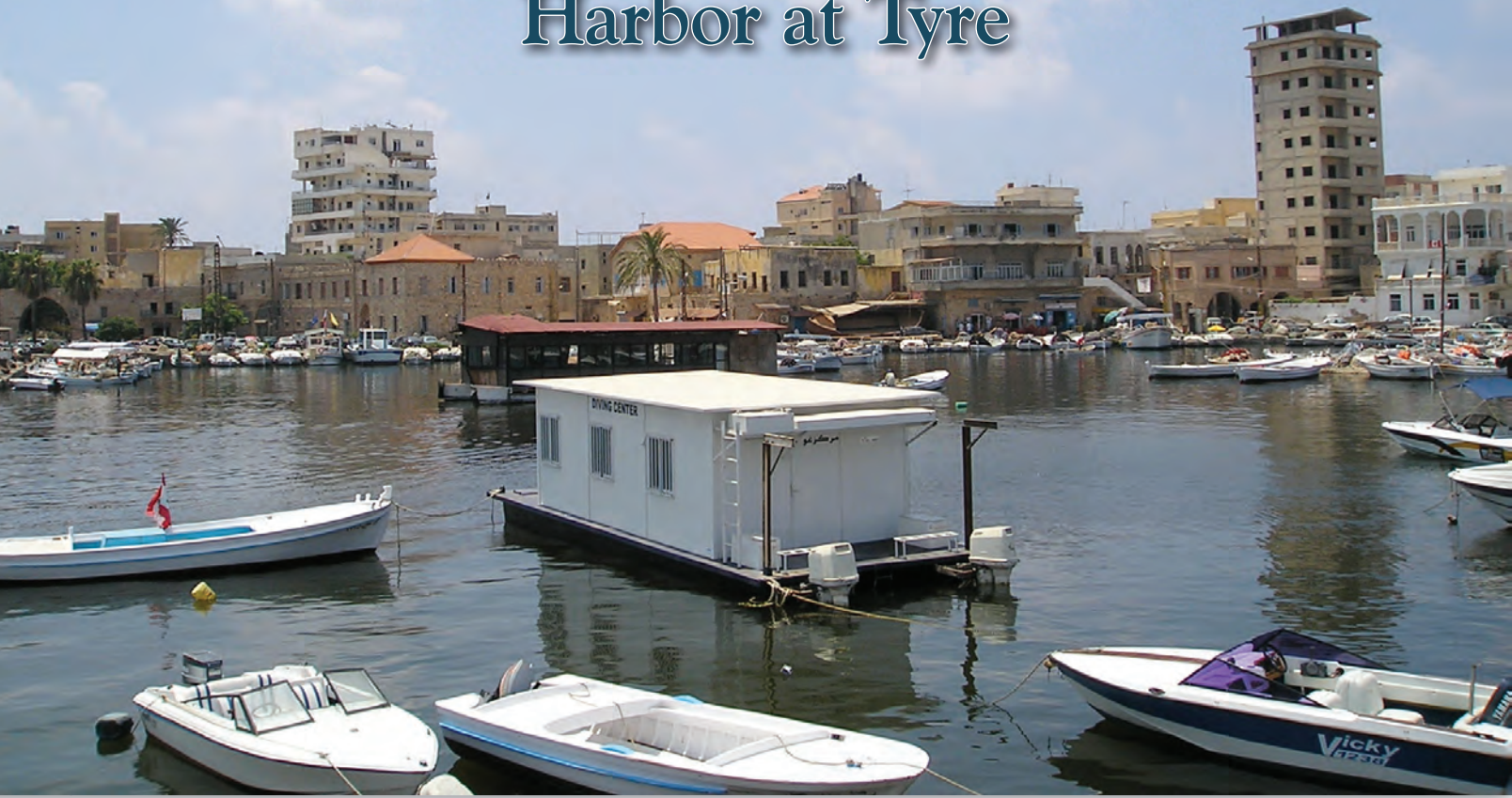


# New Light on the Phoenician Harbor at Tyre



Ibrahim Noureddine

**M**any ancient sources mention the Phoenicians' seafaring activities, how they not only controlled the maritime trade routes of the Mediterranean but were instrumental in implementing most of them. The remains of their settlements and colonies, especially the harbors, have been uncovered all over the Mediterranean, such as at Carthage and Kition and on the "Phoenician coast" from Akko to Arwad. However, in the Phoenician heartland, today's Lebanon, no Phoenician harbor structure has been clearly identified to date in the main cities of Tyre, Byblos, Beirut, and Sidon. Tyre, the most famous Phoenician city, has particularly attracted many scholars who dedicated their efforts to finding remains of its illustrious harbor. Some of them failed in their quest, while others were able to secure some, but certainly not all, of the answers.

The city is located some 85 km south of the modern capital Beirut. Now situated on a peninsula, Tyre was once an island some 500 m off the coast that was joined to the mainland after Alexander's invasion in the second half of the fourth century

B.C.E. The Macedonian leader had indeed ordered a jetty built to reach the island and defeat its inhabitants after his siege lasted more than seven months.

## Tyre's Harbors

Two harbors hewn out of the natural rock of Tyre were protected by a wide breakwater in a feat of engineering beyond compare and lasting for many centuries. Ancient sources state that there were two harbors at Tyre, one facing north and the other south. The function of these was to allow ships to navigate into port safely regardless of the direction of the winds.

As early as the nineteenth century, travelers mentioned both harbors at Tyre. The location and even the existence of the southern harbor is still a matter of discussion, but the existence of the northern harbor is not controversial, since it was documented by several travelers, such as Jules de Bertou (1843), John Kenrick (1855), Ernest Renan (1864), and Poidebard (1939).

The pioneering aerial photographer and archaeologist Fr. Antoine Poidebard focused his efforts mainly on finding the so-called "Egyptian," or southern, harbor, albeit with mixed results

(fig. 1, Poidebard 1939; Frost 1972). As for the northern harbor, his contribution was limited to the detection of a submerged jetty located on the northern side of Tyre, which appears in one of his aerial photographs. Based on this evidence, he confirmed the existence of Tyre's northern harbor and pointed to the need for further studies of this area. In the 1960s, pioneering underwater archaeologist Honor Frost conducted surveys to investigate the existence of the southern harbor in Tyre and noted the archaeological importance of the northern area but did not report on the submerged northern jetty (1972). Recently, Nick Marriner and Christophe Morhange suggested that "high-resolution topographical surveying, urban morphology, coastal stratigraphy, old photographs, gravures and archaeological diving allow us to precisely determine the maximum extension of the MBA northern harbor" (Marriner et al. 2005).

### Recent Archaeological Work on the Northern Harbor

In spring 2001, Lebanon's Directorate General of Antiquities (DGA) conducted a survey with two aims: to ascertain the archaeological potential of the area in order to protect it from modern harbor rehabilitation works and treasure hunters, and to assess the archaeological potential of the remains of the northern side at Tyre, in order to contrast it with the so-called "Egyptian" harbor at the southern side of the city. This survey confirmed the existence of a submerged structure consisting of two parallel walls that stretched out from the northeastern tip of Tyre's peninsula. It was first detected in the aerial survey of Poidebard in the 1930s (see above) but not studied since (Noureddine and Hérou 2005). This survey, the first archaeological maritime work conducted in Tyre since Frost, revealed the rich archaeological potential of the area.

Intrigued by this structure, which must have been part of a major ancient harbor installation but for which we had no data securing its function or dating, I took the initiative to investigate it in more detail and to uncover its building techniques to assist in determining its date. Having obtained the permission of the DGA,<sup>1</sup> I conducted, at my own expense, an underwater observation and charting campaign

from August to December 2005. This was time-consuming, since the stones were numerous and the underwater visibility was not always favorable. In addition, the underwater swells were sometimes quite strong.

Many dives were conducted in order to complete the drawings. We started by fixing several metal rods as points of reference. We then used these points to map the measurements of each block and its alignment. The results were then added onto a map of Tyre using the coordinates from on site and reproduced on a computer (figs. 2–3).

### The Submerged Jetty

The area around the jetty varies in depth between 1 and 4 m, and the seafloor is covered with scattered masonry blocks over a thick layer of sedimentation that can reach over 4 m thick. The jetty consists of two parallel walls built from headers, preserved for a length of 85 and 70 m, respectively, and connected at their eastern extremity by a 13-m long wall that closed the structure (fig. 3). The walls are submerged between 1.5 to 3.5 m deep, with the area between them partially filled with rubble and scattered blocks. All three walls were built in the same manner, from carefully prepared headers varying in size from



Figure 1. Photo of the peninsula of Tyre taken in the early 1930s by Antoine Poidebard.

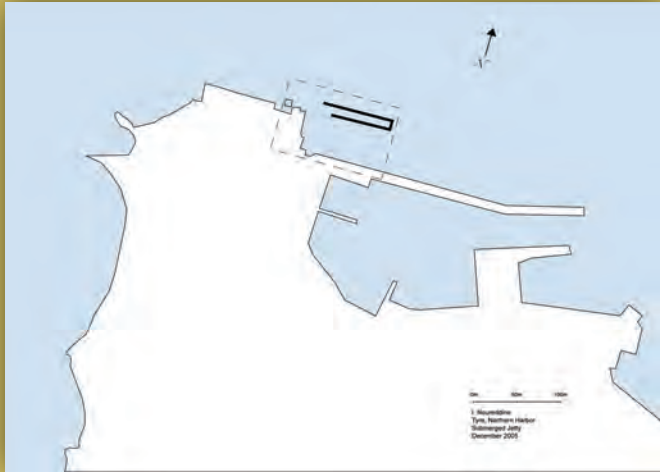


Figure 2. The location of the submerged Phoenician jetty (in solid black on the plan) with respect to Tyre's peninsula, consisting of two parallel submerged walls. This structure was first recognized in the 1930s by Antoine Poidebard. Its existence was confirmed in 2001 by a team of Lebanese divers (Noureddine and H elou 2005).

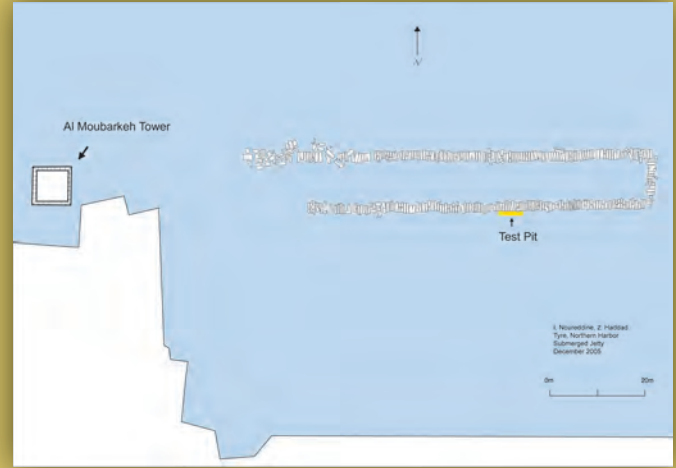


Figure 3. The jetty consists of two parallel walls built from headers, preserved for a length of 85 and 70 m, respectively, and connected at their eastern extremity by a 13-m long wall that closed the structure.

1.9 to 2.25 m in length and 55 and 45 cm in height and width (fig. 4). These walls had at least three visible courses at the time of the 2001 survey.

To determine the lowest row, or the foundation course, a test pit was excavated in October 2004 on the landward side of the inner wall of the jetty (as marked in fig. 3). This work was mandated by the DGA, which I represented, and was conducted in conjunction with the French organization Association pour les recherches sous-marines en Roussillon (ARESMA). At that point, the top header was submerged in about 2 m of water. The pit revealed two further courses of similar headers without reaching the bedrock, thus revealing the depth of the foundations of the wall at that particular point (fig. 4). In other words, at least five courses of the wall, or more than 2.5 m, are preserved at the test pit's site. This also revealed mason and quarrying marks on the headers (see below).

There are many scattered blocks around the header built walls, perhaps as a result of falling from the higher courses that must have reached above the sea level. As shown by soundings, the "harbor" area south and southeast of the jetty holds an enormous amount of archaeological remains, with visible pottery sherds datable from the Ottoman period back to at least the Hellenistic period.

The jetty starts east of the Al-Moubarkeh ("the blessed one") Tower. This square-shaped tower measures 8 m in width and is

aligned with the void between the two submerged walls of the jetty (figs. 2 and 3). This suggests that Al-Moubarkeh and the jetty were initially part of the same structure. Al-Moubarkeh as it stands is a medieval tower, but its foundations are older, even though their exact date has yet to be determined.

Tyre's northern side is naturally protected from the *Berwanzi*, the dominant southwestern wind named by the Lebanese fishermen and sailors from the waves it generates. The above-mentioned walls have the ideal topographic orientation to provide needed protection against the rare but still damaging western wind and also against the violent northern storms. For this reason, it is clear that the east-west-oriented walls were built as a breakwater to protect the internal area of the old northern harbor (fig. 3). Their completed width (13 m) would have also made them suitable as jetties or piers to unload cargo from moored ships.

**“The construction of the Phoenician jetty at Tyre must have involved some form of crane...”**

#### A Date for Tyre's Jetty

The construction of the headers is typical of Phoenician harbor work (Carayon 2005). The closest parallel to the sunken

jetty at Tyre are the jetties at Tabbat al-Hammam and Atlit. The Phoenician jetty at Tabbat al-Hammam, 17 km south of Tartous, consists of a one header-built wall facing the waves, backed by a mixture of ashlar and rubble fill. It is dated to the ninth century B.C.E. and provides a *terminus post quem* for the construction date of the jetty at Tyre.

The Phoenician jetty at Atlit, 30 km south of Haifa, is in fact a smaller replica of the one at Tyre, with two parallel header walls and a third header wall at their tip, enclosing ashlar and rubbles to make a breakwater against the northern winds (Raban and Linder 1993). The headers are roughly the same size as those at Tyre, with an average of 2 m in length, 0.4 and 0.55 m in width, and 0.6 m in height. However, the width of the whole structure at Atlit is only 9.8 m, as opposed to about 13 m at Tyre. The Atlit jetty has been dated to the seventh century B.C.E. based on the fact that its construction was more sophisticated than the one at Tabbat al-Hammam and also the artifacts found within the harbor basin, such as an Assyrian helmet. Since Atlit was either a Tyrian or a Sidonian colony (Jones 1993), and since the two jetties are constructed in the exact same manner, it would be reasonable to presume that both were constructed around the same time.

A *terminus ante quem* for the Tyrian jetty is provided by the outside jetty of the early Hellenistic harbor at ancient Amath-

onte, near Limassol in Cyprus. It employs the same header technique but uses substantially larger blocks (3 m in length). The construction of the Phoenician jetty at Tyre must have involved some form of crane as the one illustrated by Koželj (1988) for constructing the jetty at Amathonte.

### Masonry and Quarrying Marks

According to experts in cut stones and quarrying, the headers were cut from the quarry, whose location is still unknown, and brought to the jetty without final sizing and shaping. As revealed by the excavations of the test pit, the headers at Tyre have some particular quarrying and mason marks on their sides (figs. 5–6). These marks are older than the Hellenistic period (Orlandos 1968). Jeanine Abdul Massih, a Lebanese expert in masonry who examined photographs of these marks, dates them to at least the Persian period (see Nylander 1970) and possibly to

the Phoenician period

(personal communication).

Further

studies

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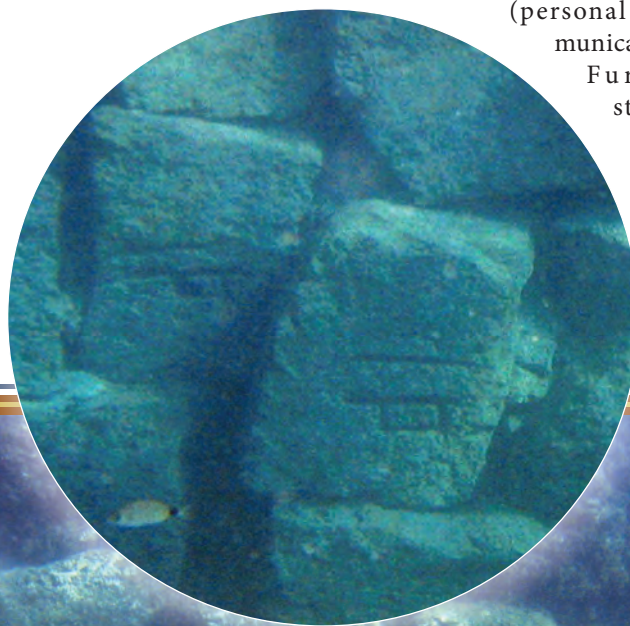


Figure 4. The façade as shown by the sounding test on the inner wall of the jetty. Note the masonry marks on many of the headers (see inset). Photo by Ibrahim Nouredine.



Figures 5 and 6. Quarrying marks on the sides of the jetty's blocks. Upon examining photos of these marks, Jeanine Abdul Massih, a Lebanese expert in masonry, dated them to at least the Persian period and possibly the Phoenician.



observations of stone marks found on the remaining headers could provide us with some important data on Phoenician building techniques and the date of the jetty.

### A Jetty from Tyre's Phoenician Harbor

Based on the above evidence, I present the hypothesis that these parallel walls are the remains of the Phoenician jetty of the northern harbor at Tyre going back to approximately the seventh or eighth century B.C.E. This would make it one of the largest jetties of its kind.

The underwater mapping of the jetty structure at the northern harbor of Tyre was completed in December 2005. Recent diving revealed changes in the jetty structure's upper rows, probably caused by locals who were searching for treasure. Given the pace of destruction of both the northern and southern underwater archaeological sites at the hands of treasure hunters, there is an urgent need to conduct thorough archaeological digs as well as informational campaigns to increase awareness among the local population (especially fishermen) of their underwater archaeological heritage and to interest them in its preservation.



### Acknowledgments

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## ABOUT THE AUTHOR

Ibrahim Noureddine holds a M.A. degree in Archaeology from the Lebanese University and is preparing his Ph.D. dissertation on coastal and submerged harbors in the eastern Mediterranean during the Bronze Age. Noureddine has participated in classical and urban archaeological excavations (Beirut) as well as underwater archaeological surveys and excavations (Tyre) for more than fifteen years. He is a member of the excavation team digging at the Eighteenth Dynasty funerary temples of Amenhotep III and Thutmose III in Luxor, Egypt.



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