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The Problem of the Missing Harbour of Evagoras at Salamis, Cyprus: a review of the evidence and pointers to a solution

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This article summarises the archaeological evidence for the existence of Evagoras' naval harbour at Salamis in North Cyprus, which ancient texts credit him with building c.410–400 BC. Based on a critical examination of previous surveys and his own on-site observations, the author concludes there is indicative evidence of a constructed harbour c.800 m long, which was divided into two basins by a stone jetty, separated from the city by a stone wall and with some evidence of ship-sheds at its north end.

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Key words: Salamis, Evagoras, Cyprus, trireme, ship-shed, Classical harbour.

The life of Evagoras, king of the city-state of Salamis, on the north-east coast of Cyprus, is better documented than that of many of his contemporaries. We know from his funeral oration, given by Isocrates (*Evag.* 47), that he was born in Salamis c.435 BC, and became ruler of Salamis by overthrowing a Phoenician usurper named Abdemon c.410 BC. He immediately embarked on an extensive reconstruction programme for the city and is credited by Isocrates with expanding the city boundaries and establishing a harbour. Politically, he sided with Athens against Sparta, and was given a grant of Athenian citizenship for services rendered. In 394 BC Evagoras embarked on the conquest of Cyprus, and had brought almost the entire island under his control by 391.

However, Artaxerxes, the Persian King of Kings, regarded a unified Cyprus as a potential threat and responded to pleas for assistance from the Cypriot cities of Amanthus, Soli and Kition. Despite Persian demands for him to desist, Evagoras, with Athenian assistance, was able to subdue almost all Cyprus, including Kition, by 387/6. Thereafter, circumstances turned against Evagoras. He lost the support of the Athenians, who were forced to recognise the Persian king in 387/6, and was left with only the support of the Egyptians, who were in rebellion. Persia dealt with Egypt first and then, in 380/379, Artaxerxes sent a large army to Cyprus and besieged Salamis, and Evagoras was forced to recognise Persian sovereignty and pay a levy to Artaxerxes. Evagoras, however, continued to rule as king of Salamis until his death in 370 BC. During his war with the Persians, Evagoras made Salamis a major naval power in the eastern Mediterranean, and was reported by Diodorus the historian (xv, 2.4) as having built up a fleet of at least 70 triremes.

The archaeological record

In stark contrast to the historical record, the archaeological evidence for Evagoras' achievements is virtually non-existent. The remains of the fine new buildings credited to him by Isocrates presumably lie undisturbed under the sands of Salamis. There is very little evidence of the city-walls he reportedly built to defend his enlarged city. We do not know where his naval harbour lies, nor have we any evidence for the ship-sheds which Evagoras must have constructed to house his fleet of triremes. Indeed, were it not for the coinage minted during his reign, we would not have any archaeological evidence for his existence. Salamis is a famous archaeological site, but most of the ruins excavated, including the gymnasium, theatre, villa, aqueduct and other features, are of the Roman period. A 5th-century-AD basilica, the Campanopetra, has been uncovered, and to the west of the town-site are early tombs dating back at least to the 8th century BC (Fig. 1). None of these excavated sites, however, throws light on the reign of Evagoras or provides evidence of his achievements.

The reason why Evagoras' city lies undisturbed is the depth and extent of the sand-dunes that cover the site. Discovering the whereabouts of his reported harbour is equally problematical because the same shifting sands are at work beneath the sea, and there is clear evidence that the present-day sea-level is c.1.8–2 m higher than it was in Evagoras' time. The shoreline of 2500 years ago can now be seen as a reef, composed of stratified beach-rock, running c.100 m offshore and roughly parallel with today's shoreline (Flemming, 1974: 164–70; 1980: 50).

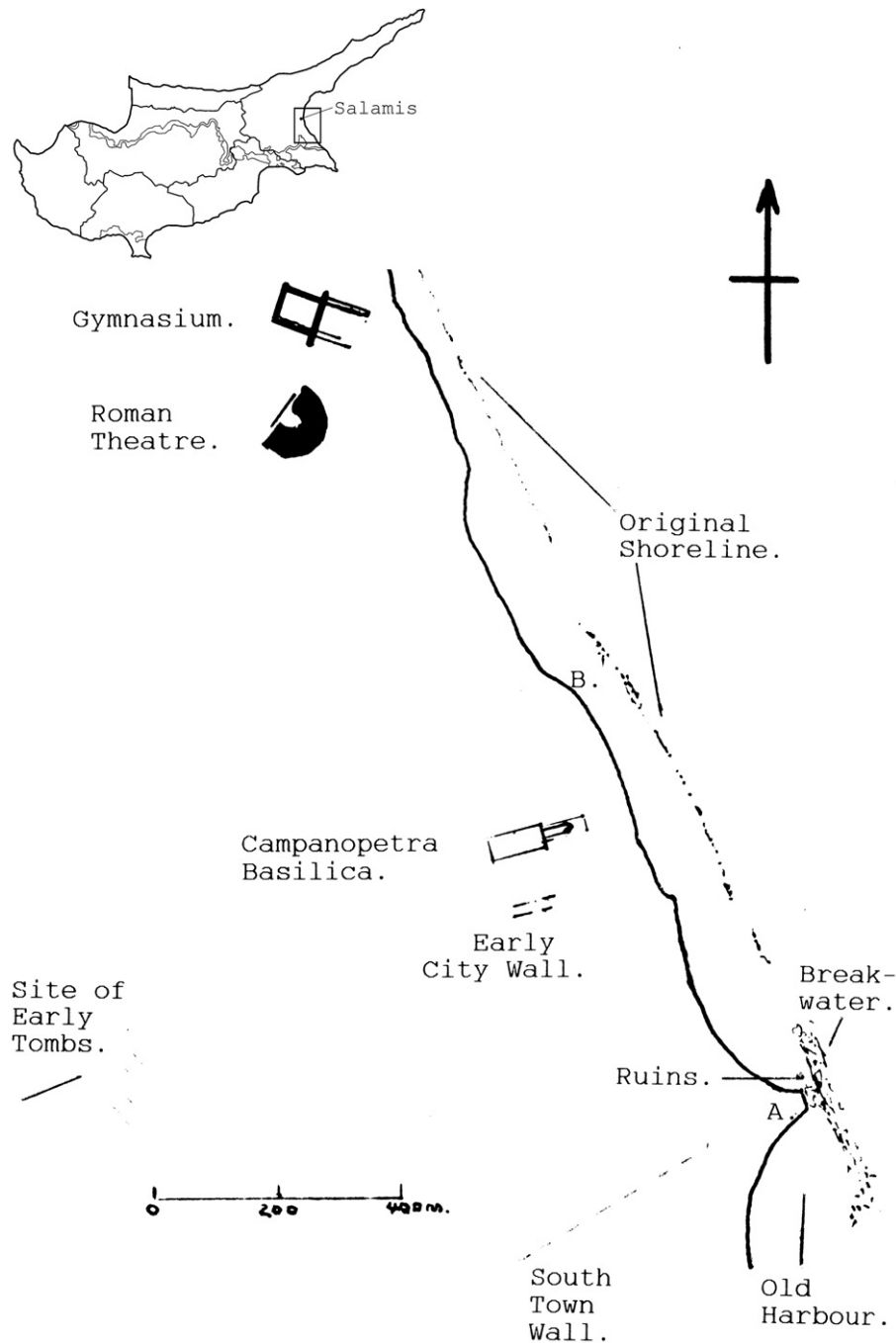


Figure 1. Sketch-map showing the ancient shoreline at Salamis and the present-day shoreline, where observations were made in 2010 (A: referred to in the text as 'the headland'; B: referred to as 'the north point'). Evagoras' unexcavated city lies to the north of the south wall. The gymnasium, theatre and basilica date from the later Hellenic, Roman and Byzantine periods respectively. (E. M. Davies)

The final factor which has made archaeological progress virtually impossible since 1974 has been the political situation. From that time to the present day there has been in force a UN embargo on all archaeological activity in North Cyprus, except for a small amount of rescue archaeology. If, therefore, any progress is to be made towards locating the site of

Evagoras' naval harbour and his expanded city boundaries, it can only be done by analysing the available evidence and by simple on-site observations, without any recourse to normal archaeological techniques. The remainder of this article and its conclusions are based on this approach. There was a period of research and review of the evidence on my part,

followed by a week in the autumn of 2010 spent walking Salamis's beaches and wading in the adjacent lagoon.

Summary of archaeological reports

Between 1964 and 1975 there was one archaeological excavation and two underwater surveys which relate to the problem of where Evagoras' new city-walls and military harbour were sited. Between 1964 and 1969 a French archaeological team from Lyon University conducted an inland excavation c.70 m south of the Campanopetra basilica and c.100 m from the shoreline (Yon, 1985: 205–06). During this excavation they uncovered evidence of an early mud-brick city-wall with associated artefacts ranging from the 11th century BC to the Classical period. This wall was seen as the south-east extremity of the city of that long period, and pre-dated the city expansion with which Evagoras is credited (Fig. 1).

The first underwater survey was conducted around the southern headland in 1971 by Linder and Raban. The survey was a very limited exercise and the results, with a small sketch-plan, were only published 24 years later as part of an article by Raban (1995: 163–4). Their results show a south town-wall along a line of high ground which borders the bank of the river Pedieos, ruins of buildings under water just north of the headland, and an ancient breakwater to the south and north of the headland (Fig. 1).

In this article Raban speculates that Salamis may have had a multi-basin *limen kleistos*, or closable harbour, of the type developed by the Athenians during and after the Peloponnesian Wars. He envisages the old harbour south of the headland serving as an emporium or commercial harbour outside the city-walls, the basin just to the north of the headland being used for repair and shipbuilding, with a third, military, dug-out basin somewhere to the north of this. He dates the city-walls which he had observed to the Classical period, and believes they would have encircled and protected both basins to the north of the headland. He further suggests that, for security reasons, the military harbour would have been segregated from the city by another city-wall. These are interesting ideas, based on Greek practices at the time, and may or may not prove to be correct, but, as Raban admits, they are basically speculations and did not result from his own survey. He quotes Flemming's 1974 report and Karageorghis (1969: 167) in support of his views, although, in fact, neither reference substantiates his theory. The actual archaeological evidence in his survey is summarised in his diagram, with the added conclusion that the sea-wall of the harbour, which runs both to the south and just to the north of the headland, was built with laid courses of ashlar headers on top of a loosely-spilled rampart of larger blocks, a technique he describes as common to Greek harbours of the Classical Age.

The second underwater survey was carried out in 1974 by Flemming. Described as 'preliminary' and executed over a six-week period, the survey covered an area from c.175 m south of the headland to c.350 m north of it. This was a limited, but professional and detailed survey, which identified three major features. Firstly, the area to the south of the promontory was the site of an early harbour at the mouth of the river Pedieos. Flemming also noted, like Raban, that the natural arm of this old harbour had been extended and strengthened with laid ashlar blocks. He also came to the same view as Raban that the harbour to the south of the headland was probably too small to serve the needs of a major city like Salamis, and did not rule out the possibility of a second harbour (1974; 1980: 49–50).

A second discovery was a road, north of the headland, which ran diagonally under the water NNE from the present-day shoreline for over 100 m towards the older shoreline (Fig. 2). Flemming's third discovery was what he described as a north-south road, variable in width, which ran parallel to the shore (Fig. 2). In addition, Flemming makes one casual but interesting comment about the area to the north of his survey. 'A long swim', he writes, 'showed that ruins continued at least half a mile northwards up the lagoon'.

These three reports give us some basic information. The French expedition fixed the south-east line of the pre-Evagoran city-wall. Raban's report showed a Classical-period city-wall bordering the river Pedieos c.500 m south of the the earlier city-wall, and Classical Greek techniques being used on the 'ancient break-water' and ruins of buildings, just to the north of the headland. Flemming's report describes and measures stone-built features found up to 300 m north of the headland, and confirms Raban's findings about the harbour to the south of the headland. He also agrees with Raban that the ruins just north of the headland are land-based, and describes them as walls of houses (1980: 49). There is general agreement that the area to the south of the headland, at the mouth of the river Pedieos, was a natural harbour which had been strengthened. It has to be said, however, that none of these reports gives us any archaeological evidence about the possible site of Evagoras' military harbour.

However, there is a much earlier report of an archaeological expedition to Salamis, funded by the Cyprus Exploration Fund and carried out by J. A. R. Munro and H. A. Tubbs in 1890. Much of their report was concerned with surveys and excavations inland and has no relevance to this article, but in the report on their third year's work Tubbs writes:

Ancient geographers speak of two harbours at Salamis and of 'islands' against which incoming ships must be on their guard. The one harbour is the '*kleistos cheimerinos*' of Scylax (*Periplus* 103) and lies to the north of the point [headland]; it is 'locked' by the line of reef which runs nearly parallel with the shore—a distance nowhere exceeding one hundred yards*; further north, shore and reef all but meet. Several of the slips still remain and can

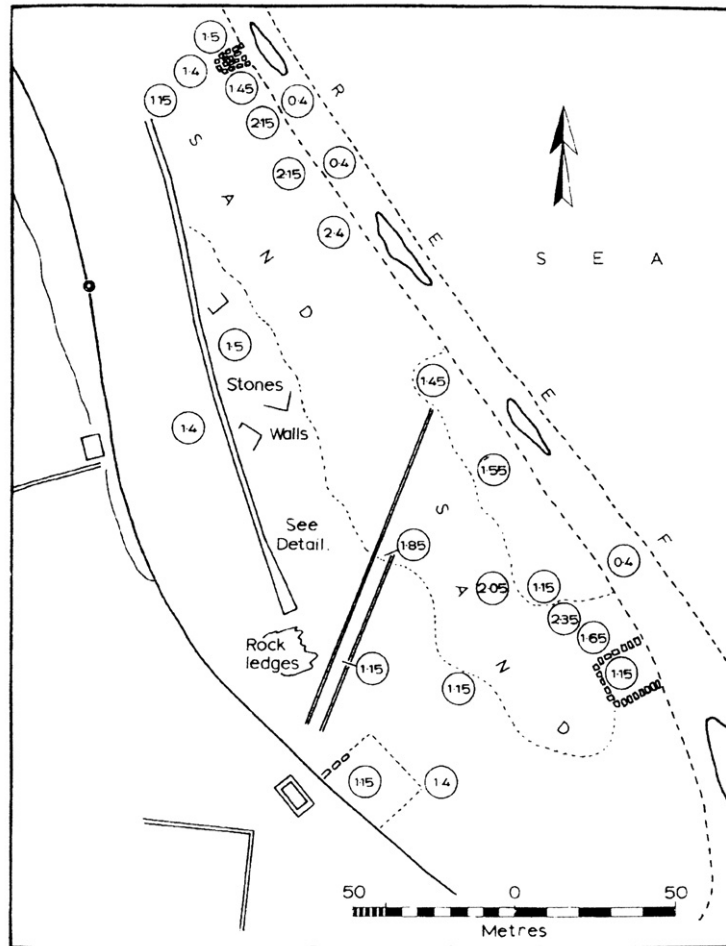


Figure 2. Sketch-map from Fleming's 1974 underwater survey at Salamis, showing the 'diagonal road' and the 'North/South road'. Water-depths are in metres. The headland lies immediately to the south of this diagram. (reproduced courtesy of N. C. Fleming)

be traced for a considerable distance under water. The other harbour was probably south of the point and is the natural haven formed by the meeting of river and sea. This also is partially sheltered by the reef which here trends out from the point and then returns forming a sickle, at the end of which it disappears below the surface of the water.

* So far as I could measure between wading and swimming. The masonry below the water is not shown on the accompanying map except by a general, and not quite accurate, reference. I have preserved memoranda of the existing masonry which extends at intervals from the first to the second point; north of the latter there are no certain vestiges. It is not necessary here to insert measurements, which were unavoidably approximate only. The harbour fully justifies Skylax' epithets; the violent NE winds which are often experienced here in January and February cannot disturb the calm of its shallow, sheltered waters. (Munro and Tubbs, 1891: 94) (Fig. 3)

Regrettably, Tubbs' notebooks have not been found and we are left with this bare information. What can we

learn from his description and his diagram? Firstly, he refers to 'slips', presumably artificial slopes of stone, on which boats were landed, or inclined structures on which boats were repaired or built. In his plan, however, they are noted as 'quays' with a question mark. Secondly, the slips extended for a considerable distance. Thirdly, Tubbs is imprecise about the exact location of these slips, but it is clear from his diagram that they lie somewhere near the point, which lies about half a mile to the north of the headland. Fourthly, it is clear that Tubbs is not sure what to make of these long, stone features and is uncertain whether they are the remains of slips or quays. In this respect, it has to be remembered that the earliest excavation and recording (in Greek) of trireme ship-sheds, with their sloping, stone ramps, was being carried out by Dragatsis and Dorpfeld in 1885, only a few years before Tubbs was working in Cyprus (Dragatsis, 1886). Tubbs may well not have known, at the time he was in Cyprus, of this early archaeological evidence for ship-sheds, with their unique structure, which combines elements of both slips and quays.



Figure 4. Satellite image of the Salamis coastline. (Google Earth)

Trireme ship-sheds

There can be no doubt that Evagoras built up a considerable fleet of triremes, even allowing for some historical inaccuracy in Diodorus' estimate that his fleet was composed of '20 Tyrian triremes and 70 Cyprian triremes'. Nor can there be any doubt that Evagoras would have built ship-sheds to accommodate them. Constructed of softwood for its light weight, the trireme became waterlogged when left in the water for any length of time, hence the need to haul the warship out of the water when not operationally engaged. Our knowledge of ship-sheds is still based on the excavations at the Athenian naval base at Zea harbour (Dragatsis, 1886). Roofed with tile and built continuously in pairs of stone slips, with a gradient of 1 in 10 for each slip, the ship-sheds were partitioned with unfluted stone columns supporting the roof. Each ship-shed measured *c.*6 m wide and had an average dry length of 37 m (Blackman, 1968: 181–2).

Aerial photographs

Before visiting the site, an attempt was made to find aerial photographs of this coastline but, for security reasons, none was available. However, the Google satellite vertical image shows a large, dark rectangle off the north point, evidence of the presence of extensive stone or rock under the shallow water (Fig 4).

Observations at Salamis, October 2010

It came as no great surprise that some of the features identified in earlier surveys were not visible in 2010, nor that my own observations revealed features which had not been previously reported, because, both on land and under water, we are dealing at Salamis with

a site characterised by shifting sands. Indeed, even during this very short visit, which coincided with a high tide and a change to windy conditions, the ability to identify the same features under water changed considerably with the change in conditions. My observations follow a northward path, beginning at the south harbour and proceeding for *c.*800 m along the shoreline.

The south city-wall noted by Raban

I could find no visible evidence for this wall running east-west from the headland. There was, however, a long bank of fairly stable sand and shrubs, bordering the side of the dry river-bed and running east-west, which coincided with the site of Raban's city-wall line. Proceeding northwards from the headland, there were no visible signs of the ruins in the lagoon, immediately to the north of the headland, as described by Raban and Flemming. This part of the lagoon would be particularly liable to silt up with sand from time to time because of the prevailing north-easterly winds in the winter, which bring a continuous shoreward movement of sand onto the north side of the headland.

Flemming's 'diagonal road'

This feature was clearly visible in the lagoon for *c.*100 m. In Flemming's words, 'the road consists of two parallel walls with a total width of 7.2 m between their outer edges. The blocks are all laid across the thickness of the walls and average about 1 m × 47 cm. The space between the walls is about 5.2 m and no surfacing material was detected though this may have been concealed by sand and stones' (1974, 166–9). About 130 m north of the headland, a small number of these cut ashlar blocks lie displaced on the beach and give the general position of this feature. The dimensions of the stones tallied with those given by Flemming, and they averaged 25 cm deep. Examining the side of the 'road' under water, a similar, second level of stones, beneath the top level, was visible in places.

Given that this long, straight feature lay well within the original shoreline, now inundated, and only its surface was visible above the sand, it was quite reasonable for Flemming to interpret the feature as a land road. However, bearing in mind Tubbs's identification of harbour features under water to the north of this area, and the observations made by the French expedition that stone harbour features ('*vestiges d'installations portuaires*') could be seen on the inner side of the reef, east of the Campanopetra (Roux, 1998: fig. 7), we should be prepared to examine this feature, not as a land-based road but as **a possible harbour jetty**.

The art of constructing sea-walls, moles and stone jetties was first developed by the Phoenicians and then adopted by the Greeks. The basic problem of dealing with the powerful effect of retreating waves, with their potential for loosening and undermining the stones of a sea-wall, was overcome by the Phoenicians by using headers—long, slim, stone blocks, set vertically in

tight-fitting courses. Examples of such header-stones at other sites give a basis of comparison with those seen in this feature at Salamis. At Tel Dor the stones' typical dimensions were $1.3 \times 0.6 \times 0.7$ m, at Caesarea they measured $2 \times 0.4 \times 0.5$ m, compared with $1.0 \times 0.7 \times 0.25$ m at Salamis. It seems clear, therefore, that this stone feature was constructed with headers. Furthermore, the headers on this Salamis feature were packed in tightly, as far as was visible to the second level, in exactly the manner prescribed for the construction of these features, as is exemplified in many Greek harbours of this Classical period. In view of its very particular structure, it is highly likely that what we have here is a stone jetty, now largely covered with sand, but with a probable depth of at least 2–3 m and extending over 100 m diagonally into the harbour.

This interpretation raises the question of its practical function. A stone jetty over 100 m long would have been far too extensive just for the purpose of loading and unloading boats in the harbour. It clearly could serve this function and it was also the means of dividing the harbour into two basins by its physical presence. However, the stone jetty may also have had an additional, important function which may have been its prime purpose. In his sketch (Fig. 2) Flemming tracked this feature seawards to within 15 m or less of the old shoreline until it disappeared under stones and rock on the inside of the reef. The jetty also points to a break in the reef, which is described as a channel (*passé*) by the French team (Yon, 1985: fig 1). As the jetty bisected the probable harbour entrance it would have provided the means of closing access to either or both of the harbour basins with chains or cables, which would account for the large investment of time, skill and labour involved in constructing a stone jetty of this length.

Flemming's N-S road

This feature, which Flemming surveyed for c.170 m to the northern limits of his survey (Fig. 2), clearly continues well beyond the surveyed area until it reaches a major feature of stone or rock which lies near the point, c.800 m north of the headland. In the water, this feature appeared as man-made ashlar stone blocks, which were visible intermittently right up to the point. It is interpreted as being part of the constructed quay on the land side of the harbour.

The harbour outer wall

No observations were made in this area but, in considering the evidence for the existence of a wall encircling the harbour, it was noted that the two square stone features noted on Flemming's survey (Fig. 2) are in the right position, just inside the reef, to be the possible remains of forward bastions or towers in a defensive wall on the outer side of the harbour. In addition, as I have indicated, the French team recorded harbour stonework in the reef, east of the Campanopetra, c.500 m north of the headland.

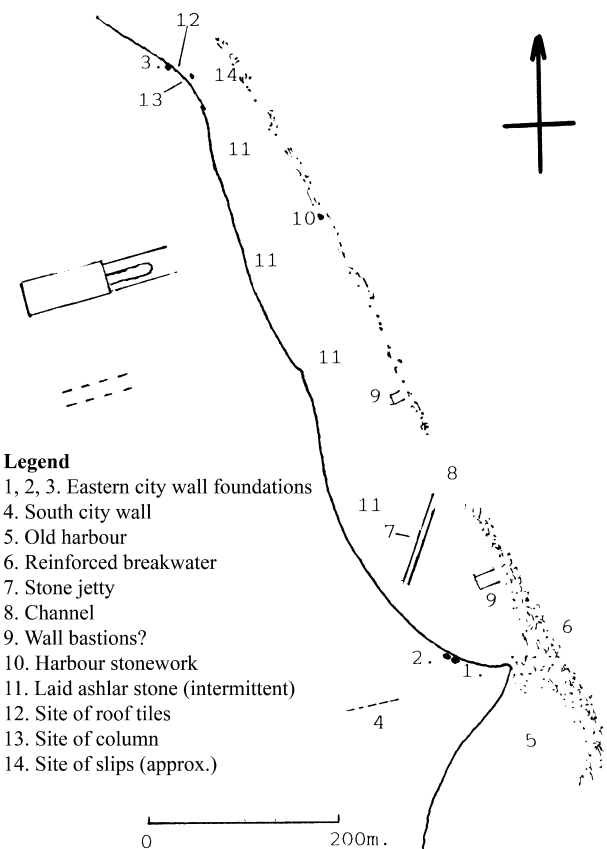


Figure 5. Sketch-map showing the location of key archaeological features and observations made in 2010. (E. M. Davies)

The eastern city-walls of Salamis

Between the south headland and the point, half a mile to the north, there was visible evidence, at the time of my visit, of ashlar-stone wall construction at three separate places in the high sandbank at the back of the beach, which has not been previously reported (1, 2 and 3 on Fig 5; also Figs 6 and 7). In each instance, the sand had fallen away, revealing cut, ashlar blocks, laid horizontally on packed, loose stones. The similarities in the type of stone blocks in the south harbour and in the jetty and along the shore up to the north point was striking. Two of the sites, 1 and 2, were close to each other, c.60 m north of the south headland, but site 3 was c.700 m further north, at the point.

It is almost impossible to interpret these ashlar blocks, characteristic of the Classical period, and sited, as all three are, in the high sandbank at the back of the beach, as anything else but the remains of Evagoras' eastern city-wall. The presence of this wall, separating the city from the harbour, is compatible with Greek practice of that time, aimed at keeping their warships and equipment secure from fire and theft. During the war between Evagoras and the Persians, it would be no exaggeration to say that the entire security of Salamis



Figure 6. The laid ashlar stone wall at the back of the beach, c.70 m north of the headland. (E. M. Davies)



Figure 7. The laid ashlar stones at right angles at the back of the beach at the north point. (E. M. Davies)

would have depended on the safekeeping of his trireme fleet.

The north point

The north point is where Munro and Tubbs (1891: 94) observed under water the slips which 'can be traced for a considerable distance', and which show up as a large dark rectangle on Google Earth. My own investigations were limited to walking the beach and the shallows, but the following points were observed. Firstly, wading in the water, parallel to the shore, the sea-bed became noticeably and steadily shallower from south to north, indicating that the large, flat area of stonework under water was tilted, with the high end to the north. Secondly, off this northern point there were both single, cut ashlar stones visible, all roughly similar in size, and larger areas of uniformly flat stone, covered with a calcine accretion, where it was not possible to distinguish individual stones. Thirdly, there were a few



Figure 8. Corner fragments of roof-tile on the tide-line at the north point. (E. M. Davies)

pieces of flat roof-tile on the tide-line at the point, the only part of the shoreline where they were seen (Fig. 8). These tiles were similar in structure to some discovered on the site of Classical-period ship-sheds at Kition, further south along the coast (Callot, 1993, fig. 191, nos 148, 152).

Fourthly, it was noteworthy that example 3 of the ashlar city-wall foundations at the back of the beach was adjacent to this site at the north point. Fifthly, located just below the tide-line near the point, and *in situ*, was an unfluted, circular stone column, c.60 cm in diameter and standing to a height of c.50 cm above the sea-bed (Fig. 9). It appears to be strikingly similar to the stone columns which provided the support for the roofs of the ship-sheds at Zea, excavated by Dragatsis in the 1880s. There is a remarkable photograph of a colonnade of these ship-shed pillars, which were constructed of short columns, roughly 1 m long (Shaw, 1974: 102, fig. 2). There was no sign of any ashlar stone construction in the water north of this point.

Summary

There is evidence that the harbour to the south of the headland lay outside the city-walls, and that its break-water was improved in a manner characteristic of the Classical period, and that, therefore, this harbour almost certainly served as a harbour during Evagoras' reign. It is likely to have only been used commercially. Immediately north of the headland, we have the evidence of on-shore buildings under the water of the lagoon. About 130 m north of the headland we have



Figure 9. Visible part of an ashlar column *in situ* on the tide-line at the north point. Note the cut ashlar stones under water. (K. Looime)

what is almost certainly a long stone jetty, which terminated, on the seaward side, near the possible harbour entrance. This jetty effectively divides the northern harbour into two basins and may have provided the means of closing the harbour. There is intermittent evidence of ashlar stone blocks being laid along the tide-line between the jetty and the north point. We have evidence of ashlar stone blocks laid flat and in line in the sand-banks at the back of the beach. The sites of these stone structures are c.600 m apart, and their composition, structure and position strongly suggest they could be small sections of the foundation-stones of Evagoras' city-walls.

At the north point we have Tubbs's testimony of the existence of extensive slips under water in this area. In support of the supposition that Tubbs was describing trireme ship-sheds, it was observed that some roof-tiles were present on the tide-mark, and that a short ashlar column stands today just below the tide-level. There was also clear evidence of large flat areas of ashlar stone under the water. It was also observed that the shore sloped steadily upwards here from south to north. It was noted that the most northerly example of wall construction, observed at the back of the beach, was adjacent to the point. All these observations support the contention that the site of some of Evagoras' trireme ship-sheds is off this north point, but fall some way short of proof. This might be best achieved by surveying and recording under water between the shore and the reef in this area, much as Flemming did further south. In fact, even a swim in favourable conditions over the area between the shore and the reef at the north point might produce enough photographic evidence to confirm the findings.

However, Raban's theory, that what we have here on the Salamis shore is, by implication, a system of integrated defences for the city and harbour, would need additional investigation before it could be proved

or disproved, although there is already much evidence which indicates that he was correct. He postulated that Salamis had a three-basin harbour with the military harbour at the north end, an encompassing wall around the military harbour, linked to the city-walls, and a second wall between the military harbour and the city. As we have shown, there are individual pieces of evidence which support this view, but to prove Raban's theory would also require the following. As the interpretation of the 'diagonal road' as a stone jetty is fundamental to demonstrating that the north harbour existed and was divided into two basins, it would be necessary to prove this by excavating and clearing the sand alongside a short stretch of the jetty, perhaps at the beach end, for convenience, in order to show that the feature is constructed of headers to a depth of 2 or 3 m. At present, we only have evidence of the two top layers.

It would also be very desirable to try to locate the junction between the south wall along the river-bank and the eastern city-wall, at the back of the beach, in order to demonstrate that the city-wall both separated the northern harbour from the city and continued on to encircle the northern harbour. In this task, a resistivity survey, carried out over the headland, which is almost certainly the place where the two walls would have met, might be the quickest way to find this junction-point. Probably the most difficult task would be to try to gather more evidence that a defensive wall encircled the harbour basins to the north of the headland, because of the action of waves and silting over such a long period. Perhaps the most promising approach would be to concentrate on clearing around one of the man-made square bases that Flemming identified, but did not characterise, just behind the line of the reef, in order to determine whether these structures were, indeed, tower-bases and part of a continuous defensive wall encircling the harbour.

In order to confirm the dating of city-walls at the back of the beach, it would be necessary to carry out an excavation at one of three places where the wall-line has become visible, with the objective of finding associated, stratified artefacts which would help to date the wall more precisely. This requirement is actually a matter of some urgency for another reason. It was clear to me that the sea is removing the sand and exposing features at the back of the beach which have not been visible for very many centuries. Indeed, one evening when there was a strong onshore wind and at

full tide, the sea was making inroads into the bank at the back of the beach, within a few feet of the exposed ashlar stone wall. It appeared to me to be inevitable that these wall-foundations will be undermined by the action of the sea in the near future. There is a strong case for an eventual rescue dig of the city-wall foundations, where the sea is now encroaching. In the short term the UN should request the local authorities to cover over the other exposed wall-foundations with sand as a temporary conservation measure.

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