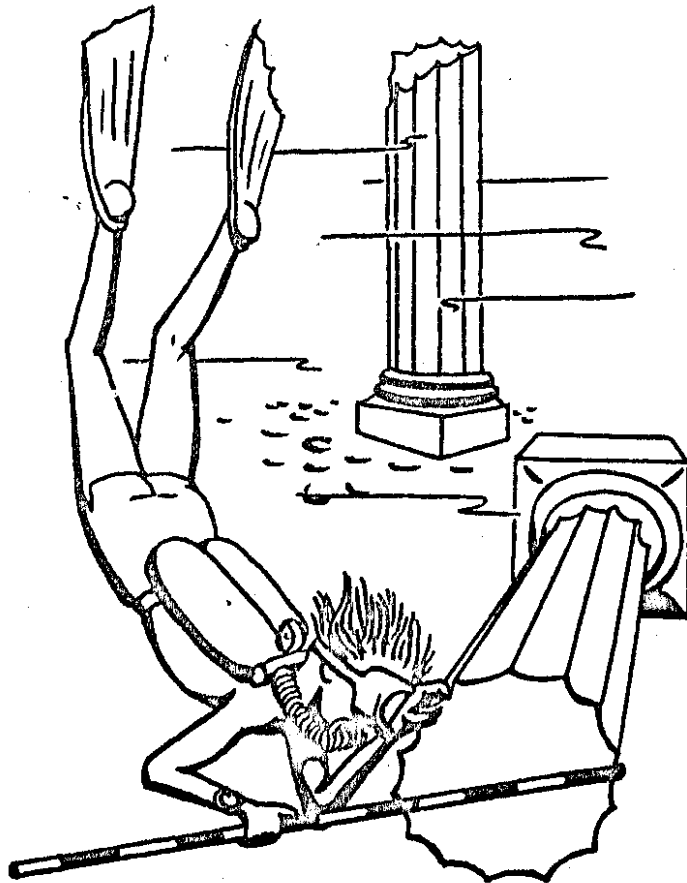


PENTAPOLIS PROJECT 1972

A SURVEY OF ANCIENT HARBOURS IN CYRENAICA

PRELIMINARY REPORT



A Survey of Ancient Harbours in Cyrenaica Interim Report

INTRODUCTION

The team formed to carry out the survey was a composite one consisting of two underwater archaeologists (RAY and DPD) with extensive experience on Roman harbours in Algeria, Tunisia and Tripolitania, and an archaeologist (JHL) with knowledge of the coastal settlements of Cyrenaica and previous experience of working with the Libyan Department of Antiquities.

The primary object was to survey the extant underwater harbour installations associated with the ancient Cities of Tolmeta and Tocra. Secondary objectives, time and weather permitting, included inspection and survey of any artificial harbour works at the minor ancient settlements suggested by the Stadiasmus Maris Magni and Scylax Caryandensis.

The project was supported by the Society for Libyan Studies, the Russell Trust and Cambridge University Faculty of Classics with the co-operation of the Libyan Department of Antiquities.

SURVEY

1. Tolmeta. Several fundamental discrepancies occur between previous accounts of the harbour, notably those of Kraeling and the Beecheys. The 1969 Tocra expedition had delineated the main areas of interest and the aim of the 1972 project was to reconcile all the known accounts and to provide a definitive interpretation of the existing underwater and associated land remains.

The seaward side of the site is characterised by a promontory projecting from a NE - SW shore. To the west lies a long sandy beach, and to the east two small islands denoted E (east island) and W (west island). The prevailing wind is NW but frequently veers to the NE.

The objective has been largely achieved and sufficient information has been gathered to allow a judgement to be made in favour of the Beechey's location of the harbour to the east of the promontory.

SURVEY1. Tolmeta (cont'd ...)

This interpretation better accords with the meagre description of the harbour given by the author of the Stadiasmus Maris Magni, and also fits logically onto the city's Hellenistic street grid.

The main harbour moles have been located, and their positions mapped; a complex system of submerged structures between W island and the shore has been surveyed, and limited excavation on the wall on the western beach has been undertaken.

The most easterly of the two main harbour moles runs 130 mts. southwards from E island on a natural reef towards the shore, and at present covers a width of some 40 mts. Its construction is simple, comprising mainly quarried stone, although some evidence for a more formal block facing may be deduced from the scattered blocks lying on the sea bed below. Facing it, on the shore, lies an area of extensive monumental masonry running down into to the sea for a distance of 70 mts.

The second mole is that joining the two islands, but the evidence for its existence is largely circumstantial, as the entire area is largely covered by sand. However, the echo-sounder profile of the sea-bed in this area shows a distinct ledge whose nature may be inferred from the line of masonry which disappears into the sand at its western end.

Between the W island and the shore the water is very shallow and the entire area is covered by fallen masonry. Beneath the rubble may be clearly traced the lines of road-ways and walls, and a detailed plan of the coherent features has been prepared showing the infrastructure of the harbour area. W island itself is covered with rock cuttings forming chambers and channels, all at present below sea level.

The whole harbour area has been surveyed to a scale of 1:2,000 and the area of submerged ruins has been planned at 1:200. All finds and important features have been photographed under water, and relevant small finds and pottery drawn.

SURVEY1. Tolmeta (cont'd ...)

One area that has aroused much comment in the past sources is the beach to the west of the promontory. Here lie the remains of a casement wall 5 mts. wide and over 300 mts. long. In an effort to ascertain whether or not this formed part of a harbour small scale trial excavation was undertaken through the good offices of the Antiquities Department. Clearance of a section across the wall revealed, on the landward side, three course of masonry above a foundation, and on the seaward side a single course on a foundation bedded at the same level as the second course on the landward side. The level of this wall was taken relative to local mean sea level and the foundation line was found to be 1.50 mts. above seal level. Because of this and despite the suitability of the wall as a harbour defence it seems unlikely, on the evidence currently available, that there was an inner harbour in the area.

The evidence for locating the harbour to the east of the promontory can be summarised as follows :-

- i) The existence of moles between the E island and the shore thus providing shelter from the occasional NE winds, and the probable existence of a breakwater between the two islands.
- ii) Extensive harbour works to the south of the western island.
- iii) A sheltered entrance immediately to the east of, and below, the light-house, which itself stands on an ancient foundation.

To this may be added the facts that the city's main decumanus is aligned to the eastern harbour, and that this harbour lies within the protection of the city walls.

On this basis the harbour can be interpreted as comprising two basins. The western basin is deep and safe in a light wind but exposed in a strong prevailing northwester; while the second, eastern basin, revealed sufficient evidence of harbour works to secure the safe harbour described in the Stadiasmus Maris Magni. Further evidence clearly lies beneath the sand within these bays as no sign could be found of the structure within the eastern entrance found by Jones and Little in 1969¹; Sustained

SURVEY1. Tolmeta (cont'd ...)

S. Atkinson observation of features is however rendered impossible by the shifting sand which changes daily during rough weather.

The open bay to the west of the promontory is unsuitable as a harbour without some form of substantial protection to shelter it from the prevailing NW wind. Under water search using divers and echo-soundings failed to trace any artificial moles, and thus it must be concluded that the bay itself was not the main harbour. The excavations on the Beechey's beach wall in this bay do not entirely however, at this stage, preclude the possibility of a second (?commercial) artificial port outside the city walls to the west, and such an arrangement was indeed commonplace in Greek maritime cities.

There is some evidence for a local rise in relative mean sea level in the region of 1.25 mts. and 2.00 mts; it is, however, subject to further study. This is not inconsistent with the theory that the entire coast of Cyrenaica has sunk since antiquity, and is in line with changes of 3.00 mts. found by Flemming at Apollonia. Such a rise at Tolmeta would place the submerged structures south of W island on 'terra firma' overlooking the harbour.

Tocra (LY 402)

It has for long been assumed that the lack at Tocra of any natural protection or obvious artificial harbour remains inferred the absence of a major harbour. Although Tocra is never referred to as a port of the importance of the other three coastal cities of the Pentapolis, it was felt that some landing facilities would have been necessary to secure seaborne communications with the rest of the province. Extensive underwater search along the northern front of the city has confirmed these assumptions. Three localised areas of rubble and worked blocks indicate the form that the harbour took, comprising two quays running out from the shore, protected to some extent by a rudimentary mole running 220 mts. out to sea. Two anchorage areas have been identified on either side of this feature. In addition to this the shape of the sea bed, and the existence of masonry running into a sand-bank suggest the possibility of a further inner harbour wall running parallel to the coast from the west quay.

SURVEY1. Tolmeta (cont'd ...)Tocra (LY 402) (cont'd ...)

The alignment of the two quays with the city's main cardines would suggest that, as at Tolmeta, the harbour's construction was contemporary with the laying down of the city's Hellenistic street grid.

The harbour remains have been surveyed onto the 1:1,000 plan of the city and copies of this plan and all other relevant material will be forwarded to the Department on completion.

Marsa Susa - Apollonia. (LY 440)

A short visit was made to the important site of Apollonia to obtain comparative information for other harbours of the Pentapolis and more especially for Tolmeta. At the same time the opportunity was taken to obtain profiles of all the important features with an echo-sounder, and to evaluate the extent to which the site would benefit from further study.

This was most successful. Photographs of all the main constructional features were taken and copies will be forwarded to the department after processing. In view of the large amount of material in the harbour no serious work was started this year, although the site would clearly benefit from further detailed study.

Zawiet el Haniya - ?Ausigda. (LY 421)

Following the recent account of this site by Jones and Little¹, the site was visited and an under water search and echo-sounder survey made across the small bay which forms a natural harbour immediately below the site.

A small rocky island protects the bay from the NW wind. On it were found the remains of a small rectangular structure which may tentatively be identified as a light-house. The island is joined to the shore by a shallow shelf of rock on which was found a quantity of rubble, suggesting that at some stage the protection may have been artificially improved. At the same time it would give access to the structure on the island.

SURVEY1. Tolmeta (cont'd ...)Zawiet el Hammama. Phycus. (LY 430)

Referred to in the sources as a 'harbour of the Cyreneians' and by Synesius as the alternative harbour to Apollonia, Phycus stands in a wide sandy bay protected on the NW by a rocky promontory. On the promontory there is ample evidence of the existence of a commercial harbour, but underwater the remains are not extensive. A small stone quay, now tumbled to the sea bed below, was once protected by a short hook shaped mole built of rough quarried stone, and now widely dispersed by the sea.

Rock - curv. 3/10/5

Dryana, Hadrianopolis. (LY 401)

A brief visit to this site revealed that the city, which is flanked by two small sebkahs, faces onto a shallow sandy beach featureless save for one small rock outcrop 500 mts. to the east. In view of the total lack of natural protection and the fact that there are no apparent artificial structures, it is suggested that no formal harbour facilities were ever provided. The apparently short duration of occupation on the site would tend to confirm rather than deny this suggestion.

Recommendations

1. Tolmeta. As indicated above, survey of the remains on the sea bed is limited by the vagaries of storm driven sand and it became apparent during the course of survey that more harbour works were thus hidden on the landward side of the bay. The Controller of Antiquities for Western Cyrenaica has observed that at times these hidden remains are exposed by high seas. In the future event of exposure, therefore, the opportunity should be taken of photographing and surveying these and adding them to the plan herewith attached.

Although the Beechey's sea wall has been sectioned for details of its construction, and its line surveyed onto the general plan, the feature remains an anomaly. Its function can only be resolved by large scale clearance of long sections across the beach to the south. Such is the massive nature of this construction that conventional methods of clearance will not suffice

Recommendations (cont'd...)

1. Tolmeta
and thus mechanical means must be employed if meaningful results are to be obtained. This involves the use of a tracked bulldozer.
2. Tocra. Extensive under water search revealed the vestigial remains of only rudimentary installation at Tocra. These have been surveyed and no further work is necessary on the site.
3. Apollonia. The Cambridge Team led by Dr. Nicholas Flemming in 1958 and 1959 produced an outline plan of both basins of the ancient harbour and its associated installations. The plan amply emphasises the place of Apollonia as one of the most archaeologically important sites in the Mediterranean. The harbour moles, quays and slipways, being extremely well preserved, reveal details of ancient harbour construction techniques to a remarkable degree, and do so with a clarity unparalleled elsewhere. It is therefore desirable that this potential "type site" should be surveyed in detail at the earliest possible opportunity.
4. General. The remaining harbour sites, in addition to those already identified, listed in the Stadiasmus Maris Magni and by Scylax Caryandensis as lying between Tolmeta and Zawiet el Haniya and eastwards from Apollonia should be located and surveyed. Such a survey, as well as completing the harbour list, would amplify the coastal section of Professor Goodchild's Cyrenaican sheet of the Tabula Imperium Romani.

Training

The team was charged by the Director General of Antiquities with an evaluation of the Department's personnel in Cyrenaica with a view to the training of one of the Department's officials in the techniques and methods of under water archaeology. The officials at Tocra, Tolmeta and Apollonia were given an elementary introduction to the equipment and its use on site.

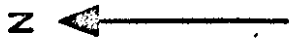
Acknowledgements

The team would like to place on record their indebtedness to the Director General and his staff for the use of the various rest houses in Cyrenaica and for their unstinted co-operation during the survey. Special thanks also are due to Abdul Hammid (Controller for Western Cyrenaica), Abdussalem Budzama (Tolmeta), Fadlallah Abdussalem (Apollonia), Mansour Abdussalem (Tocra) and Bryac Attyah (Controller for Eastern Cyrenaica) without whose assistance much of the work would not have been possible.

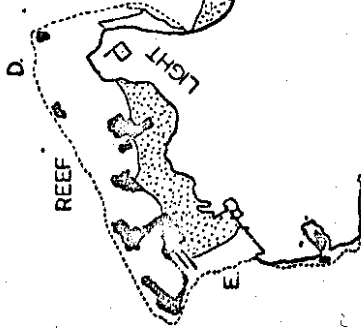
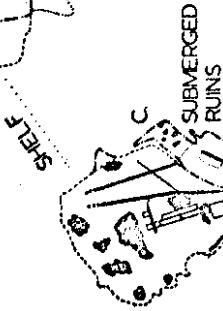
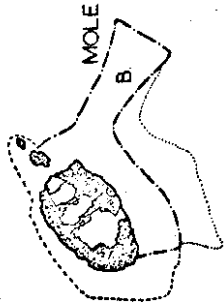
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MEDITERRANEAN



ITALIAN WALL

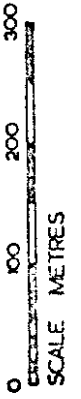
MODERN TOWN

ROAD

BEACH

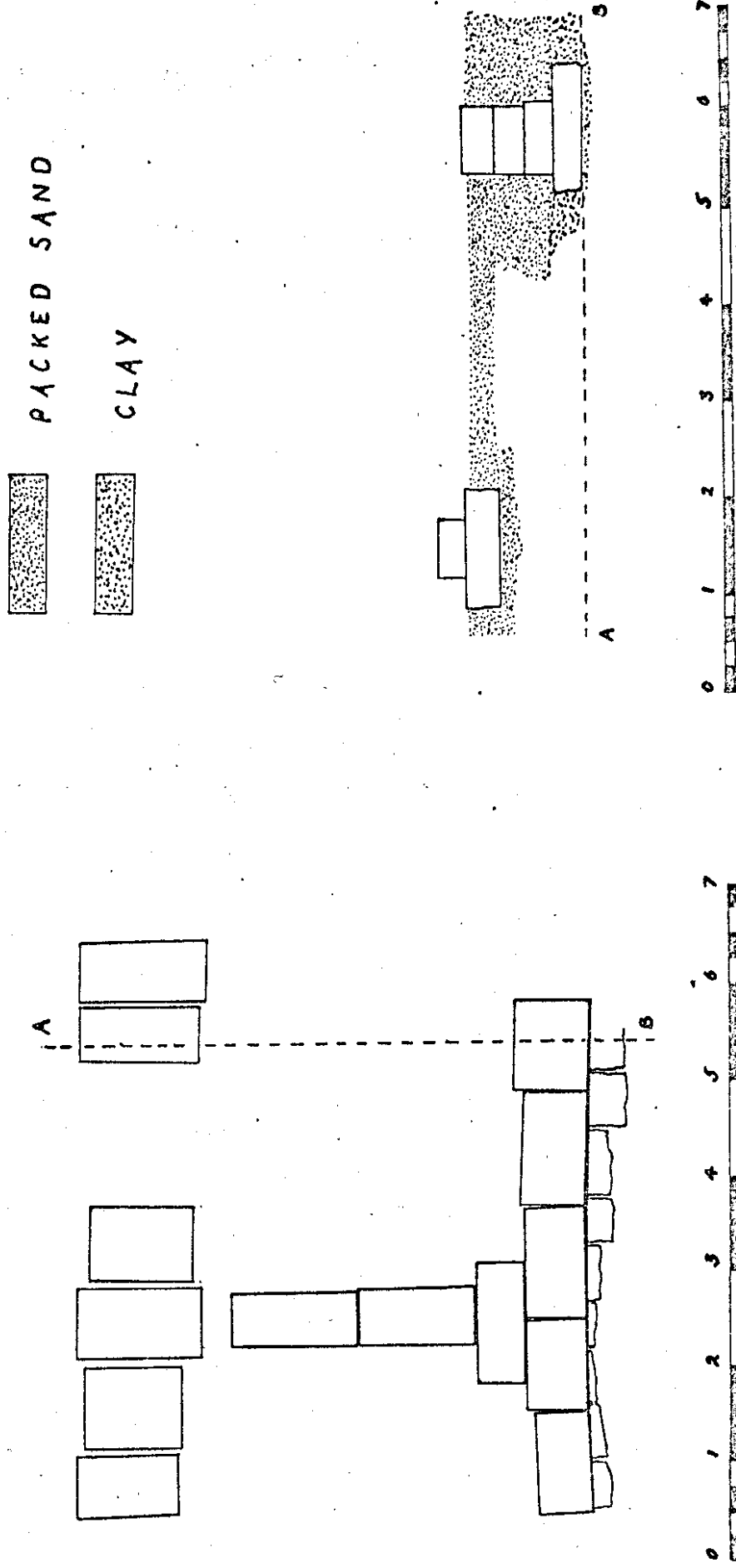
WALL F

PTOLEMAIS HARBOUR



BEECHEYS' SEA WALL

Section I



MEDITERRANEAN

TAUCHIRA
HARBOUR



BLOCKS
AND
RUBBLE

WEST
MOLE

SAND BAR

BLOCKS
RUBBLE

EAST
MOLE

BLOCKS
RUBBLE

BEACH

HELLENISTIC
STREET GRID

CITY WALL

CITY WALL

0 150
metres

R.A.Y 1972

