

The island of Jezirat Fara'un

Its ancient harbour, anchorage and marine defence installations

Alexander Flinder

2 Downshire Hill, London, NW3 1NR

Historical background

The island of Jezirat Fara'un (Fig. 1) sometimes known as Coral Island (a misnomer, for it is not that in geological terms) in the Gulf of Aqaba, is situated approximately 250 m off-shore the Sinai mainland, and 7½ miles south of Eilat.

In the Bible there is early mention of this area. The conquests of King David and the consolidation of the kingdom during the reign of Solomon saw the influence of Israel spread southwards to the Red Sea. Kings 9:26 gives an account of Solomon's maritime activities in the Red Sea, and the journeys of his 'Tarshish

ships'. A century later Jehoshaphat in the 9th century BC unsuccessfully attempted to renew the gold route to Ophir (I Kings 22:49). Under Ozia (Hosea), Eilat which had been destroyed was rebuilt, but during the reign of Ahaz, Rezin King of Syria seized it and gave it to the inhabitants of Edom.

Eilat became the Aila of the Romans, and of the Nabateans, and its port and the copper mines in the area were of paramount importance in the late Roman and Byzantine periods.

Eckenstein (1921) identifies Jezirat Fara'un with the island of Iotabe or Jotabe, the island which, according to Procopius, was occupied by



Figure 1. Jezirat Fara'un from the west.



Figure 2. David Roberts' lithograph (1839).

an autonomous Jewish settlement which came to an end during the reign of Justinian. In the past, Iotabe had been identified with the island of Tiran in the south of the Gulf of Aqaba, but this has been corrected by recent research (Pollack, 1945) and Aharoni (Rothenburg, 1961).

The Crusaders assigned to Eilat the role of an important defensive outpost and named the island *Isle de Graye*. The Moslem leader Saladin took Eilat in 1170 and fortified the island. Reynald de Chattillon laid siege to *Isle de Graye* whilst plundering the towns of the Red Sea and raiding pilgrim ships bound for Mecca (Runciman, 1951). The pilgrim Thietmar records that in 1217 he found the island inhabited by both Saracens and Christians and 'French, English and Latin slaves who fished here for the profit of the Sudan'. Robinson (1841:237–8) quotes the historian Abufelda that by about AD 1300 the island was abandoned and the Governor transferred to the mainland. This appears to have been the last known occupation of the island, except for the occasional garrison of troops during the 400 years of Ottoman rule.

Earlier travellers

Among the first of the early explorers, Burkhardt (1822) refers to the island as *Koreye*, although it is doubtful whether he ever went there. Edward Ruppell was among the first to give an account of the island (1826). He calls it *Emrag* and suggests that it had been occupied by the 'Die Emradi' tribe. 'Ile de Graye' is the name for the island used by Leon de Laborde (1830). His was the first plan, but one that is far from accurate. David Roberts (1839) gives the name *Graia*. His well-known lithograph (Fig. 2) shows how much more of the buildings existed in the early 19th century; notably the small lighthouse on the southern tip which, except for its base, has now entirely disappeared. The Roberts drawing is of added interest as it reveals the artist at work presumably putting the final touches to his sketch, apparently to the chagrin of his waiting Bedouin servant.

Beke (1878) gives a fair pictorial sketch and includes some interesting sailing instructions. Von Schubert (1837) has the name *Kurayyah*, and Arconati (1872) prefers *Hezirat-el-Querigh*. Both Lt. J. R. Wellsted (1838) and Sir Richard Burton (1878) have significant things to say

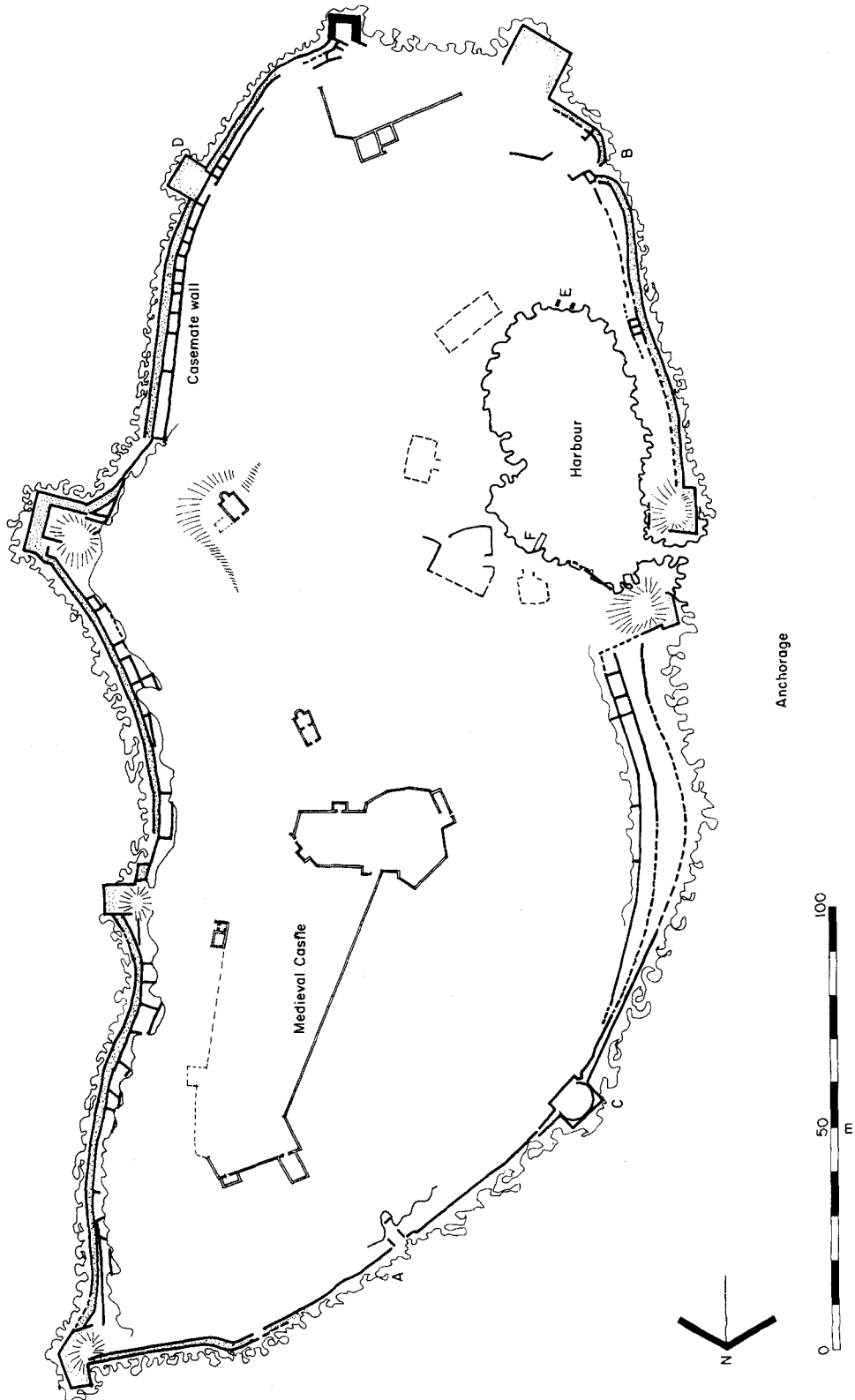


Figure 3. Survey of the perimeter defence wall and harbour.

about the island as an anchorage and Burton says that the people of Aqaba call it Jebel el Kulat (Mount of the Fort).

In the present century, Savignac (1913) was the first to attempt a scholarly appraisal and published the earliest photographs. Woolley and Lawrence (1914:145–6) commented in some detail on the character of the architectural remains, and Nelson Glueck (1939:18–19) made a short visit and having collected some sherds concluded that the earliest of these were Byzantine. Interest in the island was revived by Benno Rothenburg (1961:86–92). He drew particular attention to the low level sea wall, gave a detailed account of the high level buildings and collected a quantity of pottery. He proposed a much earlier occupation of the island than that suggested by Glueck. Also in the same year Hashimshoni mapped the island accurately and carried out a detailed architectural recording of the medieval buildings on the north hill. His plans, together with a chapter of

observations are included in Rothenburg's book 'God's Wilderness'.

A few years later, Rothenburg (1972:202–7) found the Hathor Temple at Timna, 30 km north of Eilat and proposed that this discovery threw new light on the origins of Jezirat Fara'un. Rothenburg included in his publication (1972) a report from the author of this paper which is now given here in more detail.

Surveys 1967–1974

The island is 325 m from north to south and 60 m east to west. Composed wholly of granite, it has three hills; that to the north takes up half the length of the island and is surmounted by a substantial building of Moslem character dating to the 12th century AD, and the two southern hills contain Byzantine ruins. At shore level there are the remains of a substantial sea wall encircling the entire perimeter of the island and a small harbour occupies the low ground in the southwest between the hills (Fig. 3).

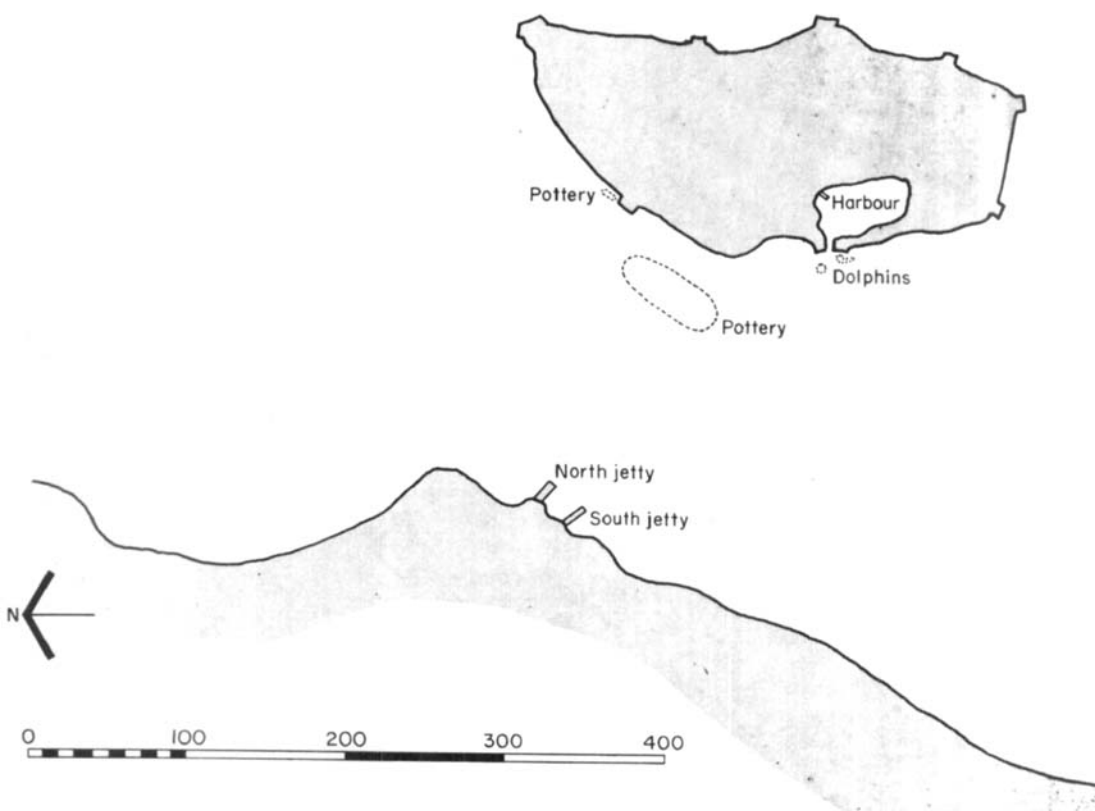


Figure 4. 1968 Expedition. Location of finds.

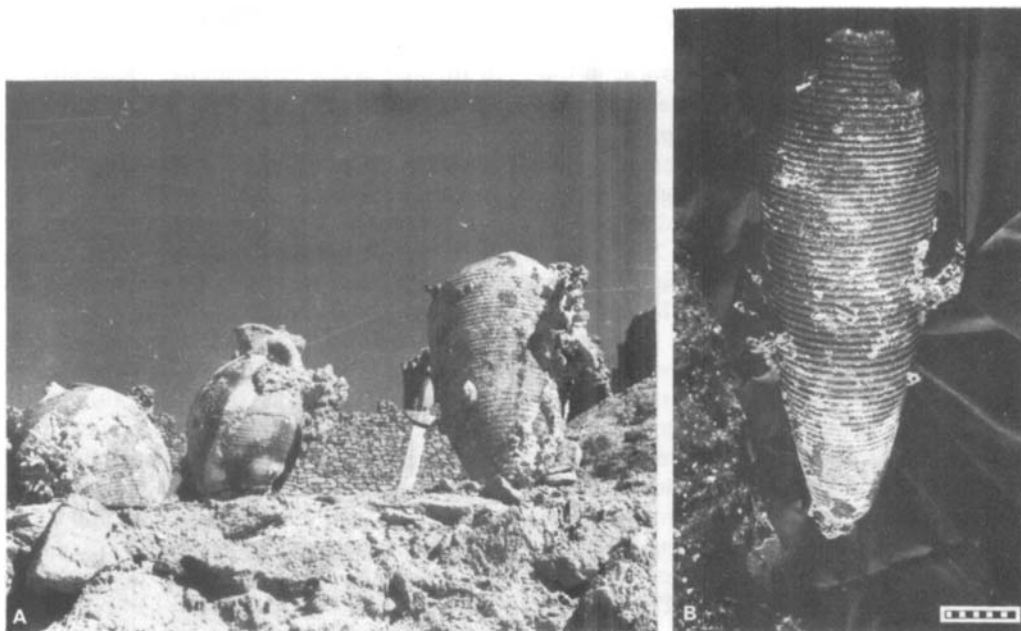


Figure 5A, B. Late Roman-Byzantine pottery found in anchorage.

The author's work on Jezirat Fara'un dates from 1967, followed by many later visits. The 1967 visit was limited to three days during which a small group from the Undersea Exploration Society of Israel assessed the undersea environs, located some submerged pottery and the author prepared a preliminary appreciation of the marine installations. This was followed in 1968 by a more comprehensive survey carried out by a larger group of British and Israeli divers under the author's direction (Flinder, 1968) and in the subsequent years by an architectural survey of the structures at sea level.

The main task of the 1968 season was to carry out a systematic search of the sea-bed around the island, and particularly in the isthmus, the narrow strip of sea between the island and the mainland. The island is encircled entirely by a coral shelf reef which is responsible for its current popular name Coral Island. On the west the coral shelf descends gently, thinning out to a sandy bottom and reaching a maximum depth of 23 m before rising gradually to the mainland beach. On the east shore of the island there is a heavily coralled submerged shelf extending 10 to 15 m out to sea, and then dropping abruptly to a lower shelf and then

again to unplumbed depths. Following a general underwater appraisal, the systematic search of the isthmus was carried out by the swim-line method (Grattan, 1973), and the search revealed concentrations of pottery, some areas of submerged stonework and included the discovery of two stone jetties (Fig. 4).

The most impressive group of pottery and sherds was located some 50 m from the island's west shore at a depth of 7 to 9 m. Spread over a large area, the material was all of late Roman-Byzantine ware, characterized by narrow horizontal grooving around the perimeter of the vessels. Of consistent light brown clay, the types varied and included a large pilgrim-shape jar, smaller vessels of bulbous outline and small slim and conical amphora types. Where specimens or fragments were found on the sea bottom rather than in the sand, they were invariably heavily encrusted with coral. This, we were to find elsewhere in the Red Sea, is a regular feature in shallow water and is of particular interest to both archaeologists and biologists as it presents a method of measuring the rate of coral growth when the pottery is familiar, or conversely the dating of pottery from coral growth rate data. A scattering of medieval type pottery was located a little further north. All

the recovered pottery is now displayed in the small Museum in Eilat (Fig. 5A, B).

The area of submerged stonework is in shallow water close to the harbour entrance and appears as two mounds of collapsed building stone. One group is vaguely circular in plan about 2 m diameter and 2 m high. The next group is a little further south and is 'boomerang' in shape, one leg being about 7 m long and the other 6 m. Both these mounds of stone have the appearance of just having been dumped overboard, but it is possible that they are the remains of purpose-built structures which are now obscured by collapsed superstructures. The position of these mounds would correspond to the siting of marine dolphins or mooring piers in relation to the harbour entrance. Dolphins are common to many harbour entrances where they are used to assist boats entering port.

The two stone jetties were found on the mainland beach. The south jetty (Figs 6 and 7), which is a few centimetres below the sea surface, is very distinct in outline, and although

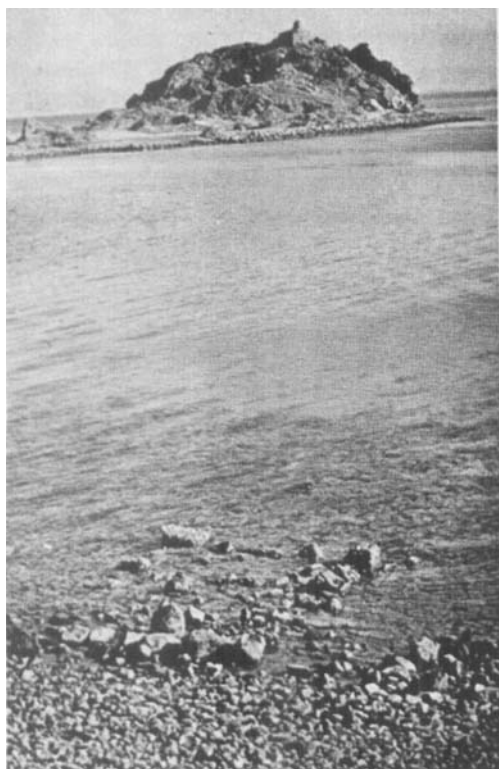


Figure 6. South jetty.

much of the stonework is missing, the main structure is well preserved. It is 14.8 m long by 6 m wide and is made up of blocks varying in size up to 1 m².

The second jetty, a little further to the north, is above sea level but is far less distinct in outline and could be mistaken for an outcrop of natural rock. The photograph (Fig. 8) however, reveals the unmistakeable linear character of a man-made structure. We are reminded here of the observations made by Woolley & Lawrence (1914) who, on examining the sea-level wall on the island wrote — 'The Aqaba water seems to have a curious effect of petrification (perhaps due to the coral there), which cements the shores into a single slab of conglomerate; this wall therefore looks as natural a tipped stratum as need be, save for the toolmarks still showing in the inner edges of some stones'.

During the 1968 operation the author embarked on the survey of the harbour and was initially struck by the position of the harbour in its relation to the anchorage. The anchorage takes up the whole of the isthmus between the island and the mainland, and it is as we shall see, the one cardinal feature from which the entire marine and defensive development of the island has developed. Although generations of local fishermen had used the isthmus as a safe haven, it was not until the early 19th century that western travellers took note of it. Wellsted (1838) was among the first. Having been forced to seek shelter during a storm, he relates 'We hove to close to the island where we were most sheltered'. Sir Richard Burton later observes 'Must be an excellent harbour of refuge in the wildest weather'.

At first sight, the isthmus appears to be the least likely candidate for an anchorage, but as we were to observe frequently for ourselves, when the open sea was turbulent, the anchorage was relatively calm, particularly within the lee of the island. A heavy swell seawards would, west of the island, be accompanied by minimal wavelets, and the broad, shallow, sandy plateau extending south-west from the harbour entrance, provided both good holding ground and excellent shelter over a wide area. The reason for the comparative calm of the isthmus is explained by the shape of the mainland approximately one mile south of the island. Here, one finds a low sandy wadi which continues below

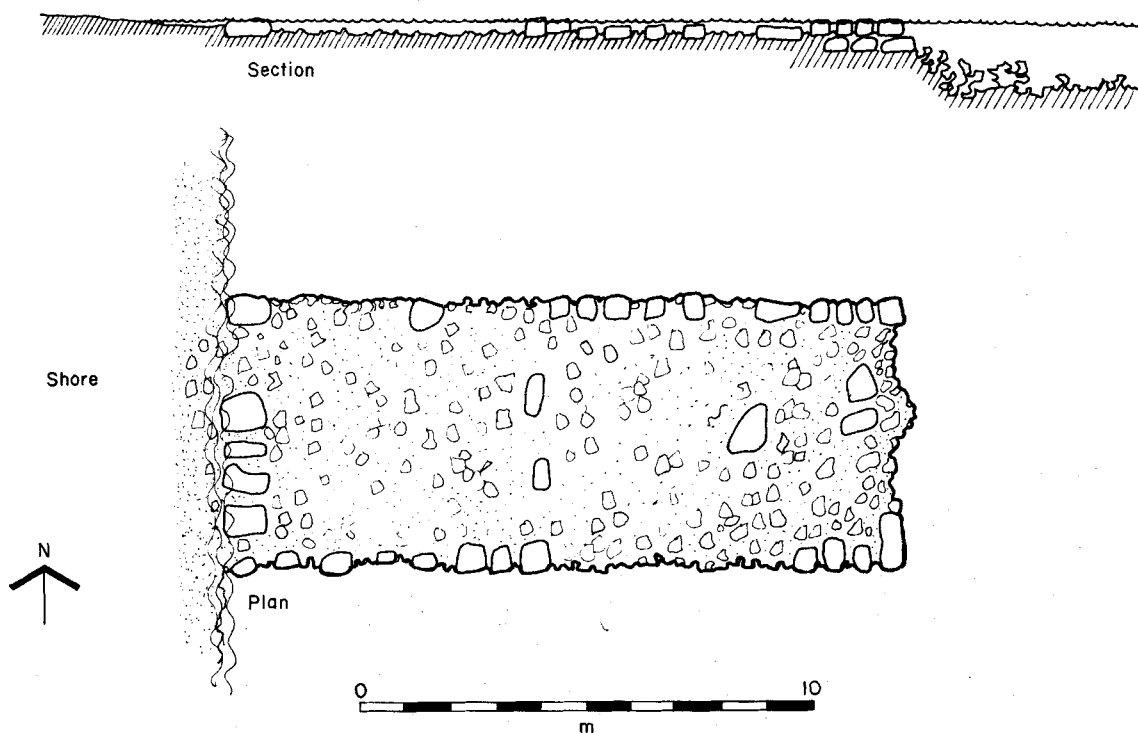


Figure 7. South jetty, plan and section.

sea-level to form a sandy plateau extending about half a mile out to sea, and the effect of this is that the predominantly southern swell is deflected to seawards of the island. It is significant that the island is featured on the Admiralty Chart 3595 — Harbours and Anchorages in the Red Sea — as 'Fara'un Anchorage'. Its inclusion solely because it furnishes an anchorage is illuminating if we consider that this natural phenomenon has existed from time immemorial and for longer than man has sailed in boats. Therefore, the study of the island, its archaeology, and its history, stems from the one fundamental fact that here at Jezirat Fara'un is the only natural anchorage for shipping in the whole of the north of the Gulf of Aqaba.

The first thing that one notices about the harbour is that its position approximates with the stillest part of the anchorage. This cannot have been accidental: indeed, the placing of the harbour and of its entrance in particular (Fig. 9), displays a design logic and an ingenuity that must be admired. The harbour basin is not particularly large, measuring some 60 m by 30

m. It is very heavily silted and without the means of clearing the sand from its perimeter, our recording has been necessarily restricted to those features which are visible. Even so, the outlines of the basin can easily be made out (Figs 10 and 11). The sea wall which encircles the island, forms in part the breakwater between the harbour basin and the sea anchorage, and the wall is only interrupted by two towers which flank the entrance. The plans of the towers are not similar, for whereas that to the south is placed square to the entrance and the perimeter wall, the northern tower is turned inwards towards the entrance and its inner corner has been rounded. This finely conceived detail relates to the slight but perceptible characteristic of the current movement observed within the anchorage. We found that a boat which is loosely moored just to the north of the harbour, would of its own volition move gradually in a SE direction into the harbour entrance. The designers of the harbour had no doubt also observed this phenomenon and had planned the entrance accordingly. All that now remains of the towers

are the lowermost courses. These are of cyclopic blocks and are similar in design and constructional form to all the other towers which are an integral part of the perimeter wall. This fact, and the linking of the south entrance tower with the main wall, shows that the harbour and the wall are an integral structure and are built as parts of a total concept. To the north-east and east of the harbour, we have remains of substantial buildings, and of paving between these and the edge of the basin. A small submerged slipway is placed at the NE of the basin. This is paved and laid to a slight fall (F, Fig. 3).

A clue as to the harbour's construction can be gathered from the short stretch of the basin lining evident at the north end. This consists of regularly laid ashlar blocks, each approximately 0.30 m X 0.20 m, and when related to the inner face of the southern tower to the entrance and intermittent visible blocks elsewhere on the perimeter of the basin, gives the impression that the basin is lined wholly with masonry. It is likely that the harbour basin stands on the site of what was originally a small sandy bay and that the basin was formed by separating the bay from the isthmus by means of a mole built on an artificially formed foundation and that the perimeter wall was extended upon this mole.

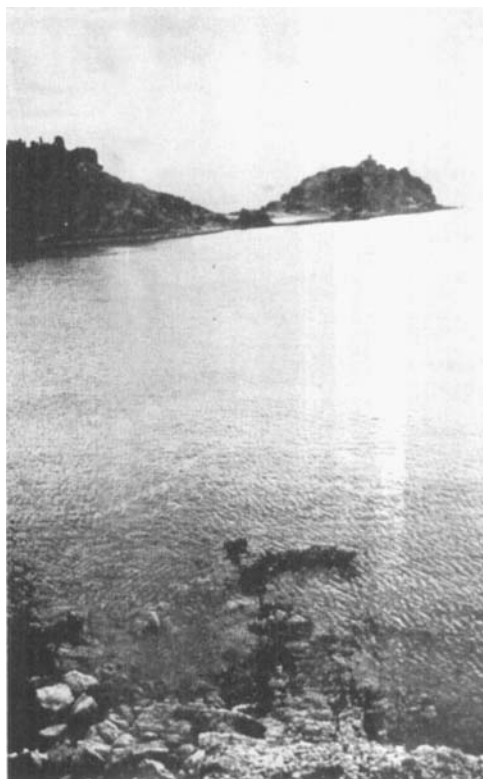


Figure 8. North jetty.



Figure 9. Harbour entrance.

The southern end of the basin is notable for the presence of two particularly large twin stone blocks. Placed parallel to each other, these blocks presumably performed an important function, the purpose of which it is at present difficult to determine (E, Fig. 3).

The perimeter defence wall encircles the whole of the island at water's edge. It incorporates in its length eight or possibly nine towers, two of which as previously mentioned, bestride the harbour entrance. The wall is also interrupted at two other places; at Point A (Fig. 3) where there is a slipway and at Point B (Fig. 3) where the construction of the wall suggests possibly a sea gate. Both these breaks face the anchorage, but elsewhere, where it faces the open sea to the north-east and south, it is entirely unbroken.

The wall (Fig. 12), which is of the casemate type, comprises an outer wall, casemate rooms and an inner wall. The outer wall is itself of composite construction, being made up of an outer skin of cyclopic stone blocks averaging

1 m thick, and an inner skin 0.5 m thick. Sandwiched between the two skins we have a concrete filled cavity 2.4 m thick, thus producing an outer wall of an overall thickness of some 3.9 m. The depth of the casemates averages 2.2 m and the innermost wall is 0.40 m thick. The total thickness of the defence wall from the innermost face of the casemates to the outer face facing the sea, averages 6.5 m. The cross walls forming the casemates are spaced irregularly and average 0.25 m thick. The towers are impressive; constructed with cyclopic blocks precisely laid; each tower varies in size, but in general they are square in plan. The tower at Point C (Fig. 13) appears at first sight to be the most complete, but on closer examination it is evident that the foundations antedate the upper part; the lowest courses consisting of large blocks repeating the casemate walls, but the upper courses are formed of small masonry blocks similar to the stonework of the medieval buildings on the north hill. Furthermore, the base follows the square

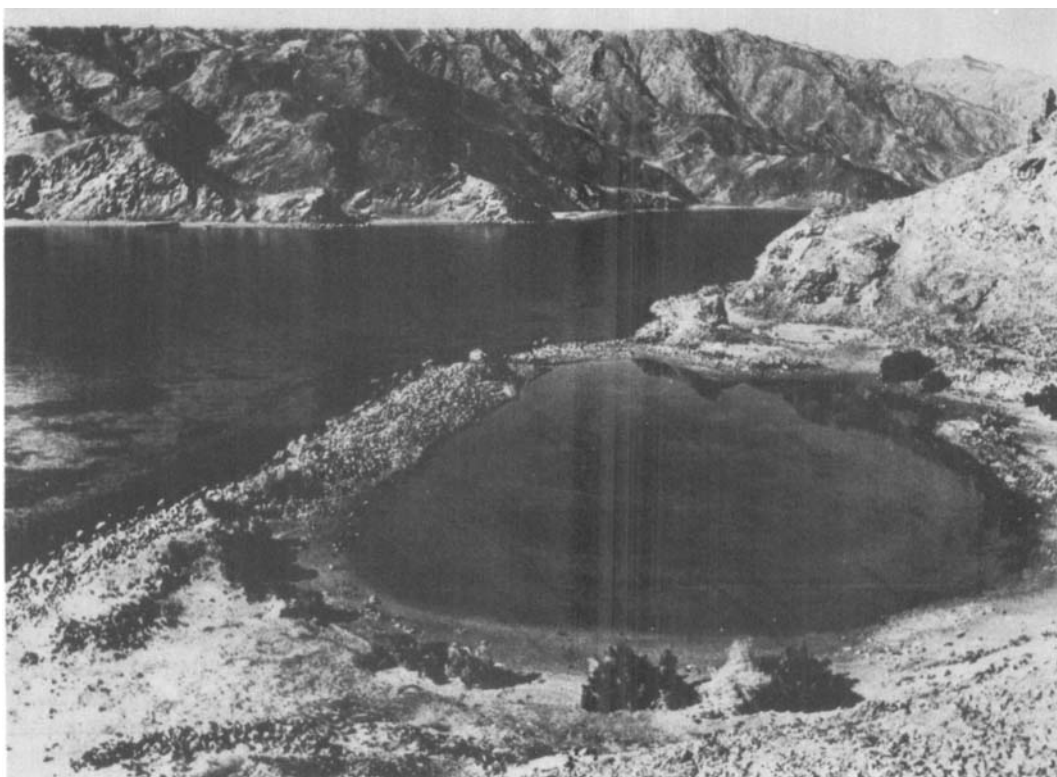


Figure 10. Harbour, view from south hill.



Figure 11. Harbour, air photo.

form of most of the towers, whereas the upper part is semicircular.

In the absence of a systematic excavation, the dating of the wall the harbour and jetties must be conjectural, although it is likely that these belong to the earliest periods of occupation. The pottery of Rothenburg (1972) and a small quantity collected by ourselves, has been identified by Rothenburg as Early Iron Age I, and related to the Midianite and Negev ware found by Rothenburg on his first Timna survey and corresponding to the 14th to 12th centuries BC. Rothenburg's evidence from the Hathor Temple at Timna relating to copper mining industries of the Late Bronze/Early Iron Age I, and the Ramessid Pharaohs, has led him to the conclusion that the island of Jezirat Fara'un was an Egyptian Pharaonic mining harbour. Rothenburg also points to the remains of a small metallurgical installation and a quantity

of fayalite slag on the island, evidence for small scale iron smelting activities.

Rothenburg's argument is convincing, but there is some doubt whether the defence and marine structures, i.e. the perimeter wall and harbour, can equally be dated to this period, as it is difficult to conceive why the Egyptians would have need of such a large defensive wall and an enclosed harbour as well as a safe anchorage.

At this stage therefore let us examine the period of the kings of Israel and Judah, during which according to Biblical tradition, the north of the Gulf of Aqaba saw considerable maritime activity. The First Book of Kings gives us 'And King Solomon made a navy of ships in Ezion Geber, which is beside Eloth on the shores of the Red Sea, in the Land of Edom. And Hiram sent in the navy his servants, shipmen that had knowledge of the sea, with the servants of

Solomon. And they came to Ophir and fetched from them gold, four hundred and twenty talents, and brought it to King Solomon'. A slightly different version is given in the Second Book of Chronicles: 'Then went Solomon to Ezion Geber and to Eloth, at the seaside in the Land of Edom. And Hiram sent him by the hands of his servants ships, and servants that had knowledge of the sea; and they went with the servants of Solomon to Ophir and thence took four hundred and fifty talents of gold and brought them to King Solomon'.

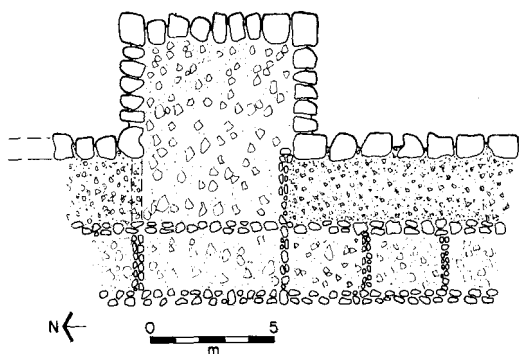


Figure 12. Detail of casemate wall and tower D (Fig. 3).

Until the recently renewed interest in Jezirat Fara'un, the Solomonic port of Ezion Geber was identified with Tell-el-Kheliefeh, an ancient mound west of Aqaba. This identification was based on the findings of Glueck (1939 : 18–19). But in spite of Glueck's subsequent rescission (Glueck, 1965) this view still prevailed. The identification of Jezirat Fara'un with Solomon's Ezion Geber was first proposed by Schubert and later by Laborde: 'The Edomites . . . had for auxiliaries two maritime cities situated at the northern point of the Gulf of Aqaba, one on the coast which is Ela and the other on a neighbouring island called Ezion Geber'. Note that Jezirat Fara'un is the only island in the north of the Gulf of Aqaba.

Rothenburg reopened the case for the identification of Ezion Geber with Jezirat Fara'un mainly on the basis of his pottery finds. But whereas both of these claims were made on archaeological evidence, the one totally convincing point of evidence in support of Jezirat Fara'un's claim was overlooked – the fact that the isthmus between the island and the main-

land was the only suitable anchorage, and on this account alone, the identification of Jezirat Fara'un with Ezion Geber is fully justified, as it is inconceivable that the Phoenician partners of Solomon would have participated in a maritime venture of this magnitude without the assurance of a safe and sound home port. The distance between Eloth and its port Ezion Geber is fully acceptable and is paralleled by other examples in antiquity such as Athens/Piraeus and Rome/Ostia.

One is also struck by the resemblance that we have here to other known Phoenician harbours in the Mediterranean. For example Sidon, Tyre and Arwad (Frost, 1973) in the Phoenician homeland, all examples of small harbours on offshore islands; a pattern repeated in Jezirat Fara'un.



Figure 13. Tower at C (Fig. 3).

Is there anything in the architecture of the harbour and defensive wall that could conceivably relate to Ezion Geber? Other than in the use of large units of masonry, the style of the perimeter wall cannot be said to particularly resemble known Phoenician examples. One would wish, for example, to have seen the extensive use of header blocks laid parallel towards the sea. On the other hand, the wall was a characteristic of Judean fort construction (Yadin, 1963), and the reinforced sandwich type of the outer skin of the wall on Jezirat Fara'un would be a logical refinement of the usual casemate wall, but in this case designed to resist the force of the sea.

At the same time, it must be acknowledged that the casemate wall was not restricted to the period of the Judean Kings alone; indeed it can be seen as late as the 1st century AD at Masada (Yadin, 1966). Finally we must query whether Solomon had a need to fortify the island. Against an enemy? This is unlikely, for Solomon's relations with other countries were peaceful, and in the south in particular, his marriage with the daughter of the Pharaoh of Egypt attests to the special relationship between Egypt and Israel at that time, although it apparently underwent a change on the accession of the next Pharaoh Shishak, the founder of the XXII dynasty. However, the marine defence developments on Jezirat Fara'un are entirely compatible with the picture of Solomon the builder, renowned for the fortifications of such cities as Hazor, Megiddo, Bet-Shemesh and Tell Beit Mirsim. Furthermore,

Solomon's commercial expansion in areas of the Red Sea and the Indian Ocean were extensive, and for the first time the joint commercial fleets of Phoenicia and Israel were plying the coast of Africa for 'Gold and silver, sandalwood and ivory, apes and peacocks' (Kings 10:22). These commodities which enriched the treasures of Solomon's Kingdom were funnelled by his fleets through the narrow Gulf of Aqaba to its northern extremity, to be unloaded, stored and transported further north by land to Jerusalem. The port of Ezion Geber that handled this traffic, would have need of warehouses, repair yards and all the facilities connected with a commercial port, as well as a high degree of security. Most of these facilities are evident at Jezirat Fara'un, and this adds further support to the identification of Jezirat Fara'un with biblical Ezion Geber.

However, it must be acknowledged that in the absence of systematic excavation, these opinions can only be conjectural, and conclusive dating of the marine installations of Jezirat Fara'un must be awaited. In the meantime, we can but acknowledge that the men who conceived them were men of the sea and the most skilled of master builders.

Acknowledgements

I should like to thank Dr Elisha Linder for his co-operation and help, Dr Avraham Biran, one-time Director of the Department of Antiquities, Government of Israel, for authority to carry out my survey and to Dr Benno Rothenburg for his assistance and for the use of the air photograph, Fig. 12.

References

- Arconati, de G., 1872, *Diario in Arabia Petrea*.
 Beke, C., 1878, *Sinai in Arabia and of Midian*. London: 359. 452. 460. 469.
 Burton, R., 1878, *The Land of Midian revisited*. London.
 Burkhardt, J. C., 1822, *Travels in Syria and the Holy Land*. London.
 Eckenstein, L., 1921, *A history of Sinai*. London.
 Flinder, A., 1968, *Jezirat Fara'un. An undersea archaeological survey*. Private Publication. London.
 Frost, H., 1973, The offshore island harbour at Sidon and other Phoenician sites in the light of new dating evidence. *Int. J. Naut. Archaeol.*, 2: 75-94.
 Glueck, N., 1939, *Explorations in Eastern Palestine*. III. Ann. Amer. School of Oriental Research.
 Glueck, N., 1965, *The Biblical Archaeologist*, XXVII.
 Grattan, J., 1973, *How to find*. BSAC. London.
 Laborde, L., 1830, *Voyage de l'Arabie Pétrée*. Paris.
 Linder, E. & Raban, A., 1975, *Marine archaeology*. Jerusalem: 28.57.66.85.
 Pollack, A. N., 1945, *History of the Arabs*.
 Roberts, D., 1839, *The Holy Land*. London.
 Robinson, E., 1841, *Biblical researches in Palestine*, 1. London.
 Rothenburg, B., 1961, *God's Wilderness - Discoveries in Sinai*. London: 86-92, 185-189.

- Rothenburg, N., 1972, *Timna – Valley of the biblical copper mines*. London.
Ruppell, E., 1826, *Ruinen auf der Insel Emrag*.
Runciman, S., 1951, *History of the Crusades*. Cambridge.
Savignac, M. R., 1913, Une Visite a Lile de Gray. *Revue Biblique* (Paris) X. 588–596.
Schubert, G. H., von, 1837, *Das Nothwendigste aus Gebiete Geographic nebst cinem Anhange uber Palastina*. Meissen.
Wellsted, J. R., 1838, *Travels in Arabia*. II.
Woolley C. L. & Lawrence T. F., 1914, *Wilderness of Zin*. London.
Yadin, Y., 1963, *The art of warfare in Biblical lands*.
Yadin. Y., 1966, *Masada*. London.