantine times.

Philoxenos may have founded his city prior to its abandonment as an urban center due to the silting up of the sweet-water Nile channels supplying the lake. However, evidence suggests that a site existed prior to the establishment of Philoxenite, being located next to existing harbour installations that may have been part of Marea. The recent discovery of the pottery kiln under the apse of the basilica that operated in the 2nd-3rd centuries AD, is unmistakable proof of a flourishing center existing on the spot (possibly Marea) prior to the Byzantine foundations. Perhaps this site was where the wine that Mareotis was famous for was being produced, and from here the product was being exported to other towns of the Greco-Roman world in amphorae produced at the site.

Bibliography

Ancient Sources

- Athenaeus, *The Deipnosophists*, Ch.B. Gulick (transl.), 1927. Cambridge, MA.
 Athanasios, *Apologia contra Arianos*, H.G. Opitz (transl.), 1934. Berlin, Leipzig.
 Diodorus Siculus I, *Library of History*, C.H. Oldfather (transl.), 1989. Cambridge, MA.
 Herodotus, *Book II*, A.B. Lloyd (transl.), 1976. Leiden.
History of the Patriarchs of the Coptic Church of Alexandria, Patrologia Orientalis 1.14, B.T.A. Evetts (ed.), 1904. Paris.
 Horace, *Odes and Epodes*, N. Rudd (transl.), 2004. Cambridge, MA.
 John Moschus, *Pratum Spirituale* = N.H. Baynes, 1947, *The Pratum Spirituale. Orientalia Christiana Periodica* 13: 404-414.
 Justinian, *Edict, Corpus Iuris Civilis. Codex Justinianus*, Vol. II, P. Krüger (ed.), 1877. Berlin.
 Strabo, *Geography*. In *Strabon. Le voyage en Egypte. Un regard Romaine*, J. Yoyotte & P. Charvet (transl.), 1997. Paris.
 Thucydides, *History of the Peloponnesian War*, Ch. Forster Smith (transl.), 1928. Cambridge, MA.
 Virgil, *Eclagues. Georgics*, H. Rushton Fairclough (transl.), 1999. Cambridge, MA.

Secondary Sources

- Adam, J.P., 2008, *La construction romaine*. Paris.
 Amélineau, E., (1893, reprint 1973), *Géographie de l'Égypte à l'époque copte*. Osnabrück.
 El-Ashmawi, F., 1998, Pottery Kiln and Wine-Factory at Burg el Arab. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'Ecole française d'Athènes, 11-12 décembre 1988*: 55-64. Athens, Paris.
 Babraj, K., & Szymańska, H., 2004, Die Vierte Grabungssaison in Marea, Ägypten. Grabkapelle und Basilike. *Kemet* 13.3: 61-64.
 Babraj, K., & Szymańska, H., 2005, Fünfte Grabungssaison in Marea, Ägypten: Basilika. *Kemet* 14.3: 63-67.
 Babraj, K., & Szymańska, H., 2008, *Sāqiyah*. In H. Szymańska & K. Babraj (eds.), *Byzantine Marea. Excavations in 2000-2003 and 2006, Marea*, Vol. 1: 85-99. Kraków.
 Babraj, K., & Szymańska, H., 2008, *Funerary chapel*. In H. Szymańska & K. Babraj (eds.), *Byzantine Marea. Excavations in 2000-2003 and 2006, Marea*, Vol. 1: 177-185. Kraków.
 Blue, L., & Ramses, S., 2005, Lake Mareotis Research Project – Preliminary Report from Pilot Survey August 2004. *Newsletter of the Archaeological Society of Alexandria* 15 (February): 5-16.
 Calderini, A., 1980, *Dizionario dei nomi geografici e topografici dell'Egitto Greco-Romano*, Vol. III, fasc. 3. Milano.

- De Cosson, A., 1935, *Mareotis: Being an Account of the History and Ancient Monuments of the North-West Desert of Egypt and Lake Mareotis*. London
- Décobert, Ch., 2002, Maréotide médiévale. Des Bédouins et des Chrétiens. In Ch. Décobert (ed.), *Alexandrie Médiévale 2, Études Alexandrines* 8: 127-167. Le Caire.
- Desanges, J., 1978, Périple du Pseudo-Scylax 90 F 107 M = Périple libyques, 7. In J. Desanges (ed.), *Recherches sur l'activité des Méditerranéens aus confins de l'Afrique, Collection de l'École Française de Rome* 38: 404-405. Rome.
- Drescher, J. (ed.), 1946, *Apa Mena. A Selection of Coptic Texts relating to St. Menas*. Cairo.
- Empereur, J.-Y., & Picon, M., 1998, Les ateliers d'amphores du lac Mariout. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'École française d'Athènes, 11-12 décembre 1988*: 75-91. Athens, Paris.
- El-Falaki, Mahmoud Bey, 1872, *Mémoire sur l'antique Alexandrie, ses faubourgs et et environs découverts par les fouilles, sondages, nivellement et autres recherches*. Copenhagen.
- El-Fakharani, F.A., 1983, Recent Excavation at Marea in Egypt. In G. Grimm, H. Heinen & E. Winter (eds.), *Aegyptiaca Trevernsia II, Das Römisch-Byzantinische Ägypten. Akten des internationalen Symposiums 26.-30. September 1978 in Trier*, 175-186. Mainz.
- Fraser, P.M., 1972, *Ptolemaic Alexandria*, I. Oxford.
- Gomaà, F., 1980, s.v. Kom el-Idris (Marea), *Lexicon der Ägyptologie* III: 647.
- Grossmann, P., 1993, Die Querschiffbasilika von Hauwariya-Marea und die übrigen Bauten dieses Typus' in Ägypten als Repräsentanten der verlorenen frühchristlichen Architektur Alexandriens. In N. Swelim (ed.), *In Memoriam Daoud Abdu Daoud (Bulletin de la Société Archéologique d'Alexandrie 45)*: 107-121.
- Grossmann, P., 2002, *Christliche Architektur in Ägypten*. Leiden.
- Grossmann, P., 2003, Nochmals zu Marea und Philoxenite. *Bulletin de la Société d'Archéologie Copte* 42: 13-29.
- Haas, Ch., 2001, *Alexandria and the Mareotis Region*. In S. Burns & J.W. Eadie (eds.), *Urban Centers and Rural Context in Late Antiquity*: 47-62. Ann Arbor, MI.
- Kees, H., 1930, s.v. Marea, Mareotis. *Real Encyclopedie XIV.2*: 1676-1678.
- Kucharczyk, R., 2008, Glass finds from the baths and sāqiya. In H. Szymańska & K. Babraj (eds.), *Byzantine Marea. Excavations in 2000-2003 and 2006, Marea, Vol. 1*: 129-143. Kraków.
- Lichočka, B., 2008, The early Byzantine coins. In H. Szymańska & K. Babraj (eds.), *Byzantine Marea. Excavations in 2000-2003 and 2006, Marea, Vol. 1*: 145-152. Kraków.
- Majcherek, G., 2008, The pottery assemblage from the baths and sāqiya. In H. Szymańska & K. Babraj (eds.), *Byzantine Marea. Excavations in 2000-2003 and 2006, Marea, Vol. 1*: 105-127. Kraków.
- Malarczyk, D., 2008, Ummayyad coins. In H. Szymańska & K. Babraj (eds.), *Byzantine Marea. Excavations in 2000-2003 and 2006, Marea, Vol. 1*: 153-154. Kraków.
- Martindale, J.R. (ed.), 1980, *The Prosopography of the Later Roman Empire*, II. Cambridge.
- Müller-Wiener, W., 1967, Siedlungsformen in der Mareotis. *Archäologischer Anzeiger* 82.2: 103-117.
- Mycielska-Dowgiałło, E., & Woronko, B., 2008, Evolution of the natural environment in the region of Marea. In H. Szymańska & K. Babraj (eds.), *Byzantine Marea. Excavations in 2000-2003 and 2006, Marea, Vol. 1*: 17-26. Kraków.
- Rodziewicz, M.D., 1983, Alexandria and District of Mareotis. *Graeco-Arabica* II: 199-216.
- Rodziewicz, M.D., 1988, Remarks on the Domestic and Monastic Architecture in Alexandria and Surroundings. In E.C.M. van den Brink (ed.), *The Archaeology of the Nile Delta, Proceedings of the Seminar held in Cairo, 19-22 October 1986*: 267-276. Amsterdam.
- Rodziewicz, M.D., 1995, Eco-Archaeology of Ancient Alexandria and Mareotis. In A.A. Hussein, M. Miele & S. Riad (eds.), *Proceedings of the Seminar on Geosciences and Archaeology in the Mediterranean Countries, Cairo, November 28-30/1993*: 127-139. Cairo.
- Rodziewicz, M.D., 1998, From Alexandria to the West. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'École française d'Athènes, 11-12 décembre 1988*: 93-103. Athens, Paris.
- Rodziewicz, M.D., 2002, *Mareotis Harbours*. In Ch. Décobert (ed.), *Alexandrie Médiévale 2, Études Alexandrines* 8: 1-22. Le Caire.
- Rodziewicz, M.D., 2003, Philoxenité – Pilgrimage Harbor of Abu Mina. *Bulletin de la Société Archéologique d'Alexandrie* 47: 27-47.
- Szymańska, H., & Babraj, K., 2004a, Marea. Fourth season of excavations, 2003. *Polish Archaeology in Mediterranean* XV: 53-63.
- Szymańska, H., & Babraj, K., 2004b, The ancient port of Marea, Egypt. Four seasons of excavations by the Polish Archaeological Mission. *Minerva* (April 2004): 26-28.
- Szymańska, H., & Babraj, K., 2005, Fouilles archéologiques de Marea en Égypte. Saisons 2002-2003. *Archéologia* LV: 119-130.
- Szymańska, H., & Babraj, K., 2005a, Marea. Fifth Season of Excavations, 2004. *Polish Archaeology in Mediterranean* XVI: 43-54.
- Szymańska, H., & Babraj, K., 2006, Polish Excavations in the Basilica at Marea (Egypt). *Bulletin de la Société Archéologique d'Alexandrie* 45: 107-117.
- Szymańska, H., & Babraj, K., 2008, *Baths*. In H. Szymańska & K. Babraj (eds.), *Byzantine Marea. Excavations in 2000-2003 and 2006, Marea, Vol. 1*: 27-83. Kraków.
- Szymańska, H., & Babraj, K. (eds.), 2008, *Byzantine Marea. Excavations in 2000-2003 & 2006, Marea, I*. Kraków.
- Timm, S., 1984, *Das christlich-koptische Ägypten in arabischer Zeit*. Wiesbaden.
- Timm, S., 1988, Teil 4 (M - P), Reihe B (Geisteswissenschaften) No. 41/4, Wiesbaden.
- Warne, A.G., & Stanley, D.J., 1993, Late Quaternary Evolution of the Northwest Nile Delta and Adjacent Coast in the Alexandria Region, Egypt. *Journal of Coastal Research* 9.1: 26-64.
- Winnicki, J.K., 2006, Der libysche Stamm der Bakaler in pharaonischen, persischen und ptolemäischen Ägypten. *Ancient Society* 36: 135-142.
- Wipszycka, E., 2008, *Remarques sur l'identification de Philoxenité à la lumière de fouilles récentes*. Paper delivered at the Third Conference on Medieval Alexandria at the Centre culturel français in Alexandria, 8-10 November, 2002 (unpub.).

Waterfront Installations and Maritime Activities in the Mareotic Region

Emad Khalil

Introduction

Lake Mareotis represents one of the most distinctive geomorphic features in the north-west coastal region of Egypt. In antiquity, it was fed by means of a number of canals, which bifurcated off the Nile's defunct Canopic Branch, and flowed into the southern and eastern sides of the lake (Fig. 1). Some of these canals were navigable, which enabled merchandise to be transported to and from the hinterland. By the Greco-Roman period the lake was also connected to the sea through a navigable canal that debouched at Alexandria (Strabo 17.1.7). Its connection to both the Nile and the sea resulted in Mareotis becoming a vital conduit of communication in Egypt's internal transport system. Moreover, it supported around its shores various agricultural activities and embraced major production centres for different industries, which contributed significantly to the economy of Alexandria and to Egypt as a whole. Accordingly, this paper will look at the role that Lake Mareotis played in the 'maritime' transport system of Greco-Roman Egypt. It will also examine the types and nature of the maritime and waterfront installations that were recorded along the shores of the lake and the possible spatial and functional relationship between the different sites.

The Lake Mareotis Research Project

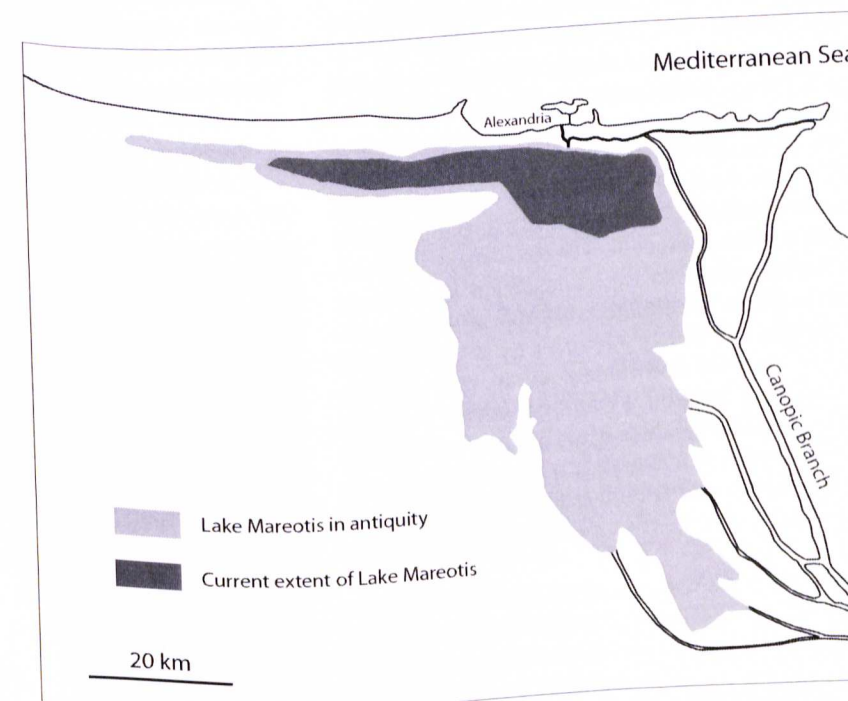
Much evidence indicates that Lake Mareotis extended in antiquity for about 50 km south and west of Alexandria

(Strabo 17.1.14; Pliny 5.11.63). It comprised a main tangular body of water which merged to the east and south with the Nile Delta Plain, and a narrow arm that extended westwards parallel to the northern coast. However, during the past two millennia Lake Mareotis has undergone dramatic changes which significantly affected its size and nature. Nonetheless, the western extremities of the lake still reflect the original extant remains, and form an arm, known as the Mareotic Arm, that extends some 40 km west of Alexandria and is 2-3 km wide and is separated from the lake's main body by causeways and shallows. It also contains an island, Mareotis Island, which is 3.7 km long and about 680 m at its widest point (see both Blue and Holmson this volume).

Archaeological investigation of the western Mareotic region has been ongoing for several decades; however, previous research has been largely limited to specific areas and specific issues such as work on the Byzantine port of Mareotis (Philoxenité (Petrucci & Gabel 1982; El-Fakharani & Rodziewicz 2003), and work on amphorae and wine production (Empereur & Picon 1986, 1998) and on the industries of the Mareotic region (Rodziewicz 1998b).

Since 2004 the Centre for Maritime Archaeology (CMA) of the University of Southampton, in collaboration with the Department of Underwater Antiquities (DUA)

Fig. 1: The approximate ancient and present limits of Lake Mareotis (E. Khalil).



1. The term 'maritime' is used in this sense to denote all aspects of waterborne activity and communication from the sea, across the lake, along the canals and on the Nile River.

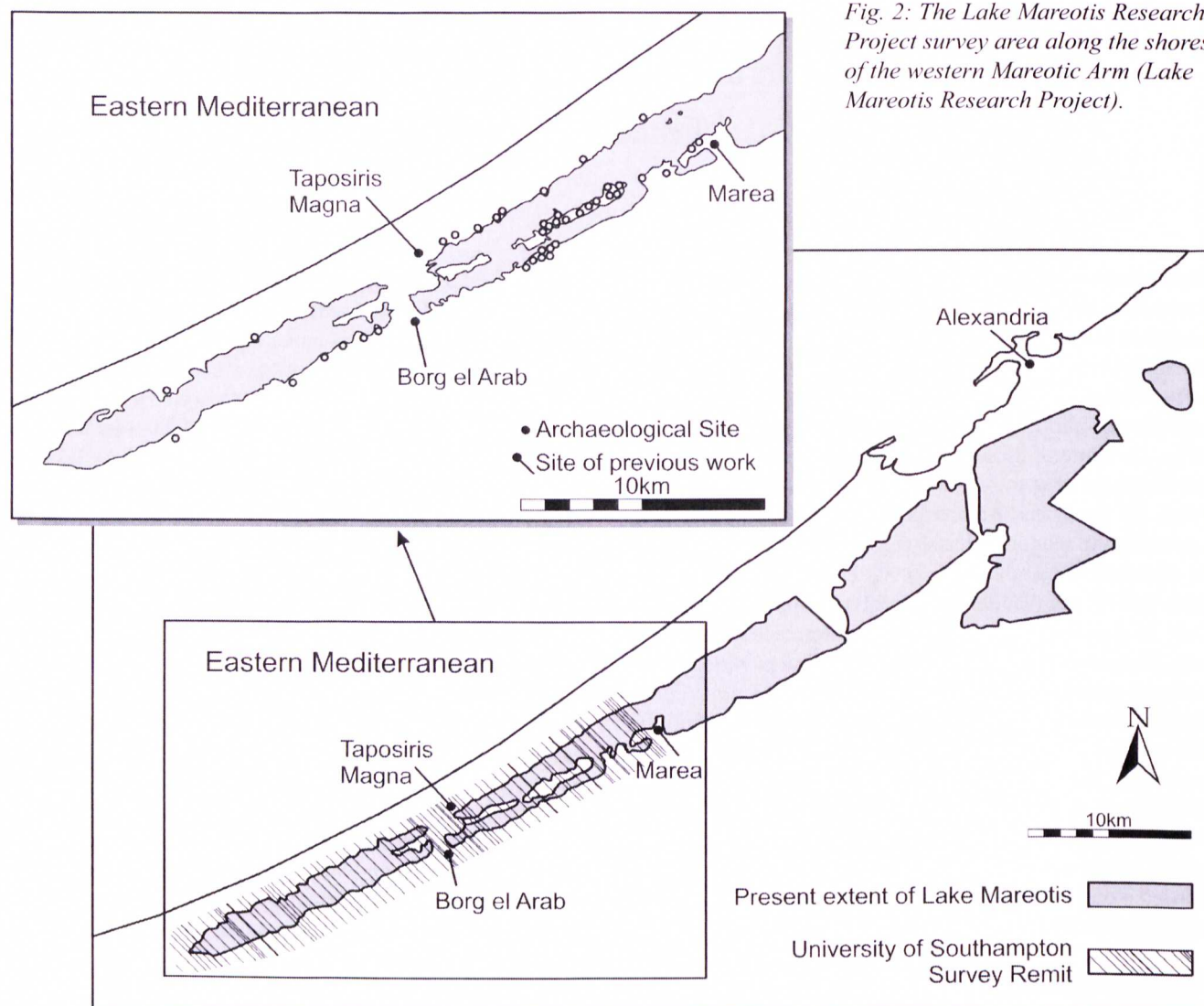


Fig. 2: The Lake Mareotis Research Project survey area along the shores of the western Mareotic Arm (Lake Mareotis Research Project).

Egyptian Supreme Council of Antiquities (SCA), has conducted a comprehensive archaeological survey along the shores of western arm of Lake Mareotis (see Blue this volume). The survey revealed a wealth of archaeological sites including numerous settlements of a maritime and industrial nature, which reflect the economic activities that took place in the Mareotic region (Fig. 2). Most of the archaeological sites recorded along the shores of the Mareotic Arm are located between Marea/Philoxenité and Taposiris Magna, with a concentration on Mareotis Island. The sites identified include maritime structures, such as harbours, jetties and quays, in addition to what appear to be waterfront warehouses and storage facilities. Sites pertaining to industrial activities are also evident and include amphora kilns, ceramic slag and kiln wasters, as well as a number of structures relating to water management, such as cisterns, wells and water wheels (*sakkia*). This correlates with much archaeological and textual evidence for viticulture and wine production in the region (Rodziewicz 1998b).

The dating of the sites discovered relies primarily on the ceramic assemblages collected during the survey. Accordingly it was realised that the majority of sites date from the Hellenistic period until the 7th century.

Waterfront Sites in the Mareotic Region

The waterfront sites that were recorded along the shores of the western Mareotic Arm and on Mareotis Island can be classified into four categories:

1 - Harbours; in the form of harbour complexes of significant design and constitute substantial structures. However, the only two sites that fit this description are Marea/Philoxenité and Taposiris Magna. The complexity and magnitude of their structures are unrepresented elsewhere in the entire Mareotic region. The two harbours date, however, to quite different periods. Taposiris Magna is essentially Hellenistic in date (see Boussac & El Amouri this volume), while Marea/Philoxenité mostly dates to the Late Roman period (see Haggag, Pichot, Rodziewicz and Babraj & Szymańska this volume). However, the two harbours are associated with relatively large towns, and much historical and archaeological evidence indicates that these two towns were probably among the largest and most active along the shores of Lake Mareotis in antiquity.

Taposiris Magna has extensive archaeological remains that date from the Hellenistic to the Late Roman period, including evidence for thriving maritime and commercial

activities (El-Fakharani 1974; Empeur 1998: 225-7; Rodziewicz 1998a; Boussac & El Amouri this volume). The town which is located on the northern shore of the western sub-basin of the lake has one of the best preserved harbours in Lake Mareotis (see Boussac & El Amouri this volume). Commercial activities in Taposiris Magna were mainly focused on handling products transported across the lake as well as receiving goods arriving from the west through overland routes, and shipping them to Alexandria (Empeur 1998: 225). Under the Romans, Taposiris Magna was a customs station where duties were levied on products coming from the Mareotic region and from Cyrenaica heading east towards Alexandria or to the Nile Delta (Empeur 1998: 225-7; Vörös 2001: 15-6). Alternatively, river vessels could have travelled on the lake through the harbour of Taposiris Magna to the west as far as the lake extended.

The harbour of Taposiris Magna was constructed to control the movement of vessels travelling through it. This was achieved by digging a channel c. 1,700 m long and 50 m wide parallel to the northern shore of the lake. The spoil resulting from the digging was piled up to form an artificial ridge which delimits the channel from the south. At the western end of the channel stood a limestone structure that took the form of a double-opening gate or bridge, through which all boats wishing to go through Taposiris Magna had to pass (Empeur 1998: 225-7; Rodziewicz 1998a: 102, n. 32; Vörös 2001: 15-6) (see Figs. 5-7 in Boussac & El Amouri, this volume). The total width of the gate is about 8.3 m, however, it is divided by a 1.2 m thick wall into two openings; one is 4.1 m wide and the other one is 3 m wide, thus indicative of the maximum possible width of the vessels that passed through. The eastern entrance of the channel is partially obstructed by a quay which is c. 230 m long extending from north to south perpendicular to the shoreline. The distance between the southern end of the quay and the eastern end of the artificial ridge, c. 100 m, forms the eastern entrance of this semi-closed harbour basin of Taposiris Magna. The eastern quay of the harbour includes at least two de-silting open-

Fig. 3: Taposiris Magna tower (photo: E. Khalil).



ings to allow water to flush away the silt and sediments that might accumulate in the harbour basin.

This arrangement was supplemented by the construction of a 1,700 m long wall that extends southwards from the artificial ridge to the southern shore of the lake. It was also supplemented by the construction of a solid limestone wall that extended from the northern shores of the lake to the seashore. This wall ensured that even caravans travelling overland had to go through the town of Taposiris Magna (see Fig. 1 in Boussac & El Amouri this volume) (De Cosson 1935: 111; Rodziewicz 1990: 72-4).

Another prominent structure in Taposiris Magna is a 17 m high tower that stands on the coastal ridge to the north of the harbour over looking the Mediterranean coast to the north and the lake to the south (Kadous 2001: 457-60). The function of the tower and its relation with the town and harbour of Taposiris Magna is disputed (El-Fakharani 1974; Vörös 2001: 37). Nonetheless, it is generally accepted that the tower, which represents a 1:4 or 1:5 replica of the Pharos lighthouse of Alexandria, was in fact a funerary monument for a Hellenistic necropolis that occupied the area around and below the tower (Empeur 1998: 225). The utilisation of such a structure as a landmark by navigators on both the sea and the lake is a possibility that cannot be overlooked (Fig. 3)

As a result of the recent excavation of the area, it is now believed that the digging of the channel as well as the construction of this harbour system, took place during the Early Roman period rather than during the Hellenistic period, as was previously believed (El-Fakharani 1974; Boussac & El-Amouri this volume). Although the northern shoreline at Taposiris Magna was occupied during the Hellenistic period, as evidenced by houses and shops from the 2nd and 1st century BC, it seems that it was abandoned by the end of the Hellenistic period as a result of a rise in the lake level. The flooded area was then excavated in the Roman period to create the closed harbour system (see Boussac & El Amouri this volume).

Marea/Philoxenité is located about 15 km east of Taposiris Magna, on the southern shore of the lake. El-Falaki (1966: 96) identified this settlement and its associated harbour as the town of Marea, the capital of the Mareotic region. According to Herodotus (2.31), Marea was a post of Egyptian soldiers guarding the Libyan border during the time of King Psammetichus of the 26th Dynasty (Rodziewicz 2003: 27). In the Ptolemaic and Roman periods, Marea functioned as a major trade centre, second only to Alexandria. In the Byzantine period, in addition to its involvement in commercial activities and internal trade, Marea flourished as a stopover for pilgrims heading to the holy Byzantine shrine of St. Minas (Abu Mina), 20 km south of the lake (Gabel & Petruso 1980; Kucharczyk 2002; Rodziewicz 2003). Until recently, most archaeological research carried out in the area has revealed no evidence earlier than the 5th century AD. However, recent archaeological investigation at Marea has revealed material



Fig. 4: The middle quay of the harbour of Marea (photo: E. Khalil).

from the Hellenistic and Roman periods (see both Pichot and Babraj & Szymańska this volume).

Amongst the most significant archaeological remains in Marea are four quays that extend into the lake and divide the 1.5 km long shoreline into eastern, central and western harbour basins (Figs. 4 & 5). The dimensions of the quays from west to east are: 41 m x 6.5 m, 111 m x 5 m, 125 m x 7 m, and 35 m x 4 m (Szymańska & Babraj 2008: 11-15). Judging from the construction technique of the quays at Marea, in which large regular limestone blocks (1 m x 0.5 m x 0.03 m) were used for their construction, it seems reasonable to suggest that the four quays were constructed earlier than the Byzantine city. However, they were probably subject to several building phases in subsequent periods since evidence of Byzantine hydraulic mortar (*opus signinum*) can still be seen between many of the building blocks of the quays.



Fig. 5: The quay of Marea harbour was made of large regular limestone blocks without evidence of the use of mortar (photo: E. Khalil).

Excavations on the peninsula at the easternmost part of Marea, resulted in the discovery of a large Early Roman building which consists of a courtyard surrounded by numerous rooms of relatively similar size. The building is connected to a quay to the north through stairways cut into the rock. Therefore, it has been suggested that the building could have been used for storage and trade. The remains of 1st century BC to 1st century AD workshops for metalwork were also discovered on the peninsula (see Pichot this volume). The recent archaeological discoveries at Marea, particularly of pottery and coins, would indicate that the area was thriving before the 5th century and possibly as early as the Hellenistic period

2 - The second category of waterfront sites that was recorded along the shores of the western Mareotic Arm consists of different types of **anchorage facilities** such as quays and jetties, which form the majority of maritime



Fig. 6: The box-shaped harbour on the southern shore of Lake Mareotis (photo: Lake Mareotis Research Project).

installations in the region. More than ten different anchorage facilities were recorded on the northern and southern shores of the lake and on the northern shore of Mareotis Island. Possibly the most substantial of them is a Kibotos or box-shaped harbour (Site 09) which is located at the end of a promontory on the southern shore of the lake, about 2 km to the west of the Sidi Kerir-Borg El Arab road. The harbour, which is constructed of large limestone blocks, consists of two parallel moles enclosing an area some 60 m long (N to S) and 36 m (E to W) wide (Fig. 6). The eastern mole is 60 m long and at its northern extremity it returns to the west for a distance of 12 m, while the western mole, which is less well preserved, extends for 40 m and returns to the east at the northern end for a distance of some 6 m. A gap of 18 m between the two ends of the two moles equates to the entrance of the harbour on the north side. The moles are constructed of up to three courses of single and double breadth limestone blocks. Although the dating for this harbour is still uncertain, judging from its construction technique and from the large size of blocks used (c. 1.10 x 0.7 x 0.5 m), it seems that the harbour is pre-Roman in date. However, the existence of lumps of coarse red mortar *opus signinum* with lime inclusions between some of the blocks indicate that it remained in use at least until the Byzantine period. One carved mooring ring was noted on the upper course of one of the blocks, which would have helped facilitate the mooring of vessels to the outside of the harbour (El-Fakharani 1984; Blue & Ramses 2006).

With the exception of this square harbour on the southern shore of the lake, all the other anchorage facilities along the shores of the lake take the form of jetties and quays that extend into the water perpendicular to the shore (Fig. 7). The technique used for the construction of most of the quays was building two parallel single or double breadth piers of limestone and filling the distance between them with rubble. With the exception of the substantial structures already noted at Marea/Philoxenitè and Taposiris Magna the two most substantial anchorages are located on the northern shore of the lake opposite Mareotis Island.

They are Sites 204 (Gamal) and 208 (Quseir). The jetties at each of these sites, which are located approximately 2 km apart, are about 50 m long and 8 m wide. Evidence of red mortar *opus signinum* is noted between some of the blocks. Also the jetty at Site 208 (Quseir) had mooring stones extending from the upper course of blocks at the eastern side (the lee side) of the quay.

Other jetty-like features, although not as substantial, are located along the southern shore of the lake and the northern shore of the Mareotis Island. However, it was realised during the survey that the anchorage facilities along the northern shore of the lake are mostly associated with civic and residential sites, while those along the southern shore of the lake, particularly on Mareotis Island, are associated with sites of a commercial nature. The dating of these sites based on ceramic collections is quite problematic since the jetties are continuously washed by water in the winter, which, in many cases, does not leave any ceramics to be dated. However, judging from the ceramics dated from adjacent sites, it was realised that most of the sites could have been used for quite a long period of time, probably from the Hellenistic to the Late Roman or Byzantine period.

3 - The third type of maritime installation identified can be described as **seawalls** or more accurately **lake walls**. Unlike the jetties, which are perpendicular to the shore, lake walls parallel the shore and they were intended to define the shores and protect them from the effects of silting and sedimentation (Fig. 8). At least five lake walls were discovered in the survey region. These kinds of structures are mainly found along the southern shore of the lake and the northern shore of Mareotis Island, those shorelines most subject to silting and the deposition of sediments as a result of the prevailing northwest winds that would carry sediment from the coastal ridges and deposit it into the lake. Besides acting as a form of protection against silting, the lake walls could also have been utilised as docking facilities for merchant vessels. Another possible function for such structures was to retain rainwater for use in agricultural purposes.



Fig. 7: One of the quays extending into the lake at the northern shore of Mareotis western arm (photo: Lake Mareotis Research Project).

Fig. 8: (below) A lake wall extending parallel to the southern shore of the lake. Evidence for red mortar (opus signinum) can still be seen between the blocks (photo: Lake Mareotis Research Project).



The longest of these lake walls is located on the north shore at the western end of Mareotis Island (Site 21). It is c. 245 m long and 1 m wide and is constructed of a series of limestone blocks laid as stretchers along the lake edge (see Hopkinson this volume). Other examples include a wall located in the middle of the island on the north shore, the extant remains of which extended some 70 m in length and was made of one course of large limestone blocks of 0.60 m x 0.30 m x 0.25 m dimension, that were arranged as headers facing the shoreline (Site 123). Similarly, on the southern shore of the lake further substantial walls of over 250 m in length were identified at both Sites 109 and 44.

4 - The fourth and final type of waterfront structures does not necessarily have a maritime function. At a number of sites in the survey region the remains of several **multi room buildings** were recorded very close to the present waterline. Some structures even extend into the water (Fig. 9). Examples of this type of structure are found in Sites 117, 118 and 119 which are located at the north-eastern shore of the island. At Site 117 there are the remains of a multi-roomed building that measures 12 m EW x 17 m NS which is divided on the inside into at least four smaller rooms. Site 118, about 25 m west of Site 117, contains the remains of at least two multi-roomed structures which measure 18 m EW x 15 m NS and 20 m EW x 20 m NS. Each of them contains the remains of numerous walls which belonged to a number of internal rooms of different shapes and sizes.

About 40 m to the west of Site 118, a further Site 119 contains the remains of a rectangular building that extends from the shoreline southwards for about 40 m and measures about 25 m EW. Limited excavation carried out in the middle section of this building revealed the remains of two



Fig. 9: Some of the multi-room square buildings located at Site 118 along the northern shore of the Mareotis Island. The buildings could have been used for storage purposes (image: Lake Mareotis Research Project).

significant structures. The first structure is a rectangular enclosure that measures c. 9 m x 4.5 m that contained two rooms. Both rooms have almost the same dimension c. 3 m EW x 2.7 m NS. The second structure constructed on the same alignment as the first and adjacent to it to the west, is a rectangular building that measures c. 2.5 m NS and at least 5 m EW, in which remains of imported Hellenistic amphorae were discovered.

Accordingly, it seems reasonable to suggest that this type of waterfront structure were used as storage facilities for different merchandise and products that were traded along the Mareotic Arm.

By examining the remains of these structures, particularly on Mareotis Island, it becomes evident that they have undergone construction phases over successive periods. Moreover, it seems that the sections of the structures closest to the waterline were subject to accumulated sediments, and hence had to be rebuilt. In other words the different phases of building and modification of structures could be the result of adapting to changes in the waterline.

Relations and Significance

By looking at the distribution of archaeological sites in general and maritime sites in particular along the shores of the Mareotic Arm, it becomes evident that not only is there an apparent concentration of sites in the area between

Marea and Taposiris Magna, only a distance of some 15 km, but out of a total of more than ninety archaeological sites recorded along the shores of the Mareotic Arm west of Alexandria, only four substantial sites were recorded to the west of Taposiris Magna. Thus, judging from the nature and extent of these sites, it is evident that the navigable limits of Lake Mareotis in antiquity extended west of Taposiris Magna for at least 12 km.

Likewise, it is noticeable that maritime installations located on the southern shore of the lake from Marea to the eastern end of Mareotis Island, are in fact located on a ridge that extends for about 800 m from the present southern shoreline to the west. It is noteworthy that no sites were recorded on the southern shore of the lake opposite this ridge. This actually raises a question about the nature of the area between the ridge and the southern shore of the lake, and whether or not it was actually land in antiquity, that has subsequently been artificially excavated or subject to inundation due to the changes in ground water level (see Flaax forthcoming). Similarly, all the archaeological sites of a maritime nature that were recorded on Mareotis Island, where located along its northern shore, with essentially no evidence for sites either on the southern shore of the island or on the northern shore of the lake opposite. This also raises a question about the nature of this island and whether or not it was actually an island in antiquity.

The different nature of maritime installations located along the northern shore of the lake and those along the southern shore and on Mareotis Island, is also noteworthy. As mentioned earlier, maritime installations such as quays and jetties located the northern shore of the lake are mostly associated with large tell sites of a civic and residential nature. These tells were up to 60,000 m² in area, and were densely occupied. They are mainly covered with building stones and the foundations of buildings, as well as the remains of several wells, cisterns and red brick basins lined with *opus signinum*, which could have been used in baths, houses or other urban structures. However, the situation on the southern shore is quite different since the southern shore is where most industrial and commercial sites were recorded, and hence maritime installations were mostly associated with those sites.

In antiquity, almost all the amphora and wine production sites in the region, as well as *sakkia* installations (Empereur & Picon 1998; Rodziewicz 1998b; see also the individual contributions of Blue, Hopkinson and Dzierzbicka this volume), were located on the southern shore of the lake, the focus of agricultural and industrial activities. The reason that agricultural and industrial activities were concentrated on the southern shores of the Mareotic Arm is mainly due to the difference in the topography between the northern and southern shores of the lake. The western arm of Lake Mareotis is delimited from the north and the south by two limestone carbonate ridges, of average elevation 25–35 m and average width 300 m (Said 1990: 499; Warne & Stanley 1993; El-Raey, et al. 1995: 191; Frihy, et al. 1996: 282). The northern ridge is known as the Abusir Ridge, and to the south a longitudinal depression 3–4 km wide known as Al-Alamein-Maryut Depression, extends roughly E-W, partly occupied by the western arm of Lake Mareotis. This depression is delimited to the south by another coastal ridge, known as Gebel Maryut Ridge, which is located 5–9 km south of the Abusir Ridge.

Accordingly, the distance between the Gebel Maryut Ridge and the southern shore of the lake is far greater than the distance between the Abusir Ridge and the northern shore of the lake. In antiquity, the area south of the lake was a fertile plain that flourished with agricultural activities and was known for the quality of its vines, olives and fruits as well as for the cultivation of flax and papyrus (Athenaeus 1.33.d-e; Pliny 13.22.71; Strabo 17.1.14; Empereur & Picon 1998; Horden & Purcell 2002: 353; McGovern 2003: 121–3). Moreover, the abundance of calcareous clay, particularly suitable for amphora production, resulted in a thriving large-scale amphora industry along the southern shore of the lake (Empereur & Picon 1986: 103–9, 1992, 1998; Rodziewicz 1998; Blue & Ramses 2007). Thus, the focus of wine and amphora production in Hellenistic and Roman times was the southern shores of the Mareotic Arm. Thus, it is reasonable to suggest that those maritime installations located along the southern shore of the lake were very much involved in commercial activities including the transport of Mareotic products to Alexandria and possibly also to the southern limits of the lake.

Navigation in Lake Mareotis

In the 1st century BC, when speaking about the water supply for Lake Mareotis, Strabo (17.1.7) mentions that it is "...filled by many canals from the Nile, both from above and on the sides, and through these canals the imports are much larger than those from the sea, so that the harbour on the lake was in fact richer than that on the sea". On another occasion (Strabo 17.1.22) speaks of "...several canals, which empty into Lake Mareotis". As a result, it has been assumed that there was intense maritime traffic passing through the lake carrying various products and cargoes to Alexandria. Merchandise which would have been transported to Alexandria for local consumption and for transshipment to other Mediterranean harbours would have included Egyptian products such as papyrus, textile and grain (Rickman 1971: 300–6, 1980: 231–5; Lewis 1983: 165–7), as well as quarried stones from the Eastern Desert (Peacock 1992: 5–7; 2002: 426–7). It would have also included products imported via the Red Sea from India, Arabia and East Africa such as spices, tortoiseshell, frankincense, ivory, cotton, silk and gems (Strabo 2.5.12; Casson 1991: 200–212; Peacock 2002: 432–3). At the same time, Alexandria was receiving from the Mediterranean, for local consumption and for transshipment to the south, various products such as wine, oil, fine pottery, glass, timber, copper and tin. Yet, the role that Lake Mareotis played in this internal transport system is somewhat unclear.

Although it is well known that Lake Mareotis was fed by means of a number of canals, which branched off the Canopic Branch, and flowed into the southern and eastern reaches of the lake, there is a considerable degree of uncertainty about the exact number, location and the routes of these canals. However, the most important of these canals was Schedia Canal (see Bergmann, Heinzelmann & Martin this volume) It bifurcated off the Canopic Branch of the Nile at the town of Schedia, originally a Hellenistic foundation that was later known as Chaereu, currently located in the region of the villages of Kom El-Giza, Kom El-Nashw and Kom El-Hamam, some 30 km south-east of Alexandria (Bergmann & Heinzelmann 2004). While the Canopic Branch continued north to debouch into the Canopic Bay (Abukir Bay), the Schedia Canal turned north-west towards Alexandria and followed a course close to the present course of the Al-Mahmoudeyah Canal. In a statement by Strabo (17.1.16) in which he describes the for paying duty on the goods brought down from above it and brought up from below it; and for this purpose, also, a schedia (float) has been laid across the river, from which the place has its name". Accordingly, Schedia was east of Alexandria, where custom duties were imposed on imported and exported goods (Empereur 1998: 225; Bergmann & Heinzelmann 2004). Moreover, it seems that the of a pontoon that prevented boats from sailing past it until duties were paid on merchandise travelling both ways. Additionally, it was at Schedia where exported commodities

brought from upriver were transferred from large Nile boats to smaller boats that could travel easily through the canals to Alexandria (Procopius 6.1.3; Hassan 1997: 365 n. 13).

As it approached Alexandria, the Schedia Canal bifurcated into two branches in the Alexandrian suburb of Eleusis (El-Nozha). The first branch turned towards the north-east leading to Canopus, east of Alexandria, while the other branch continued south of Alexandria and parallel to the lake's northern shore, until it debouched into Lake Mareotis south-east of Alexandria. According to Strabo (17.1.7), boats also sailed from the Nile to the Canopic Branch and through the network of canals that fed the lake from the south and east, then across the lake northwards to Alexandria. This indicates that navigation on Lake Mareotis was intense and operated in many directions. It also raises a point about the practicalities of sailing in Lake Mareotis from south to north against the prevailing north-westerly wind. The predominant winds along the north coast of Egypt are north-westerly and they prevail more than 40% of the time throughout the year and more than 70% of the time during the summer sailing season (El-Zouka 1979: 125–7; El-Gindy 1999: 17). Accordingly, merchant vessels sailing in Lake Mareotis from south to north would have faced a direct headwind, which meant that the boats had to tack in order to reach Alexandria. Tacking in Lake Mareotis was possible considering the large area of the water body; however, tacking from the southern limits of the lake to Alexandria would have meant that boats would have to travel several times the direct distance across a water body full of shallows and marshlands and against prevailing winds. In the 5th century St. Palladius (7.1) mentioned that he sailed across Lake Mareotis from north to south, from Alexandria to the monastic settlement of Mount Nitria, a distance of about 50 km, in a day and half. Accordingly, sailing in the lake in the opposite direction would have taken much longer, possibly as long as four to five days.

Furthermore, the extended period of travel across the lake would have laid boats vulnerable to another challenge that prevailed on Lake Mareotis in antiquity. Achilles Tattius (4.12) in the 2nd century and Heliodorus (1:14) in the 3rd century, spoke of piracy and bandits on Lake Mareotis. The marshes and islands of the lake provided excellent hideouts for groups of bandits and their vessels. Also, the large size of the lake made it quite difficult to guard and control, therefore, it is possible that sailing across the lake with valuable commodities was quite risky.

Moreover, settlements located on the southern and eastern shores of Lake Mareotis were far more susceptible to sedimentation from silts deposited via the nearby Canopic Branch of the Nile, particularly during flood seasons, as well as sediment which had been carried by the prevailing winds across the lake from the north-west to the south-east. All this would have contributed to the build up of sediments against the southern and eastern shores of the lake, thus preventing settlements in this region from being as actively involved in across lake transportation. Con-

sequently, the lake's southern and eastern shoreline was unstable and subject to constant change, and was therefore unsuitable for the establishment of substantial harbours and waterfront installations. A recent survey conducted along the ancient southern and eastern limits of the lake (Wilson 2007; see Wilson this volume) revealed that most settlements established in this area during the Ptolemaic and Roman periods, were located on high ground around the lake's edge. Also it revealed that many settlements were involved in agriculture and industrial activities mainly in the service of Alexandria. However, as yet there is no evidence for substantial maritime structures or significant waterfront installations.

Conclusion

There were two ways for river vessels to travel to and from Alexandria, either across the lake, or along the Schedia Canal. Considering the arguments outlined above, particularly in relation to the prevailing winds, it seems reasonable to suggest that the main northbound traffic probably went via the Canopic Branch and the Schedia Canal, rather than across the lake. However, sailing south across the lake would have been conducted with considerable ease. Along those stretches of the canal where boats had to manoeuvre against the wind, they could have been towed along from the shore, a standard procedure for moving river boats in rivers and canals around the world.

In that respect, Strabo's statement (17.1.7) about the lake harbour south of Alexandria being richer than the seaport of Alexandria, would still be valid. At the time of Strabo, the Schedia Canal debouched into Lake Mareotis, so all the canal traffic had to pass through the lake. Moreover, boats coming from the western arm of the lake also arrived at the lake harbour. Therefore, it is possible that the lake harbour was quite busy receiving river vessels from the south as well as from the west. At the same time, it is not unreasonable to suggest that east-west commercial traffic along the western Mareotic Arm was probably more intense and more regular than the north-south traffic that passed through the main body of the lake. Recent archaeological investigation in the Mareotic region have revealed that the number, nature and extent of archaeological sites along the shores of the Mareotic Arm, is unparalleled anywhere else in the Western Deltaic Region (see Blue this volume). Settlements in this region were located far from the silting effects of the Nile sediments, the coastline was more stable, prevailing winds were more favourable for east-west movement, and settlements were in close proximity to Alexandria. Therefore, it is understandable why so many shoreline settlements and associated maritime installations were established along its shores. Thus, the contribution of the western Mareotic Arm to the economy of ancient Alexandria and hence of Egypt as a whole, was probably far more significant than any other area along the shores of Lake Mareotis. Thus, the shores of the western arm of Lake Mareotis appear to have been one of the most active areas of economic activity in the Western Deltaic region during the Hellenistic, Roman and Byzantine periods.

Bibliography

- Achilles Tattius, *The Adventures of Leucippe and Clitophon*, S. Gaselee (transl.), 1969. London.
- Athenaeus, *Deipnosophistae*, C.B. Gulick (transl.), 1953. London.
- Bergmann, M., & Heinzmann, M., 2004, *Schedia (Kom el-Gizah & Kom el-Hamam, Department of Beheira) Report on the documentation and excavation season. 18 March – 18 April 2003*. Paper presented at conference on Alexandria in Antiquity, University of Oxford, December 2004.
- Blue, L., & Ramses, S., 2006, *Lake Mareotis Research Project*. Report submitted to the Egyptian Supreme Council for Antiquities on the fieldwork and results of the September 2006 field season.
- Blue, L., & Ramses, S., 2007, *Lake Mareotis Research Project*. Report submitted to the Egyptian Supreme Council for Antiquities on the fieldwork and results of the May & July/August 2007 field seasons.
- Casson, L., 1991, *The Ancient Mariners*. Princeton.
- De Cosson, A., 1935, *Mareotis: Being an Account of the History and Ancient Monuments of the North-West Desert of Egypt and Lake Mareotis*. London
- El-Ashmawi, F., 1998, Pottery Kiln and Wine Factory at Burg El-Arab. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'Ecole française d'Athènes, 11-12 décembre 1988*: 55-64. Athens, Paris.
- El-Fakharani, F., 1974, The Lighthouse of Abusir in Egypt. *Harvard Studies in Classical Philology* 78: 257-272.
- El-Fakharani, F., 1983, Recent Excavation at Marea in Egypt. In G. Grimm, H. Heinen & E. Winter (eds.), *Aegyptiaca Trevernsia II, Das Römisch-Byzantinische Ägypten. Akten des internationalen Symposiums 26.-30. September 1978 in Trier*, 175-186. Mainz.
- El-Falaki, M.S., 1966, *Ancient Alexandria. Alexandria: Dar Nashr Al-Thaqaifa (رسالة عن الإسكندرية القديمة)*, M.B. Astronome (transl.), 1872. Copenhagen.
- El-Gindy, A., 1999, Meteorological and Hydrodynamic Conditions in the Eastern Harbour of Alexandria and its Vicinity. In Y. Halim (ed.), *Proceedings of the Workshop on the Status of Pilot Project for the Sustainable Development of the Submarine Archaeological Sites at Qayetbey Citadel and Eastern Harbour of Alexandria 20-21 November 1999, Reports on Hydrodynamics, Geophysics, Morphology and Geology*, V. II: 1-82. Alexandria.
- El-Raey, M., Nasr, S., Frihy, O., Desouki, S., & Dewidar, Kh., 1995, Potential Impact of Accelerated Sea-Level Rise on Alexandria Governorate, Egypt. *Journal of Coastal Research* 14: 190-204.
- El-Zouka, M.K., 1979, *Irrigation Areas in the Western Delta: A Geographical Study (مناطق الاستصلاح الزراعي في غرب دلتا النيل: دراسة جغرافية)*, Alexandria (in Arabic).
- Empereur, J.-Y., & Picon, M., 1986, A La Recherche des Fours d'Amphores. In J.-Y. Empereur & Y. Garlan (eds.), *Recherches Sur Les Amphores Grecques. Actes du colloque international organisé par le Centre national de la recherche scientifique, l'Université de Rennes II et l'École française d'Athènes (Athènes, 10-12 Septembre 1984)*: 103-126. Athens, Paris.
- Empereur, J.-Y., & Picon, M., 1998, Les Ateliers d'Amphores du Lac Mariout. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'École française d'Athènes, 11-12 décembre 1988*: 75-88. Athens, Paris.
- Empereur, J.-Y., & Picon, M., 1992, La Reconnaissance Maréotique. *Extrait des Cahiers de la Céramologie Égyptienne* 3: 145-152.
- Empereur, J.-Y., 1998, *Alexandria Rediscovered*. New York.
- Flaux, C., forthcoming, Geomorphological survey of the south-west shores of Lake Mareotis. In L. Blue & E. Khalil (eds.), *A Multidisciplinary Approach to Alexandria's Economic Past: the Mareotis Case Study*. Oxford.
- Frihy, O.E., Dewidar, Kh.M., & El-Raey, M.M., 1996, Evaluation of Coastal Problems at Alexandria, Egypt. *Ocean & Coastal Management* 30.2-3: 281-295.
- Gabel, C., & Petruso, K., 1980, An Environmental and Cultural Study at Lake Maryut, Lower Egypt. *Boston University, African Studies Center Working Papers* No. 25. Boston.
- Petruso, K., & Gabel, C., 1982, Marea: A Byzantine Port in Northern Egypt. *Boston University, African Studies Center Working Papers* No. 62. Boston.
- Hassan, F.A., 1997, The Dynamics of Riverine Civilization: A Geoarchaeological Perspective on the Nile Valley, Egypt. *World Archaeology* 29.1: 51-74.
- Heliodorus. *Aethiopica*, T. Underdowne (transl.), 1895. London.
- Herodotus. *The Histories*, A. de Sélincourt (transl.), 1971. Middlesex.
- Horden, P., & Purcell, N., 2002, *The Corrupting Sea*. Oxford.
- Kadous, E., 2001, *Monuments of Ancient Alexandria. (أثار الإسكندرية القديمة)* Alexandria (in Arabic).
- Kucharczyk, R., 2002, Marea 2001: Windowpanes and other Glass Finds. In M. Gawlikowski & W. A. Daszewski (eds.), *Polish Archaeology in the Mediterranean XIII*: 65-71.
- Lewis, N., 1983, *Life in Egypt under Roman Rule*. Oxford.
- McGovern, P.E., 2003, *Ancient Wine: The Search for the Origins of Viticulture*. Princeton.
- Palladius, *The Lausiaca History*. The Monks of Nitria. VII. I. <http://www.fordham.edu/halsall/basis/palladius-lausiaca.html> (accessed February 2010).
- Peacock, D., 1992, *Rome in the Desert: A Symbol of Power*. An Inaugural Lecture delivered at the University of Southampton.
- Peacock, D., 2002, The Roman Period. In I. Shaw (ed.), *The Oxford History of Ancient Egypt*: 422-445. Oxford.
- Pliny the Elder, *The Natural History*, J. Bostock & B.A. Riley (transl.), 1855. London.
- Copius, *The Buildings*, H.B. Dewing (transl.), 1940. London.
- Matman, G., 1971, *Roman Granaries and Store Buildings*. Cambridge.
- Matman, G., 1980, *The Corn Supply of Ancient Rome*. Oxford.
- dziewicz, M.D., 1990, Taenia and Marcotis: Archaeological Research West of Alexandria. *Acta of the First International Colloquium of the Egyptian Society of Greek and Roman Studies* 1: 62-80. Cairo.
- dziewicz, M.D., 1998a, From Alexandria to the West by Land and by Waterways. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'École française d'Athènes, 11-12 décembre 1988*: 93-103. Athens, Paris.
- dziewicz, M.D., 1998b, Classification of Wineries from Marcotis. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'École française d'Athènes, 11-12 décembre 1988*: 27-36. Athens, Paris.
- Rodziewicz, M.D., 2003, Philoxenité, Pilgrimage Harbour of Abu Mina. *Bulletin de la Société Archéologique d'Alexandrie* 47: 27-47.
- Said, R., 1990, Quaternary. In R. Said (ed.), *The Geology of Egypt*: 487-507. Rotterdam.
- Strabo, *Geography*, H.L. Jones (transl.), 2001. London.
- Szymańska, H., & Babraj, K., 2008, *Marea V.1: Byzantine Marea – Excavations in 2000-2003 and 2006*. Krakow.
- Vörös, G., 2001, *Taposiris Magna: Port of Isis*. Budapest.
- Warne, A.G., & Stanley, D.J., 1993, Late Quaternary Evolution of the Northwest Nile Delta and Adjacent Coast in the Alexandria Region, Egypt. *Journal of Coastal Research* 9.1: 26-64.
- Wilson, P., 2007, *Western Delta Regional Survey*. <http://www.dur.ac.uk/penelope.wilson/Delta/AbuMatamir.html> (accessed February 2010).

Lake Mareotis Research Project. Phases of Outrage and Destruction

Sameh Ramses & Ahmed Omar

Interest and Aim of the Project

The historical importance of the region of Mareotis during the Ptolemaic and Roman periods, either as an important wine production center, in support of other Egyptian industries (Strabo 17.1.7), or as a resort of the elite (Buttler 1980: 8-12), has attracted a great deal of archaeological attention, as this volume illustrates (El-Fakharani 1983; Empereur & Picon 1998; Rodziewicz 1998). Nevertheless, the region of Mareotis is threatened by modern urban development and many historical sites are subjected to destruction, not only due to its unique location in the vicinity of Alexandria, but also its moderate climate which has established the area as one of the most popular resorts in the region (Abd-Elhady 2008: 177-184). Therefore, the aim of the Lake Mareotis Research Project, conducted between the summer of 2004 until the summer of 2008, was to survey, record and map the platforms, harbours, and any other waterfront constructions that could be found along the northern and southern shores of the western part of Lake Mareotis, and to create a very detailed database for each site, as well as to determine its present state of preservation.

The survey project covers an area of about 40 km long and up to 3 km wide within the western arm of Lake Mareotis, to the west of Borg El-Arab airport, on the Sidi Kerir road, and extends towards El-Hammam city, it also includes Mareotis Island some 3.7 km long and 680 m wide (Fig. 1; see Blue, Hopkinson and Khalil this volume).

Fig. 1: General plan from Alexandria to Mareotis (Lake Mareotis Research Project).

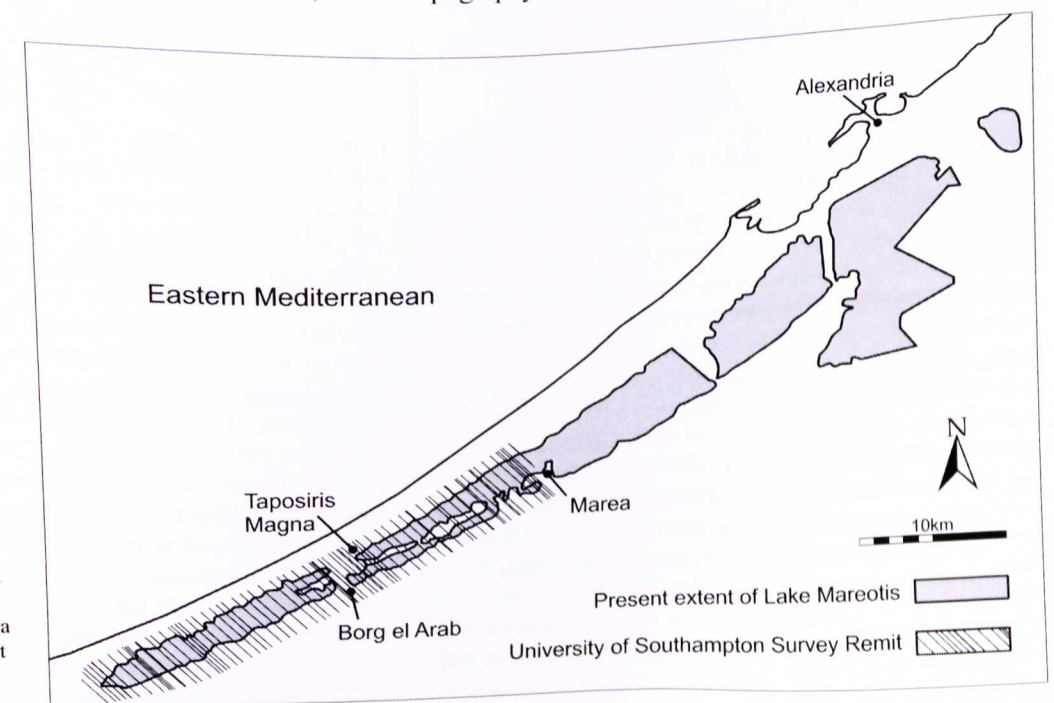
1. It is noteworthy that only about nine sites had already been registered by the Supreme Council of Antiquities (SCA), and only six are considered to be SCA properties. *Atlas Almoqea Alathariaya*, SCA, 2002: No. 3: El-Beheira Governorate; No. 4: The Rest of the Lower Egypt Governorates. Egypt.

Phases of Outrage and Destruction

According to the last survey of 2008 more than 70 archaeological sites have already been noted in the region (Fig. 2). Of course, not all of them had previously been registered, but some had been surveyed or documented.¹ However, despite efforts by the Archaeological Department of Alexandria University to discover and protect some of these sites, the full extent of the area, and the variety of remains, both on land and in the water, still remains to be determined and much work needs to be done. This is particularly urgent considering the very immediate threats of modern urban development and various industrial and agricultural activities that are threatening the shores of the lake. Consequently, during the course of the survey, three main factors were identified that are believed to present a particular danger to the archaeology of the region.

Fish Farms

As a consequence of being inundated by water largely of agriculture runoff and drainage water, the lake water quality has deteriorated making it more difficult for a variety of fish to survive. Simultaneously, many fish-farmers began to appropriate quite large portions from the lake basin and along the shores. In the process of creating fish producing basins, a great deal of dredging and destruction of some of the archaeological sites, both offshore and under water, has taken place. Accordingly, the original shores topography has been deformed, and the dredging leads to



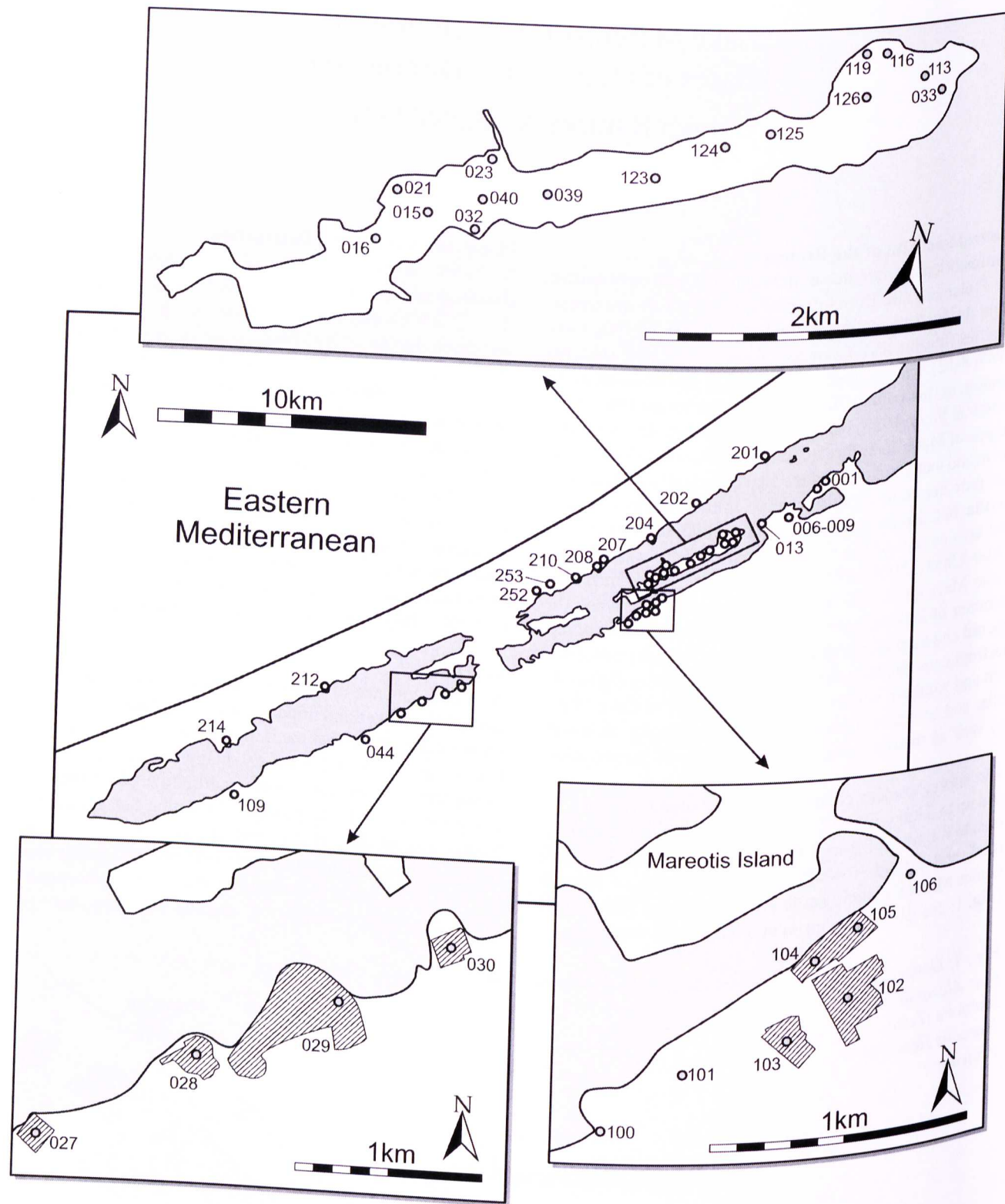


Fig. 2: Map of sites investigated during the Lake Mareotis Research Project (Lake Mareotis Research Project).

mis-interpretations of its original form. These activities particularly characterise the southern shore of the lake (Fig. 3). It is worth mentioning that some farms have appropriated quite large areas, up to nearly 4 hectares, especially in the vicinity of Mareotis Island, which embraces a great deal of archaeological remains, making access to the island increasingly difficult by cutting away the roads and destroying the routes that lead to the island.

Industrial Activities

Although not as polluted as some parts of Lake Mareotis, the western arm determines a substantial area of the current lake littoral, and is considerably affected by a huge amount of untreated industrial waste and polluted water which flows into the lake on a daily basis. The industrial activities around the shores of the lake not only affect the water quality but in some cases have a direct impact on the



Fig. 3: Two examples of fish farm deformation along the southern shore of the lake (Lake Mareotis Research Project).



Fig. 5: Lake wall affected at Site 44 (Lake Mareotis Research Project).

Fig. 4: Lime storing and collecting at Site 44 (Lake Mareotis Research Project).



archaeological sites located in the region. Site 44, located on the southwest shore of the lake, provides clear evidence for this negligence. It is directly adjacent to a cement factory, and is used to store the lime for the cement. The cement mound is huge and it no doubt, amongst other things, covers the western end of a lake wall that extends along the lake shore (Fig. 5), and disregards the existence of additional archaeological features including a circular structure at the far west of the site near the water's edge, and four square probable wine-basins, that were previously excavated by the SCA. Similar scenes are witnessed further west, for example at the site of Naga El-Mawalik (Site 109). This is an example of an endangered site that still displays aspects of its ancient harbour and enclosure walls, together with many other hills and mounds of pottery. Its location close to the cement factory, means that it is being used to supply the factory with limestone. Parts of this site are now totally inaccessible, with unrecorded archaeological features being surrounded by barbed wire.

On the north shore of the lake, at the western extent of the survey area, Site 214, immediately opposite Naga El-Mawalik, has recently been purchased by the El-Nasr Salt Company. They have acquired two already excavated sites (Sites 214-215) which contain two wineries and a big house of the late Roman period and numerous mounds of pottery (Figs. 6-7). These sites are due to be dredged and leveled to be used as evaporations basins to produce salt. They have only been partially recorded. There are many other places in the area free of archaeological remains that could be used for such purposes. Other sites, particularly those on the northern shore of the survey area, are being used as rubbish tips totally swamped by rubbish from the city and isolated from the main road by means of barbed wire. These sites are distinctive by their bad smell.

Urban Development

Urban development is considered to be one of the most dangerous factors that affect the archaeological sites of the



Fig. 6: (above) Site 214: the partially excavated winery (Lake Mareotis Research Project).



Fig. 7: (right) Site 214: part of the fragmented paved floor of a Roman period waterfront building (Lake Mareotis Research Project).

region. Vast portions of land have been acquired, many divided into smaller units to be sold and used for housing. Both the local Bedouin and big companies that wield profit and power are responsible for destroying and leveling vast areas at a remarkably rapid rate. The Lake Mareotis Research Project has had direct experience of these actions over the last four years of survey. This can be summarised in the following four case studies:

Site 09

A Kibotos harbour, the only well preserved example either on the sea, or on the lake. Nevertheless, the governorate has dedicated an area of about 8 hectares around the site to build a private university without leaving any access to the archaeological site (Figs. 8-9). Accordingly, over time, the site will be destroyed.

Ez-Zeraa Elbahry (Site 201)

When visited in September 2004, there was a hill of about 5 m in height, which contained several mounds of pottery with traces of building plots everywhere. When we returned in May 2007, the 5 m high hill had disappeared and there were only private property signs and modern partitioning walls visible (Figs. 10-11).

Nagea Ez-Zohorat (Site 202)

A similar pattern of destruction was noted at Nagea Ez-Zohorat (Site 202) as was witnessed at Ez-Zeraa Elbahry (Site 201). The site comprised three hills containing amongst other remains, a cistern, a quay, and a rock-cut Hellenistic tomb. We revisited the site in August 2007 and just few days after we had commenced the recording and

documentation of the site, we returned to find that the three hills were totally destroyed by the locals and the Hellenistic tomb flattened (Fig. 12). It is worth mentioning that this site had not been previously registered or recorded by the SCA.

El-Gamal (Site 204)

The situation at the site of El-Gamal was a little different as the site was quite impressive and important, to the extent that it had already been partially recorded by the SCA, and a site guard had been assigned. The destruction of this site was undertaken in stages – first a soccer field was cleared to the east of the tell; the following year another one was cleared on the prohibited area of the archaeological site towards the limit of the lake shores, destroying part of the tell and site boundaries, and so the destruction continued (Fig. 13).

Even those sites renowned for their archaeological importance are also under threat. To the southeast of Taposiris Magna, the extensive seawall and jetty associated with the site are slowly being encroached by small concrete building plot walls, purchased for urban development (see Bousac & El Amouri this volume).

Further destruction is caused at many sites by the introduction of agriculture, particularly the cultivation of figs and olives. Cattle are also allowed to graze freely around the whole region, including on established archaeological sites. Moreover, seasonal extraction of reeds in marshy lake side areas permits the access of heavy loaders and trucks to a number of the archaeological sites.



Fig. 8: Kibotos harbour extending from the southern shore of the lake (Lake Mareotis Research Project).



Fig. 9: One of the university properties on the land surrounding the Kibotos (Lake Mareotis Research Project).



Fig. 10: Archeological tell divided for private possession (Lake Mareotis Research Project).



Fig. 11: Private property sign and wall established on Site 201 (Lake Mareotis Research Project).



Fig. 12: Flattened Hellenistic tomb at Site 202 during bulldozer work in 2007 (Lake Mareotis Research Project).

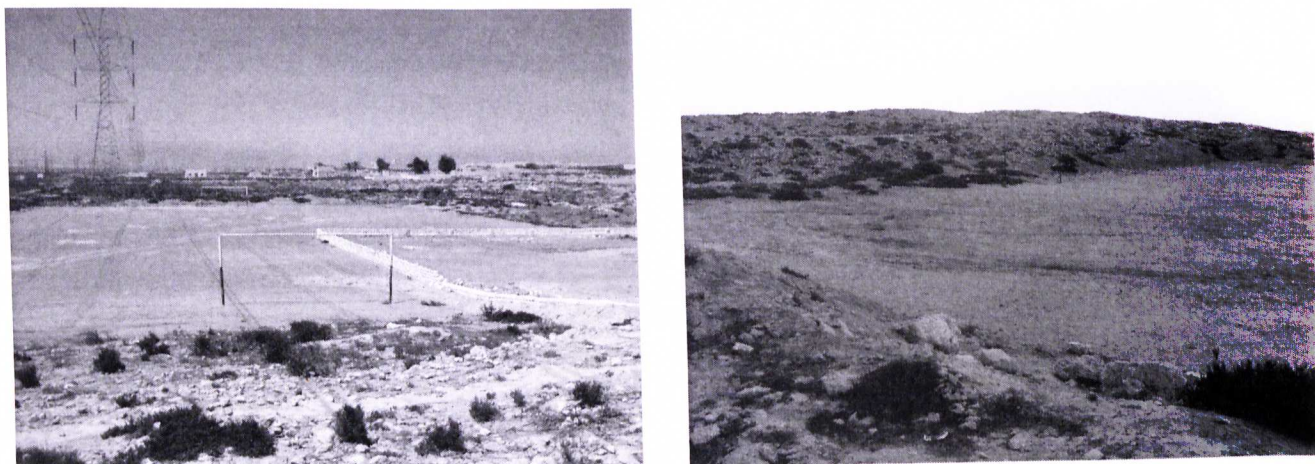


Fig. 13: Two soccer fields erected at the tell boundaries around Site 204 (Lake Mareotis Research Project).

Conclusion and Recommendation

From the above mentioned, the slow destruction of archaeological sites in Mareotis can be specified as follows:

- Cultivating the boundaries of archaeological tell sites and in some cases, on the tells themselves.
- Setting up barbed wire around many of the sites to give the impression that they are private property, and when the authorities are notified, the signs are not removed.
- Using bulldozers and tractors to rapidly destroy and level the archaeological hills.
- Selling archaeological sites, especially the unregistered sites, to private individuals, by employing unorthodox means that appropriate the names of established people, to ensure that legally the sites cannot be retrieved, thus preventing anyone, even the governmental organizations, from taking any action.

Accordingly, it has been established that the problems of the region are extensive and complex, but once identified can be resolved by the means of establishing a compromise between protecting Mareotis' archaeological sites, whilst at the same time meeting the increasing needs of development and modernization. Therefore, the following is suggested to overcome the problems:

- Coordination between the different regional authorities including those that operate in the interest of archaeology, investment, irrigation, and the governorate, to establish an integrated long term plan, which recognises a satisfactory compromise that identifies the needs of all parties.
- Unifying the mapping system of each organization, in order to get acquainted with each others properties, in order to stop the illegal acquisition of land.
- Support the Supreme Council of Antiquities, both to provide the facilities needed to control and protect such a vast area, and to implement archaeological legislation.
- By encouraging local interest in the importance of the sites both as a source of income, and as an important aspect of cultural heritage.
- By promoting the whole region to become an open archaeological park in order not to be neglected and misused, otherwise it will soon disappear.

Generally, the aim of these suggestions would be to create a project which promotes a particular concept for both the short- and long-term management of the region, which considers its archaeological and historical importance. Such a plan should also aim to promote and preserve Mareotis for the coming generations. This is a great challenge that we all face.

Bibliography

- Abd-Elhady, D., 2008, *Derasat fi Asasyat Al-sayaha*. Alexandria.
- Atlas Almoqea Alathariaya 3: El-Beheira Governorate*, Egypt. Supreme Council of Antiquities, August 2002. Cairo.
- Atlas Almoqea Alathariaya 4: The Rest of Lower Egypt Governorates*, Egypt. Supreme Council of Antiquities, August 2002. Cairo.
- Buttler, A.G., *Fateh Elarab Lemesr*, M.F. Abo Hadid & T. El-Massrein (transl.), 1989. Cairo.
- El-Fakharani, F., 1983, Recent Excavation at Marea in Egypt. In G. Grimm, H. Heinen & E. Winter (eds.), *Aegyptiaca Trevernsia II. Das Römisch-Byzantinische Ägypten. Akten des internationalen Symposiums 26.-30. September 1978 in Trier*, 175-186. Mainz.
- Empereur, J.-Y., & Picon, M., 1998, Les Ateliers d'Amphores du Lac Mariout. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'Ecole française d'Athènes, 11-12 décembre 1988*: 75-88. Athens, Paris.
- Rodziewicz, M.D., 1998, Fom Alexandria to the West by Land and by Waterways. In J.-Y. Empereur (ed.), *Commerce et artisanat dans l'Alexandrie hellénistique et romaine. Actes du colloque d'Athènes, organisé par le CNRS, le Laboratoire de céramologie de Lyon et l'Ecole française d'Athènes, 11-12 décembre 1988*: 93-103. Athens, Paris.
- Strabo, *Geography*, H.L. Jones (transl & ed.), 1996. London, New York.