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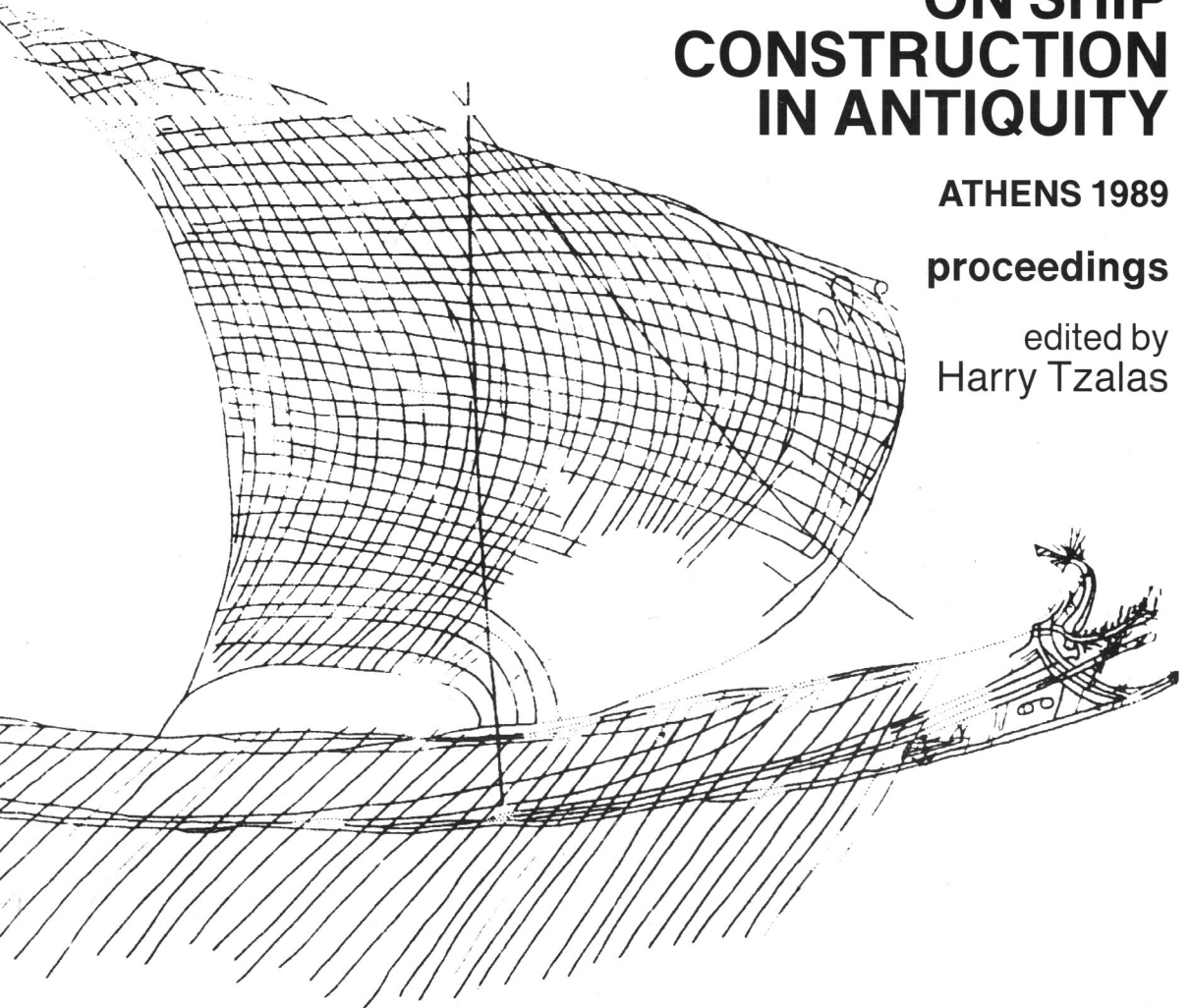
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ANCHORAGE SYSTEMS OF THE SECOND MILLENNIUM BC AT TEL NAME

The Mediterranean coastline in Israel is very straight, sandy and shallow and it possesses very few bays of any reasonable size. In the period under discussion, the IInd Millennium, the knowledge of artificial harbor construction was not yet known, thus the ancients had to find other means for anchoring their vessels in this well traveled coast. A suggestion as to how the ancients might have solved the problem of the absence of natural bays was suggested by A. Raban. The theory states that ancient river mouths were used as anchorage areas (Raban 1985:11-23). This theory is constructed on a geomorphological reconstruction of the shore since nearly all the rivers and springs are sited today and thus are not useful for navigation even of small craft. Support for the theory exists in the paleogeographical studies at Akko where the Belos River might have supplied the ancients with a natural harbor (Sivan 1981) and at Dor (Sneh 1981). Tel Nami was chosen for exploration and excavation because of this theory. It was originally considered to be a small site near a body of water and a spring. It was settled almost exclusively during the IInd Millennium BC and it has suffered little destruction in later antiquity after its last settlement period somewhere in the early part of the 12th century BC. Although there is a modern destruction dating to the 20th century, it is still not extensive enough to have obliterated much evidence. It is in this area that we thus hoped to find the answer as to the type of anchorages the inhabitants of the Middle Bronze IIa and Late Bronze ages, the periods represented on the site with ceramics, used.

In order to do so we have to understand the ancient geomorphology of the Nami region. From present evidence it seems clear that the site was abandoned in the middle of the Millennium, as well as post its last settlement. Today the area does not have an excellent agricultural hinterland, and if it were not for the effort of the modern settlers, it would have been dangerous to live in the vicinity due to the swamps. Changes due to the tectonic movements or changes in sea levels would have caused great geomorphological and environmental changes. Even small sea level changes, as the evidence seems to point, would have caused the inhabitants to abandon the area. The lack of a large agricultural hinterland became of paramount importance at the period in which the ancients learned to build artificial harbors (Raban 1987:122-123) and thus Tel Nami was not settled again.

The Nami region is situated 15 km south of the modern city of Haifa, Israel (Fig. 1). It is surrounded by the Carmel Mountain range and the sea. The coastal strip west of the Carmel Mountain range is characterized by wave-like parallel series of low sandstone ridges separated by basins filled with clayey alluvium. Tel Nami is part of the westernmost ridge which is broken and partially submerged. Nami itself forms a peninsula jutting some 150 meters into the sea, and to a height of more than 8 meters above standard sea level. It is connected to the mainland by what seems to be a broad tombolo which is inundated by water during the winter storms. To the east there are two more ridges. On the easternmost one, later settlements, from the Byzantine period and onwards have been noticed and on the second, the "middle" ridge, southeast of the tell, a settlement of Middle Bronze IIa was noticed. Yet another habitation was noticed under the sand dunes, a mere 75 metres east of the peninsula. The site, which is referred to as Nami East has clear signs of Late Bronze II remains as well as the Middle Bronze IIa, the two periods of interest when anchorage systems are considered (Artzy 1986; Artzy 1990). The important feature of the area, archaeologically, hydrologically and geomorphologically is the course and outlet of the Me'arot River, originating in the Carmel Ridge, crossing the eastern Kurkar ridge and discharging into the sea in the vicinity of Tel Nami. The location of its estuary in ancient times is of an utmost importance in the study of the area. At present the spring does not have a distinct outlet, as its water is trapped and utilized to supply the local fishponds. Aerial photographs and old maps suggest that in the recent past the outlet has shifted repeatedly. Of equal interest is a marshy basin lying between Nami East and the second Kurkar ridge. This basin, now largely submerged by a series of artificial fishponds is still surrounded by thicket of reeds and other hydrophytes suggesting that the basin must have been a natural swamp, a shallow or brackish lake or a lagoon.

The international nature of Nami can be verified by the numbers of imported goods both in the Middle Bronze II periods. Among the finds of the earlier period, which has been excavated only in about 2% of the known area there are bronze goods, a bellow which seems to show bronze production in the area, imported ceramics from Cyprus, a clay "weight" with an Egyptian scarab seal (Artzy and Marcus 1990), and possible imported food stuff. (Kislev, Artzy and Marcus). From the later period which has been more extensively excavated numerous bronze objects were found (Artzy 1990b), as were ivory, gold, silver and semi-precious stones. Many of the objects could well be placed in the Aegean, Cyprus, Anatolia, Syria and Egypt. There is a sign of a possible Aegean cult practice in a 13th century sanctuary on the summit of the peninsula of Tel Nami (Artzy 1991).

During the Middle Bronze IIa, which is dated to the first quarter of the IInd Millennium BC, the habitation as we know it today was localized in at least three areas in the Nami region: Tel Nami itself, Nami East and site 104-106, which is located on the other side of the ancient body of water (Fig. 2). Of the three sites, the Tel Nami must have served as a forward station, possibly storage area for the goods which were brought aboard the boats, but it is small as can be seen in the map (Fig. 2). Nami East which is still covered by sand seems to have been inhabited in an area at least twice as large as that of Tel Nami. It is hard to know exactly its size because of the sand dunes and the later habitation, but from jetting done for geomorphological studies some estimation is possible. Part of the 104-106 site was covered by later Byzantine habitation and unfortunately much of it has been plowed in the recent years and thus not much undisturbed architectural remains can be expected. From the finds it is possible to surmise that the site was of an agricultural nature and thus might have been part of a network of regional settlements which were connected in some form.

In area D, which is located on the southeastern side of the tell, a storage area dated to this period was excavated (Artzy 1990; Artzy and Marcus 1991). It had been burned, the roof collapsed and the ceramics which contained various food stuff were left in situ. The area is located only a small distance from a possible river outlet to the sea. Across from it there is a small area with habitational remains under the sand dunes. From seismic tests (Beck 1990) as well as jetting (Marcus 1991) it is possible to say that the river estuary ran south of the main part of Nami East where it might have forms an oxbow and then continued southwest, south of Tel Nami (Fig. 2) to the sea. The small unexplored habitation would thus sit on the southwestern part of the estuary. A. Raban has suggested a possible channel which led the water to the sea (Raban 1985, 20, Fig. 8). The possibility of a channel

does indeed exist although the recreation of the geographical setting suggested by him is not possible since the river, in his reconstruction crosses part of what we know now to be the settlement of Nami East.

The question remains as to the relationship between the sea and the coast during the period under discussion. It seems highly likely from the location of some of the architectural remains that the relationship is different than it is today. Both in Nami East, area O and Tel Nami, areas G and D (Artzy 1990:75) there are buildings which could not have existed with present sea level. Some of them are partially destroyed by the sea, others are overrun with sea water in the winter storms. One has to consider the height of the ground water as well. It is hard to imagine that the Late Bronze IIb inhabitants were living in Nami East, as they would have had to, had the water been the same height as it is today. It would take only a small change in sea level, to affect the area of settlement around Nami, or any similar coastline site. If we consider the level of sea level and thus ground water level to be even 75 cm lower than it is today, we could imagine that the ancients existing in the areas mentioned above (Fig. 3).

The situation in the later part of habitation around the Nami area might be of a different nature altogether. As we know now, the site was not settled during the major part of the Middle Bronze IIb and in the Late Bronze I, from the mid 18th to the 14th century BC. It is clear from the archaeological remains that the peninsula was re-settled by the newcomers, as was Nami East (Fig. 4). Site 104-106 was left uninhabited during the hiatus. The reason for the abandonment might have had little to do with the geomorphological changes and more with the political nature of the periods, although we can not rule out either. The lack of an agricultural site of the Late Bronze II has caused us some concern. The absence is even more perplexing if one considers that in the last period of habitation, the Late Bronze IIb, dated to the 13th century BC, a rampart was constructed on the peninsula, thus diminishing the area of habitation on the tell. Furthermore, a good part of the habitational area was utilized as a sanctuary. Nami East at the same time was used as a necropolis and so far no signs of domestic architecture which could be dated to the period have been located there.

It is hard to imagine that those living in the area, involved with the sanctuary or for that matter those inferred were fed with imported food brought in as tribute, although that possibility should not be disposed of off hand. As we see the situation now, the ground water and thus the sea level are higher than they were in the Middle Bronze IIa Age, possibly of the same height as they are today or even a

small amount higher. We have to remember that the settlement was a bit higher since it was situated on the remains of previous destruction and sand which accumulated over the lengthy period of abandonment. On the peninsula, the rampart which was constructed in the 13th century BC no doubt made it possible for the inhabitants to continue living there. It is highly likely that construction of the rampart was to counter the natural elements rather than man, although we have no proof of it at this point, in Nami East the inhabitants would have had to combat water in their houses from the sea during the winter and wet floors from ground water. This may have been the reason for changing the area into a necropolis.

We would like to expend on yet another possible interpretation. In theory it could well be that the anchorage system of the Late Bronze period was not at all like that of the one discussed above the Middle Bronze IIa. Stone anchors, which should be taken as evidence of the maritime nature of the area were noticed in two distinct underwater spots of the environs of Nami; south of the peninsula as well as north of it. Anchors were located in the past by Galili (Galili 1985) and recently by members of the Nami Project about 800 meters north of the tell. The area in which they were found is in the vicinity of one of the possible estuaries of the Me'arot spring which might have served as an anchorage in the later period, namely the Late Bronze II. So far little research has been carried out in the area north of Tel Nami East. Surveys have yielded small amount of data, which might, with extensive examination and analysis help us understand the northern area in future time. In order to reach any conclusions or at least further understanding, large amounts of sand would have to be removed. Archaeological research in the coast demands greater understanding of the ancient and modern geomorphology as well as history, art and patience. In the case our coastal site one has to add technical understanding in environmentally sound sand removal, as well as scientific methods to remove it wisely before even starting to excavate. Bearing all this in mind, we hold an optimistic hope that in the future regional will solve the puzzle which is involved with the Nami area.

Michal Artzy
University of Haifa, ISRAEL

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ILLUSTRATIONS

- Fig. 1 Map of the position of the Nami Region.
- Fig. 2 Nami Area and its known sites.
- Fig. 3 Possible reconstruction of Middle Bronze Ila anchorage at Tel Nami.
- Fig. 4 Possible reconstruction of Late Bronze II anchorage at Tel Nami.

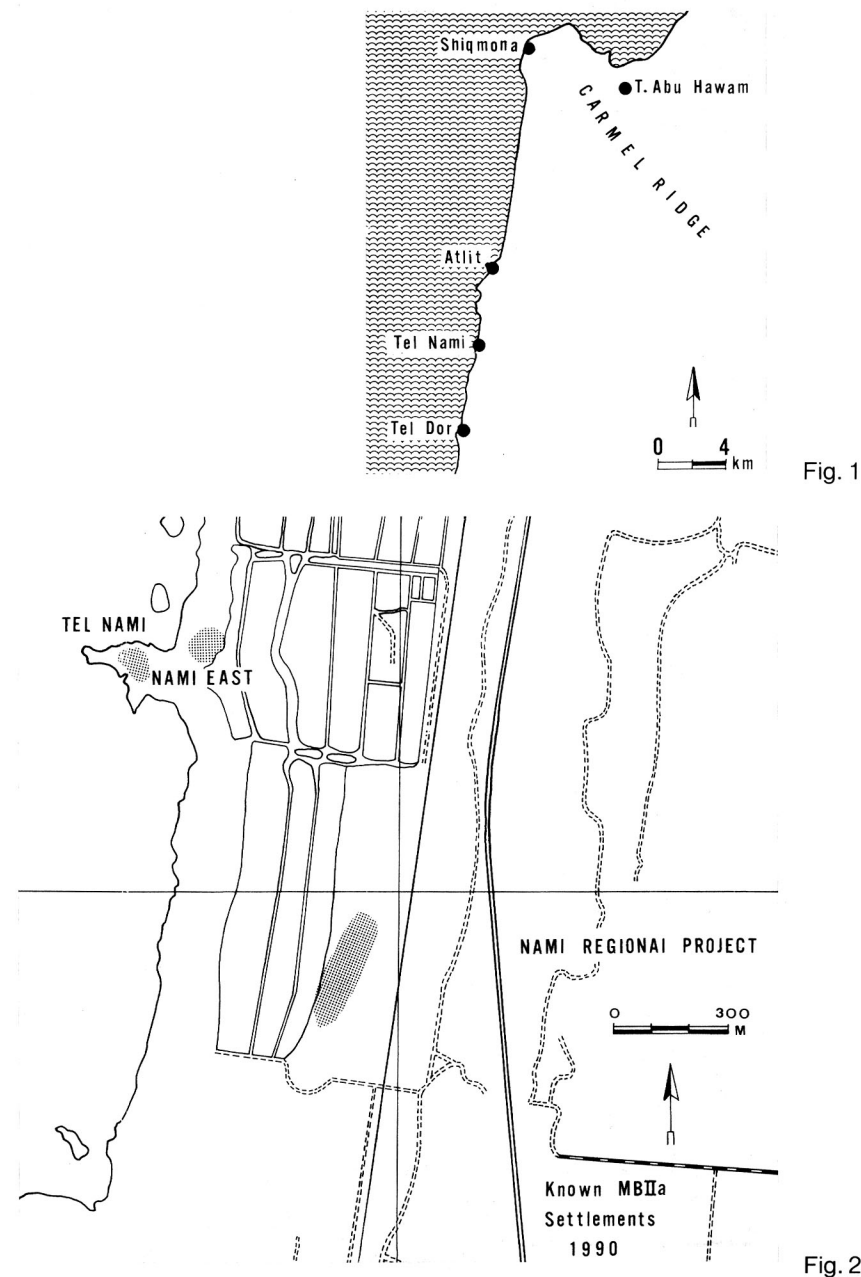


Fig. 2

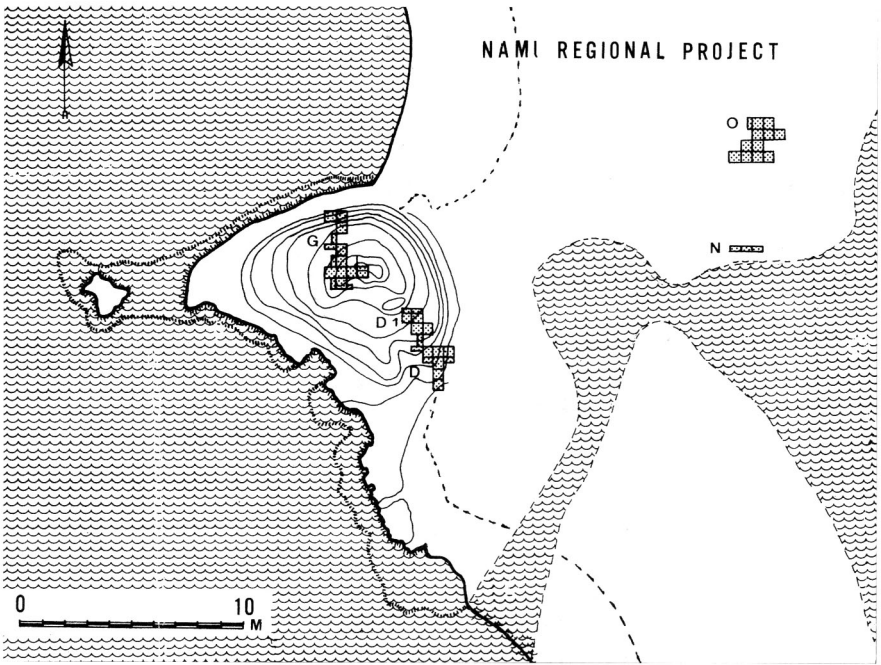


Fig. 3

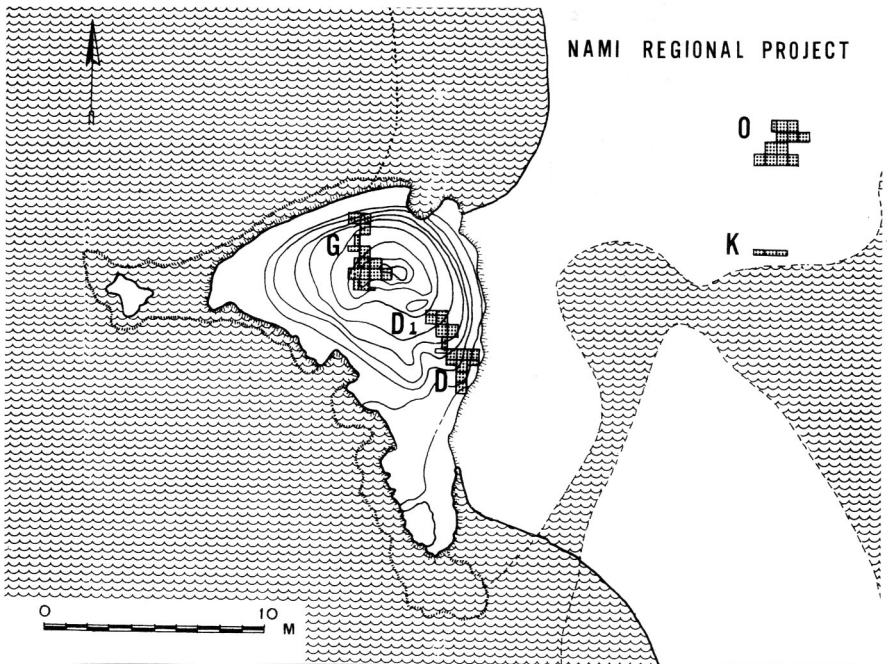


Fig. 4