

## **THE MA'AGAN MICHAEL SHIPWRECK**

Part 1: General description of the finds followed by reflection on life on board and trade patterns in the middle of the first mill. BCE.

The site is located apr. 75 m offshore the swimming beach of Ma'agan Michael, a Kibbutz situated 35 km south of Haifa, Israel. The shipwreck lies under a layer of fine sand, 1.5-2 metres thick, in less than one metre of water deep (in normal sea conditions). A chain of reefs and a small island line up parallel to the coast 200 metres westward in a north south direction. This last feature affects the currents and sedimentation process which bare on the coastal morphology and has to be counted on when analyzing the history of our ship's wreckage.

The story of the discovery, with its dramatic touch on the beginnings of Marine Archeology in Israel 30 years ago at Ma'agan Michael, has already been publicized before. Our excavation methods and all the difficulties encountered because of the shallow depth in a surge zone are a subject to be taken up while discussing techniques in under water excavations. I shall therefore confine myself to a brief description by category of the various finds discovered and retrieved during the past two seasons of excavation in 1988 and '89. Then add short comments on the significance of the finds for the study of ancient shipping when touching on topics like Life on Board or Trade Patterns in the Mediterranean.

### **The main cargo:**

We still ponder what comprised the main bulk of cargo considering the fact that by now over five and a half tons of ballast stones were cleared off the ship's hull and at least the same weight awaits to be removed. Since the midship was not yet excavated, we may still find evidence for the characteristic commodity possibly hiding under the ballast, if the cargo was not salvaged in antiquity in its totality. *Or, we may have to look for another clue as will be suggested later.*

The ballast is a category in itself and required a close analysis which indeed was carried out by the Geological Survey of Israel which reached the preliminary conclusions: among the seven rock types examined, the 'blueschists facies rocks are predominant and considering the collective evidence from all the rock types analyzed, and based on the examination and review of the geology of the Mediterranean, the Tyrrhenian Sea coasts around Corsica or Calabria, are the most likely of origin for the ballast stones found on the MM ship.

The ceramic ware consists of a fair number of complete vessels in an excellent state of preservation and many sherds which later in the laboratory were restored into semi wholesome vessels. From the stern of the ship we retrieved a cooking pot, a large footed bowl, pinch nozzle lamps, rounded lipped jugs with high handles, bowls of different sizes, black glazed miniature cups, juglets, trefoil mouth jugs and large fragments of amphoras, some decorated with a palm tree motif.

The assemblage should be divided roughly into 3 categories for dating and parallels as to origin. Firstly, the usual wares one would expect on any ship plying the Eastern Mediterranean during the middle of the first milenium BCE which include the cooking and storage ware, lamps etc. These are easily dated to the 5th century BCE, more probably to its second half. Second, the high handled jugs which have their parallels in Cypriote tombs where they are defined as representing non local type; these are usually associated with typical Phoenician ware of the second half of the fifth century BCE. Third, the miniature glazed bowls, which originate from an area north west to our coast, possibly eastern Greece, where glazing was much in use already in the end of the fifth century BCE. The decorated amphora could well be of Cypriote provenance.

The organic materials represent a basket, several kinds of ropes ranging from 1-3.0cm in diametre, three ply left handed twist; Dunnage in fairly large quantities identified as pistachio branches. A variety of foods which were analyzed by archaeobotanical laboratories of Bar-Ilan University, consist of barley, grapes, olives and figs. A preliminary pollen examination pointed to the summer season of the sailing.

The wooden objects turned out to be the most exciting small finds. These are divided into two principal groups: The artistically carved palettes, one "heart" or "leaf" shaped with three circular chambers and a pivoting lid and the fiddle shaped palette of which two specimen were found. Whether these were used to hold cosmetics, or served other purposes cannot presently be defined because of lack of parallels.

### **The second group belongs to the carpenter's tools**

During the first season of excavation in the Autumn of 1988, just before winding up the operations at sea, several wooden artifacts were discovered in one small area which turned out to belong to the carpenter's tool kit: a handle with iron traces on one edge, an awl, a deformed mallet, a bow drill, a whetstone. When returning several months later, the excavation was resumed around the same area and turned out more items which unquestionably belonged to the complex of the shipwrights tools like a perfectly preserved carpenter's square, spare tenons and treenails in hundreds!

Since the metal forming the tools disintegrated almost completely, we could not at first define their shapes and exact functions. However when examining closer some suspicious concrete lumps found around the wooden handles, the results of the x-ray 30 KV photography were astonishing. Almost every lump of concrete engulfed an object the out line of which is clearly visible. Once these lumps will be carefully dissected and the negative cavities recast, we shall be able to reconstruct several of the iron tools.

Another category of the finds, belongs to the metals. We discovered iron and cooper nails used in the construction of the hull, an iron object resembling a cultic scoop and a barshaped ingot, which after the analysis by atomic absorption method, was identified as tin of 95% purity.

When piecing together the evidence from a preliminary study of the small finds and after taking into consideration the results of the meticulous analysis of the hull construction by Jay Rosloff, we get the first glimpse into the ship's history, its possible route and trade patterns.

The wreckage may have occurred when the ship, which lies in a perpendicular position to the coast with its prow landward, missed an opening in the sand bar while heading to a lagoon behind it or trying to make the Crocodile River Estuary some 2 km to the south.

A natural calamity or hostile human interference are not discounted although presently no signs of any damage to the hull or fire traces were observed. The parts of the ship excavated were found in a perfect state of preservation, not damaged by marine bore, its tools and ropes almost unused, with fresh chips of carpenter waste found in its bilge, which suggested that the ship was possibly on its maiden voyage.

The heavy ballast load did not leave too much displacement for a large volume of cargo. Indeed, beside those single items characteristic to commercial transactions carried out by the crew, we have not found as yet any clues as to the identity of the major bulk of the cargo.

Is it possible that beside the usual functions of a merchantman, our ship was engaged in selling the expertise in woodwork craftsmanship and shipwright skills? In such a case it would follow the pattern of the seafaring Merchantsmith whose presence was attested by the Cape-Gelidonya Shipwreck cargo and supported by the interpretation of a maritime text from Ugarit.

Which was the home-port of our ship and what was its cultural affiliation? The ceramic ware points to Cyprus and Eastern Greece as probable stopovers. The ballast stones and their origin could serve as another criterion although we know little about the handling of ballast, its reuse and storing. However, the temptation is big in suggesting the Central Mediterranean as a possible area for the location of the ship's homebase. This could be supported by certain features in the hull construction but much is still left to conjecture. The forthcoming season of excavation in the Autumn may add important clues to our inquiry.

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## ILLUSTRATIONS

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Photos: Danny Syon, David Evan, Steve Breitstein.

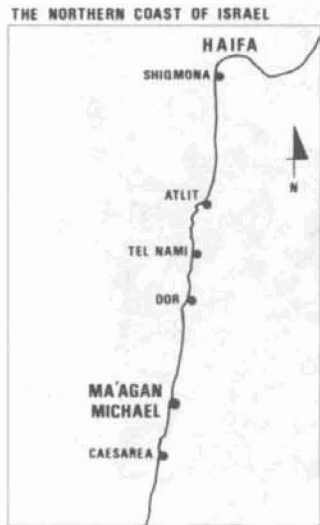


Fig. 1



Fig. 2



Fig. 3



Fig. 5



Fig. 6



Fig. 4a



Fig. 4b

Fig. 8a

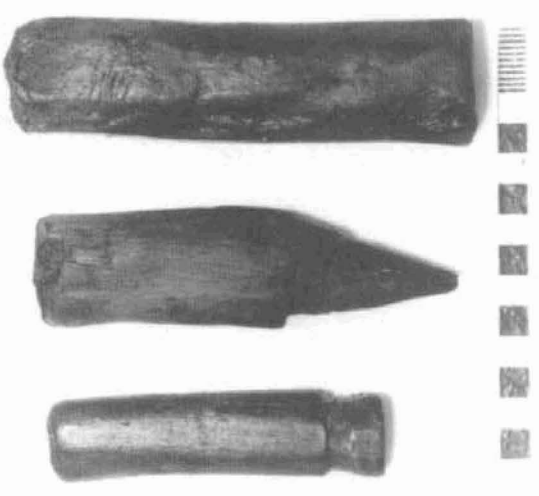


Fig. 8b

Fig. 7

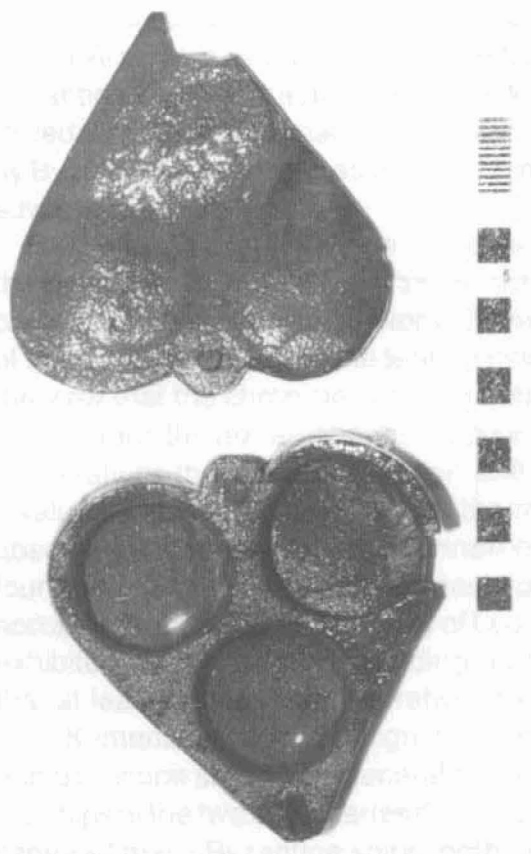


Fig. 9