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## The Likely Locations of Middle and Late Bronze Age Harbors in Cilicia - An Assessment Based on Levantine Models

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### Citer ce document / Cite this document :

Taffet Avia. The Likely Locations of Middle and Late Bronze Age Harbors in Cilicia - An Assessment Based on Levantine Models. In: La Cilicie : espaces et pouvoirs locaux (IIe millénaire av. J.-C. – IVe siècle ap. J.-C.). Actes de la Table Ronde d'Istanbul, 2-5 novembre 1999. Istanbul : Institut Français d'Études Anatoliennes-Georges Dumézil, 2001. pp. 127-135. (Varia Anatolica, 13);

[https://www.persee.fr/doc/anatv\\_1013-9559\\_2001\\_act\\_13\\_1\\_981](https://www.persee.fr/doc/anatv_1013-9559_2001_act_13_1_981)

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Fichier pdf généré le 18/04/2018

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## **THE LIKELY LOCATIONS OF MIDDLE AND LATE BRONZE AGE HARBORS IN CILICIA**

### **An Assessment Based on Levantine Models**

#### **INTRODUCTION**

The sandy beaches along the rather straight coast of Israel do not provide natural anchorage and therefore starting in the early second millennium B.C. river estuaries were transformed into harbors to accommodate deep hauled boats. The existence of lagoons east of the sandstone ridges along the marshy central coast of Israel facilitated the creation of safe anchorage. Indeed in locations where a sandstone ridge formed the exterior embankment of a lagoon, a channel cut through the ridge created an enclosed bay. During this period a number of harbors were founded within such lagoons near the river outlets. In navigable rivers these harbors would have provided the nearby inland settlements on the coastal plain with the fastest means of transportation.

Despite the geomorphologic differences between the Cilician coast and that of the Levant, it is unlikely that there would have been major differences in the location, plan or docking facilities of their respective second millennium harbors.

Unfortunately Hittite sources do not provide much information about the nature of the harbors, nor about their location along the Cilician coast. Relevant Hittite sources indicate that the port of Ura, whose possible location is still being debated, was probably the most important and active one in Rough Cilicia. It is very likely that additional harbors existed east of Tarsus and west of Kinet Höyük and these may have been located in the ancient estuaries of the Seyhan and Ceyhan. Since archaeology is also rather mute on pre-Classical harbors in Cilicia, those along the coast of Israel could provide some guidelines as to their possible locations.

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## THE PRE-CLASSICAL HARBORS ALONG THE COAST OF ISRAEL

The early second millennium harbor settlements on the coast of Israel are situated near the following rivers :

### Nahal Cheziv

The estuary of this river 14 km north of Acco, contains the remains of two settlements, namely Tell Achziv on the northern edge of the estuary and Minet ez-zib on the southern edge. A third settlement Tell Avdon is located on a hill overlooking the river at the spot where it enters the coastal plain 6 km east of the shore. Middle Bronze II sherds were found in a survey on this tell<sup>1</sup>.

The excavations at Tell Achziv revealed that the mound was occupied from the early 2<sup>nd</sup> millennium B.C. until the 12<sup>th</sup> century A.D. At the beginning of the 2<sup>nd</sup> millennium BC the settlement was situated on a peninsula whose south side was bordered by a deep and wide estuary of two rivers, namely Cheziv and Sa'al. When the fortification ramparts of this settlement were built it seems that the eastern riverbed was deepened and widened further to enable boats to anchor in the lee of the fortification walls. In order to prevent the silting of this anchorage the upper part of the river was blocked with a dam and the river outlet was moved to the northern part of the settlement by carving a channel in the low sandstone ridge. Later on another channel was carved in the stone ridge at the south-western corner of the mound enable boats to penetrate the river Nahal Sa'al. Consequently the entire settlement of Achziv was surrounded by water<sup>2</sup>.

This was not a unique engineering work since it is also observed at the contemporary Tell Misrefot Yam on the outlet of Nahal Betzet situated north of Achziv. In this case the channel was 2 m deep and 14 m wide. According to the surveyors the harbor was south of the settlement which is poorly preserved and partly covered by sand. The rock cut channel is located today 100 m from the beach near the southern fringe of the mound. It leads in a wide arch to the east. The inner anchorage was protected by a stone ledge on its south and west. It is possible that this channel was initially used as an artificial outlet of the lagoon created at the lower Nahal Betzet<sup>3</sup>.

### Nahal Na'aman

From the Persian period onward Acco's port was situated in its present location. However, prior to this period the mouth of the Na'aman river served as a harbor. Two classical sources, namely Pliny and Josephus Flavious mentioned the fact that sand for the glass production was loaded on boats that entered through the river mouth. This harbor buried under the sediments must have existed at least since the second millennium B.C. Moreover, it is very likely that the second millennium settlement of Acco situated on the northern edge of the river estuary provided docking facilities to deep-hauled boats. In fact geomorphologic studies demonstrate that in the Bronze Age seawater reached the southern, southeastern and western areas at the foot of the mound. In other words the Bronze Age town

1) Frenkel, R. *in* Stern., E. (ed.) 1992 : 324.

2) Raban 1985 : 19.

3) Raban, A. *in* Stern., E. (ed.) 1993 : 963.

was located on a peninsula with a bay at its west and an estuary to its south. Nahal Na'aman having once been a navigable waterway it no doubt provided easy link between the harbor and the few settlements situated further up the river valley<sup>4</sup>.

### **Nahal Kishon**

The Middle Bronze Age settlement of Tell Abu-Hawam, which at the time was situated much closer to the beach, had three anchorage sites, among them a bay to the north of the settlement. To the southeast between the Carmel range and the town a lagoon provided an inland anchorage which remained in use until the 1<sup>st</sup> millennium B.C. To the east the Kishon estuary was more a exposed third anchorage site. Marine and river silting of these three sites eventually resulted in the abandonment of the settlement. It is significant that Tell Abu-Hawam was first settled during the first half of the 2<sup>nd</sup> millennium B.C. when maritime trade in the eastern Mediterranean started to intensify and deep-hauled large boats need harbor facilities. In fact this port remained in use in the Late Bronze Age as demonstrated by impressive quantities of Aegean artifacts recovered during the excavations. Ships anchoring here were travelling as far as the Aegean (*e.g.* Argolid)<sup>5</sup>.

### **Nahal Oren**

The built ancient harbor of Atlit is located north and northeast of the 13<sup>th</sup> century A.D. castle. The harbor is protected by a rocky promontory to the west and delimited in the east by a low coastline. In the east the bay extends *ca.* 800 m to the mouth of Nahal Oren. Although the south bay of Atlit is the second largest along this coast, no quays or other harbor installations were found in its vicinity. It has been suggested the harbor settlement may have been near the river course that is today beneath the sea. Among the evidence pointing to this are the submerged Middle Bronze Age burials. The fact that no traces of a Middle Bronze Age harbor were found may be explained as the result of coastal changes due to an active fault line. Later in the second half 10<sup>th</sup> century B.C., a harbor was built north of the Crusader castle by the Phoenicians<sup>6</sup>.

### **Nahal Me'arot**

Next to the mouth of this river is an islet which is now linked to the shore. This is the site of Tell Nami, which in the Middle Bronze Age provided deep-hauled boats a relatively safe anchorage. On the sandstone ridge east of the coastal lagoons is another Middle Bronze Age settlement. A channel cut in this ridge provided small boats access to a large lagoon and to the main settlement across it. The engineering work in preventing the sand clogging of this passage required the construction of retaining walls on both sides of the channel<sup>7</sup>.

4) Raban, A. *in* Stern, E. (ed.) 1993 : 29-31.

5) Balensi 1985 : 67.

6) Raban, A. and Linder, E *in* Stern. E. (ed.) 1993 : 117-120.

7) Raban, A. *in* Stern, E. (ed.) 1993 : 963-964.

### **Nahal Daliya**

The site of Tell Dor situated *ca.* 13 km north of Ceasarea is located on a rocky peninsula next to the estuary of Nahal Daliya. The earliest remains on the mound dated to the Middle Bronze Age are found near the coastline. At that time a lagoon exited east of the coastal sandstone ridge. The harbor was most likely located to the east of the settlement in a lagoon that at that time was connected to the southern bay. Towards the end of the Late Bronze Age harbor facilities were first built along the southern margins of Tell Dor in the lee of the coastal ridge. The long bay which was protected on the west by a chain of shoals was accessible only by a narrow channel from the south. The harbor facilities at the southern edge of the mound included ashlar paved quays may have been built as early as in the in the 13<sup>th</sup>-14<sup>th</sup> centuries B.C. This ashlar masonry links Tell Dor to other coastal cities such as Ugarit, Ras Ibn Hani, in Syria : Kition, Hala Sultan Teke and Paleokastro-Maa in Cyprus<sup>8</sup>.

### **Nahal Alexander**

The settlement of Tell Michmoret situated on a promontory on the northeast side of the estuary was certainly a seaport as early as the Late Bronze Age and continued into the Iron Age the Persian and Hellenistic periods and served as a lookout point in the Byzantine and Fatimid Period. The survey of 1982 revealed remains of walls probably part of the south-eastern docking installations and a channel cut through the rocks south of the site, to enable boats to reach a lagoon and the Alexander river itself. The sherds collected on the site included Late Bronze Cyprian "milk Bowls"<sup>9</sup>.

The inland Settlement of Tell Hefer situated on the sandstone ridge 5 km upstream of this river, navigable even today was accessible from the sea.

During the 19<sup>th</sup> century the river was used to transfer crops of watermelons that grew along its shore. The watermelons were loaded on small boats that conveyed the cargo through the river mouth the larger boats that waited in the deep waters.

### **Nahal Poleg**

The large fortified early 2<sup>nd</sup> millennium B.C. settlement situated on the main sandstone ridge of the coastal plain and next to the Nahal Poleg provided an important harbor. When this settlement was founded a channel was cut on the sandstone ridge north of the site to enable small boats to reach the marshy lagoon to the east. Some 3.5 km upriver the inhabitants of the contemporary fortified settlement at Tell Zurekiye could have maintained close contact with the harbor town via the navigable watercourse of Nahal Poleg<sup>10</sup>.

### **Nahal Hayarkon**

Few early 2<sup>nd</sup> millennium B.C. settlements are located along the banks of this river that was navigable at the time. Among these are Tel Kudadi a small citadel perhaps guarding the mouth of the river, Tell Gerisa *ca.* 4 km upstream, and Tel Apehek located close to sources of Nahal Yarkon. These

8) Raban 1985 : 26-27.

9) Porath, Y. Paley, S.M., Stieglitz, R.R. *in Stern*, R. (ed.) 1993 : 1043.

10) Gophna, R. *in Stern*, E. (ed.) 1993 : 1193-1195.

last two were relatively large second millennium towns. As for Tel Qassile situated at the time much closer to the river mouth than its present distance (*ca.* 1.5 km) must have also been a port town at least from the time it was settled by the Sea People in mid-12<sup>th</sup> century B.C.

### **Tell Yaffo (Jaffa)**

This ancient port-city mentioned also by classical sources (*e.g.* Josephus Flavius) is located on a rocky promontory next to the old outlet of the Ayalon river. Although there is still no archaeological information on the harbor area and its second millennium installations, the former would have been located between the chain of islets and the shore. A large lagoon known to the locals as the swamp “*Basa*” existed until the beginning of the last century on the eastern side of the settlement<sup>11</sup>.

This harbor town as well as Dor, Atlit and Acco continued to function in the Iron Age regardless of events, which brought about demographic, cultural and political changes. Some of these ports continued to develop further during the Hellenistic and Roman period and particularly in the Crusaders period (11<sup>th</sup>-13<sup>th</sup> centuries A.D.).

Additional harbor settlements such as Yavneh Yam on the Sorek river, Tell Mor on the bank of the Lachish river and Tell el-Ajjul (Gaza) on the Besor in the southern coastal plain were also part of the network of ports along the eastern Mediterranean at least since the Middle Bronze Age.

## **CILICIAN HARBORS**

In searching for the possible locations of 2<sup>nd</sup> millennium B.C. Cilician harbors one can postulate, based on above examples on the east Mediterranean coast, that major river estuaries with their former lagoons are among the likely sites. Having said this, it is important to point out that geomorphological changes in the Cilician littoral in the last 4000 or less, make the search for the exact location of Middle and Late Bronze Age harbors an almost impossible task.

The few exceptions to this are Tarsus, Mersin and Kinet Höyük. The first two which are situated close to the ancient shoreline could have reached the docking areas or harbor installations via the Tarsus çayı and Soğuk Su respectively. As for Kinet Höyük situated on the southeastern corner of the Cilician littoral, *ca.* 30 km north of Iskenderun, was a seaport operating since the 2<sup>nd</sup> millennium B.C. This harbor was used until the 10<sup>th</sup> century A.D. and timber from the Amanus was shipped from here according to Arab geographers<sup>12</sup>.

The continuous changing of course and silting by two major rivers in Cilicia, the Ceyhan and Scyhan have been creating ever since the Bronze or Iron Age filled-in lagoons and abandoned channels. As for the Tarsus river it does not meander that much and follows rather a straight line towards its outlet in the delta east of Tarsus. The old Aynaz marshes situated *ca.* 2, 5 km northwest of this river (marked on maps of the late 1800) was a port in Classical times<sup>13</sup>. There must have been

11) Kaplan, Y. and Ritter-Kaplan, H. *in* Stern, E. 1993 : 655-659.

12) Gates 1993 : 193-200 ; Gates 1999 : 303-312.

13) Aksu 1992 : 58-59, fig. 4.

additional harbors or safe anchorage sites at the major old river mouths that were active during historical times. Some of these were probably located at Tuzla between the Tuz and Akyatan Lagoon, and Yumurtalık immediately north of the Avçalı lagoon and Karataş between the Akyatan and the Misis Dağ. Another candidate for harbor settlement is the 20 m high mound (100x150 m) of **Domuztepe** located 35 km southwest of the Misis Dağ, 200 meters east of the Ceyhan and 12 km north of the present coastline. Situated on a limestone ridge near the ancient shoreline it was occupied since the prehistoric period. Classical sources suggest that the Misis mountain was once an island and *ca.* 2000 years ago the sea north this island was filled in by delta progradation of the Ceyhan river<sup>14</sup>. In Classical times the Seyhan and Ceyhan rivers joined a few km west of the Misis mountains 12 km north of present coastline. It is very likely that the recent lagoons in this delta signal the general location of older filled in lagoons further inland. Deep-hauled ships in the Middle and Late Bronze Age could have used these lagoons for anchorage.

The **navigable Ceyhan river** was most likely used not only as the easiest way of communication between settlements situated along its banks, especially in the northeastern plain, but also to reach the Cilician shore sailing downstream. **Sirkeli** for instance located on the eastern bank of the Ceyhan would have been accessible down river from Late Bronze Age settlements such as Mercin (No. 12), Küçük Mankit (No. 56), Yarım Höyük (No. 13) and others and up-river from Misis (No.11)<sup>15</sup>. In fact the Ceyhan waterway could have provided a faster and easier way of access to the Mediterranean coast especially in the summer when the current was not strong. It is significant that the rock relief of the Hittite King Muwatalli is best seen when sailing down river.

The ancient estuary of the **Limonlu çay** (Cl. Lamos/Hitt. Lamia) may have also used as an harbor. The entrance to the river is guarded by an impressive Byzantine fort further indicates its strategic importance. Further west along the coast, there are two sites which are suitable locations for anchorage. One of them is **Elauissa Sebaste**. The tip of the small peninsula at this site, which juts out to the sea, used to be a small island. In Classical times the river deposits carried by the Lamas filled in the short distance between the shore and the small island thus creating two small bays. The second anchorage was the island of **Kızkalesi opposite Korykos**. A narrow and by now submerged isthmus may have linked this island to the shore in the Bronze Age. After the massive silting of the Sebaste harbor, Korykos may have replaced it in importance as early as the 8<sup>th</sup> century B.C.

Although lagoons or small bays offering anchorage in pre-Classical times are heavily silted, classical sites such as Elauisa Sebaste or Soloi Pompeopolis between Silifke and Mersin could roughly mark the locations of some second millennium harbors in Cilicia. As for Aphrodisias situated on a peninsula west of Silifke, although it provides a good example of a double harbor<sup>16</sup>, it is not certain that it was used in the Late Bronze Age.

14) Aksu 1992 : 59.

15) Seton-Williams 1954 :134, Fig. 4.

16) Vann 1992 : 31-32.

In the Late Bronze Age major Cilician ports had to provide not just simple anchorage but docking and storage facilities for boats carrying up to 450 tons of grain, as probably was the case with the port of Ura<sup>17</sup>. Moreover major ports such as Lasti and Ura had to be large enough to allow the docking of numerous boats, perhaps up to a hundred<sup>18</sup>. The port of Ura whose exact location is still disputed might after all be deeply buried under the deltaic deposits of the Göksu.

To conclude it is likely that the Cilician coast had more harbors than are known to us from Hittite documents. The large volume of maritime activity along the Cilician coast as indicated also by the wrecks of Kaş and Cape Galedonia, must have required a large number of anchorage and docking sites. The lack of archaeological data about these sites can be explained by the silting of the ancient harbors at the river outlets and deltas, or by the erection of later harbors in the Hellenistic and Roman period that were built on the same favored location along the Cilician coast.

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17) Nougayrol 1960 : 163-171.

18) Lemaire 1993 : 228.



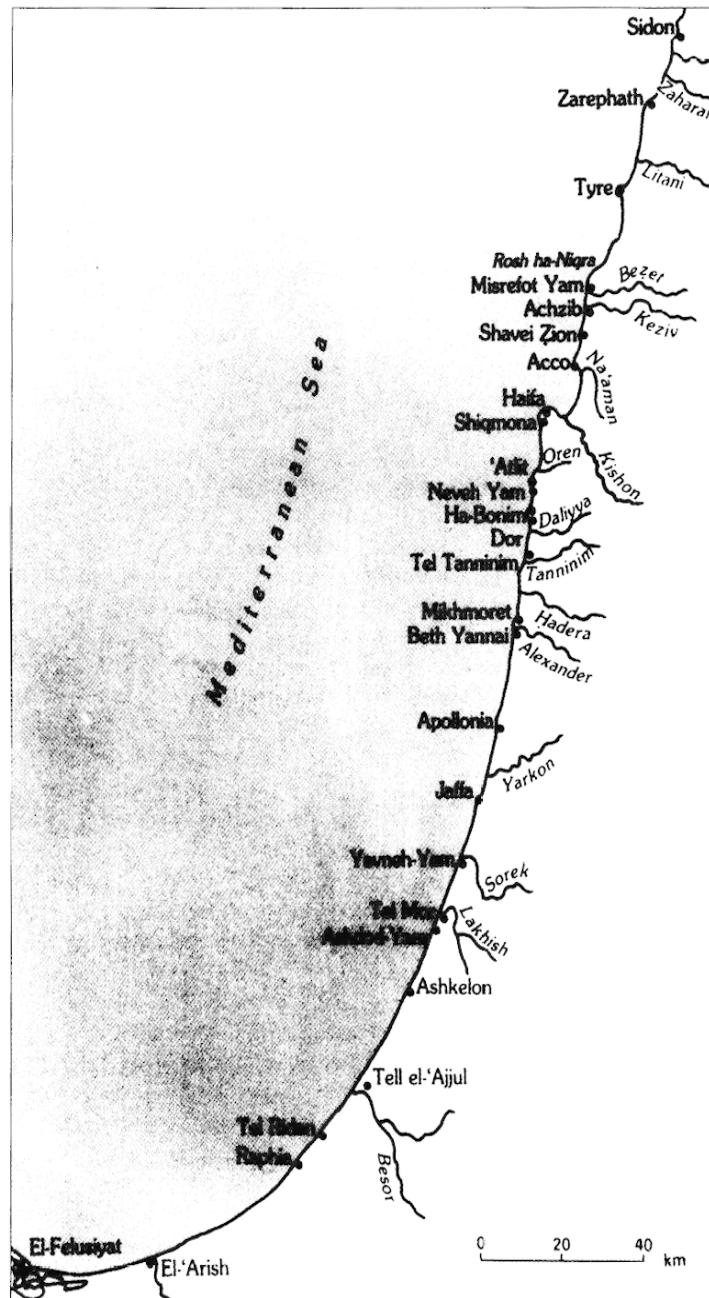


Fig. 1 : Coastal settlements of Israel (After Stern 1993).

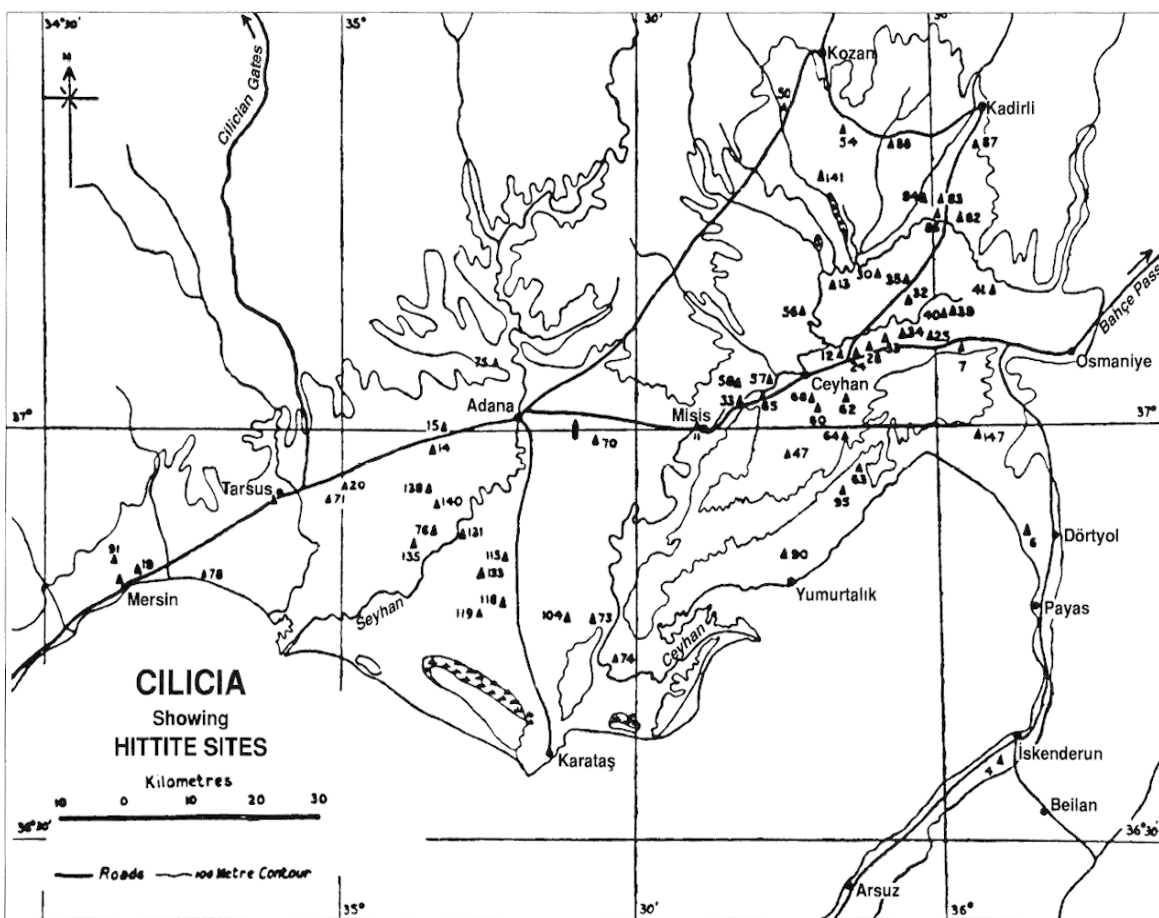


Fig. 2 : Hittite period sites in Cilicia. (After Seton-Williams 1954 : 134, fig. 4).