

THE PHOENICIANS AND THE DANGERS INHERENT TO SAILING ON THE MEDITERRANEAN SEA IN ANTIQUITY

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Abstract

The expression ‘Pillars of Hercules’, as well as ‘Scylla and Charybdis’ were used by some authors to indicate unworldly, mythological places. Did those waterways really exist or were they just part of the imagination of Homer, the Greek poet? In Greek mythology these sea straits were described as very dangerous. This study investigates the Phoenician trade routes in the Mediterranean and the sort of difficulties they possibly encountered as seafarers. Phoenician shipwrecks found off the coast near Ashkelon and Spain (and other shipwrecks in the Mediterranean) as well as satellite images of the sea straits provide valuable information.

1. Introduction

Sailing on the Mediterranean Sea was limited to the periods of good weather, more or less from the end of May to mid-September². Winter presents a totally different picture with violent storms, fog, limited visibility doubled by the addition of rain or snow (according to the ancient writer Vegetius)³.

¹ This article is an extract from the MA (Biblical Archaeology, Unisa) dissertation of Anne Marie Smith, Phoenician ships: Types, trends, trade and treacherous trade routes, Unisa, 2013, pp.160-178 and is compiled with concise contributions by Prof M le Roux (University of South Africa).

² L. Casson, 1971. *Ships and seamanship in the ancient world*, Baltimore, 1971, p. 270.

³ In Casson, *Ships*, p. 272. Casson (*Ships*, p. 271) stresses the economic dislocation that all port towns had to suffer because of the limited sailing during season.

The winter was used to repair, maintain and caulk the ships (Cf. Ezekiel 27:9 which refers to the old craftsmen of Gebal, who were in Tyre to caulk the seams of the ships).

Other factors to influence sailing on the Mediterranean in Antiquity were prevailing wind directions and currents. The sails used in those days were square, suspended from a yard and with loose-footed brails which were incapable of sailing against the prevailing wind direction by means of tacking⁴. If the wind was against, then the only alternatives were the use of oars or to wait for a more favourable wind⁵. With the exception of the narrow sea straits that were quite dangerous, currents were not such a strong factor in the Mediterranean⁶. The most prevalent current in the entire Mediterranean basin is anti-clockwise, running from Gibraltar along the African coast to Port Said and turning northwards along the Levantine coast, where it combines with the current from the Black Sea to head west and following the coastlines of Greece and Italy all the way to the Gulf of Genoa, where it heads southwards, following the Spanish coast to Gibraltar⁷.

2. Sailing the open sea

The merchants who were mostly involved in long-distance maritime journeys were Canaanites, called Phoenicians⁸ by the Greeks⁹. From the ninth to the sixth century BC they dominated the Mediterranean Sea and their ships on the Mediterranean served as travelling bazaars to their clients¹⁰.

The recent find of a Roman cargo ship by Greek archaeologists at a distance of between 1.2 and 1.4 kilometres between the island Corfu and the Italian coast¹¹, brought the question to the fore of whether the ancients sailed over the open sea, instead of close to the shoreline as has often been assumed.

⁴ Tacking is a zigzag movement of the ship to make use of the available wind to reach its destination when the wind is blowing from the direction where the ship is heading. This is done by changing the direction of the ship when sailing close-hauled by turning the bow to the wind and shifting the sails so as to fall off on the other side at about the same angle as before (*Webster's New Collegiate Dictionary*, Springfield, 1977, p. 1186).

⁵ Maria Eugenia Aubet, *The Phoenicians and the West. Politics, colonies and trade*. Cambridge, 1993, p. 155.

⁶ Aubet, *Phoenicians*, pp.156-157.

⁷ Aubet, *Phoenicians*, pp.156-157.

⁸ *Phoinikes* means 'red people', named after the word they used for a prized reddish purple cloth the Phoenicians exported (R Gore, Who were the Phoenicians? *National Geographic* 206 (4) (Oct. 2004), pp. 27).

⁹ R. R. Stieglitz, Long-distance seafaring in the ancient Near East, *The Biblical Archaeologist* 47 (3) (Sept. 1984), pp. 139.

¹⁰ They mainly traded in precious metals from abroad and other products such as wine, olive oil and mostly timber from the cedars of Lebanon (Gore, Who were the Phoenicians? p. 26).

¹¹ <http://www.business.standard.com/generalnews/news/deepest-ever-roman-era-shipwrecks-found-near-Greece/15558>

In all probability sailing the open seas was already practiced by the Phoenicians at quite an early stage. Aubet is convinced that both the currents and the wind conditions made it necessary for the Phoenicians to sail on the open seas¹². It was probably safer not to sail too close to the coastline due to possible dangers lurking under water, such as submerged rocks or sand banks. The main shipping route from the Phoenician coast ran in a north-westerly direction to Cyprus, then along the south coast of Asia Minor, across the open sea to the southern reaches of Greece, then across the open sea to Malta or along the south coast of Sicily to Motya (See **Figure 1**). From Motya on the far western tip of Sicily, the route continued to the southern shores of Sardinia and then across open water to Ibiza, from where the coast of Spain could be reached over open water. Along the coast of Spain the route continued to Gibraltar and beyond.

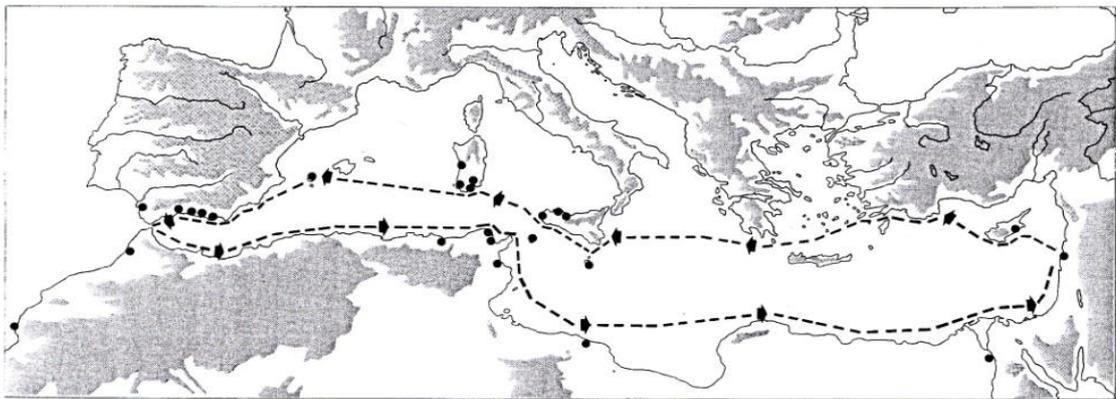


Figure 1: Shipping routes in the Mediterranean (Aubet 1993:161)

Two seventh century BC Phoenician shipwrecks (measuring about 25 feet in length) discovered in the Bay of Mazarron near Cartagena (Spain) provided important information about how the Phoenicians constructed their ships¹³.

Support for the theory of sailing the open seas comes from the find of two Phoenician merchant ships quite far off the coast of Ashkelon by means of an underwater expedition conducted by Robert Ballard (who also located the wreck of the Titanic) and Lawrence Stager, leader of the Leon Levy Excavations in Ashkelon (See **Figure 2 & 3**)¹⁴.

¹² Aubet, *Phoenicians*, pp.156-157.

¹³ Gore, *Who were the Phoenicians?* p. 26. Phoenician sea-faring skills and their larger vessels made it possible to travel into the Atlantic and well as the Indian Oceans and trade along the African coast (Aubet, *Phoenicians*, pp.157, 161).

¹⁴ R. D. Ballard, & L. E. Stager, 2002. Iron Age shipwrecks in deep water off Ashkelon, Israel. *AJA* 106 (2) (2002), pp. 151-168. cf. S. Kingsley, *Shipwreck archaeology of the Holy Land*, London, 2004 - R. Patai, *The children of Noah: Jewish seafaring in ancient times*. Princeton, 1999 - D.

In 1999 they located and surveyed two ancient ships which had sunk about 50 kilometres west of the seaport of Ashkelon. These wrecks had been observed from a US Navy submarine patrolling in that part of the Mediterranean¹⁵. A number of articles retrieved from the sea floor, such as cooking pots and amphorae, made it possible to date these ships to between 750-700 BC. They had set sail from a Phoenician port, probably Tyre¹⁶, both heavily laden with a cargo of between 10 and 12 tons of wine-filled amphorae and had apparently floundered in the same storm. The treacherous ‘east wind’ or *rûah qādîm*, which ‘shatters the ships of Tarshish’ according to Ezekiel 27:26 (Cf. also Ps 48:7) were probably the cause of their sinking¹⁷. The ships were found with their bows heading in a westerly direction far away from the coast and may have had Egypt or Carthage as their destination. At that stage Carthage was still heavily dependent on food supplies from its mother city Tyre¹⁸.

Sperber, *Nautica Talmudica*, Jerusalem, 1986 - A.J. Parker, *Ancient shipwrecks of the Mediterranean*, Oxford, 1992.

¹⁵ R. Gore, Ashkelon ancient city of the sea, *National Geographic* 199, (1) (Jan 2001), pp. 91-93.

¹⁶ Gore, Ashkelon, 92.

¹⁷ P. J. King, & L. E. Stager, *Life in Biblical Israel*, Louisville Ky, 2001, p. 185.

¹⁸ King & Stager, *Life*, pp. 179-180, 185 - G. E. Markoe, *Phoenicians*, London, 2000, p. 56.

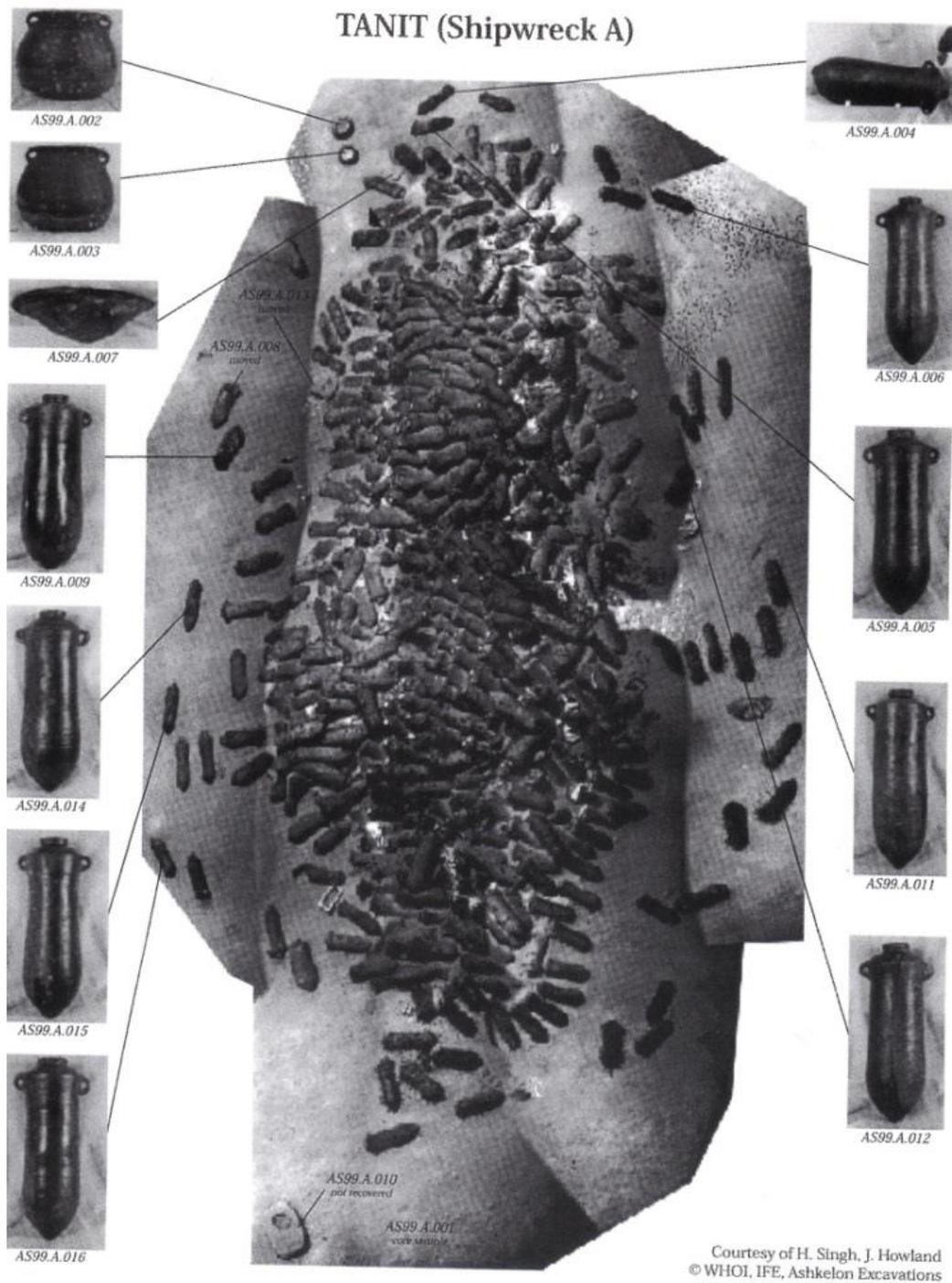


Figure 2: A Phoenician shipwreck now dubbed *Tanit*, latter half of eighth century BCE, with a cargo of wine. Retrieved artefacts are indicated in the margins (King & Stager 2001:180).

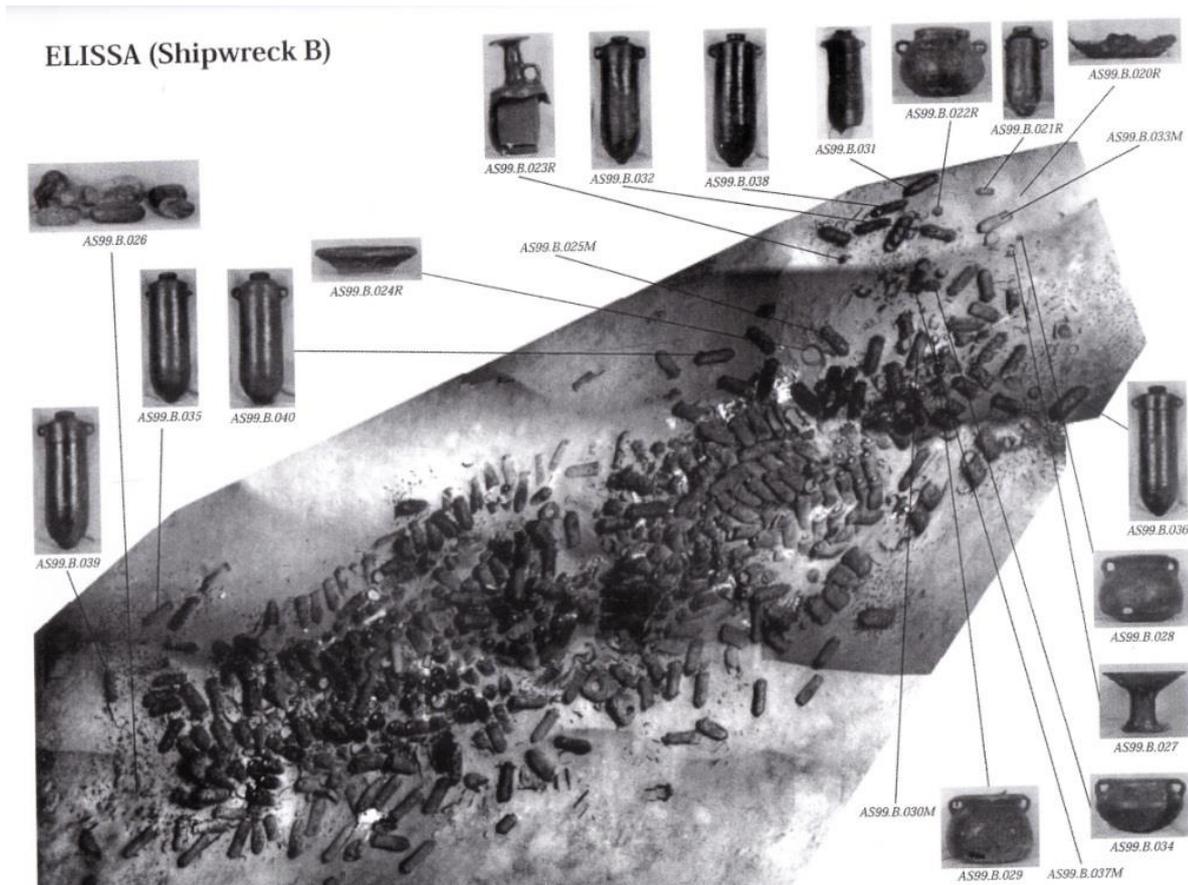


Figure 3: A Phoenician shipwreck now dubbed *Elissa*, from the later part of the eighth century BCE, with a cargo of wine. The artefacts retrieved from the seabed are shown in the margins (King & Stager 2001:181)

3. Dangerous sea straits

3.1 Scylla and Charybdis

In Greek mythology Scylla and Charybdis were two immortal irresistible sea monsters who dwelt on either side of a very dangerous strait. To find oneself ‘between Scylla and Charybdis’ is a somewhat archaic way of saying that people find themselves ‘between the devil and the deep blue sea’ – having to choose between two evils. The oldest reference to these two names is found in Homer’s *Odyssey*. It recounts the difficulties encountered by Odysseus and his men on their way back home after the defeat of Troy¹⁹.

Scylla and Charybdis are described as two sea monsters out to destroy passing ships and crews. Scylla (a former lover of Poseidon) was believed to be a six headed female monster, living in a cave located high in a rock near

¹⁹ E. V. Rieu, (transl.) *Homer, The Odyssey*, Harmondsworth, 1946, pp.195-196.

the water²⁰. Each head had a long neck, which would bend down to enable the mouth to grab a member of a passing ship's crew and drag these off to devour them in the cave. According to the legend Odysseus lost six of his crew in this way when passing through the strait²¹. Charybdis lived opposite Scylla, under a fig tree and was depicted as a massive underwater beast that would drink in ocean water three times a day and spew it out again. Later it was rationalised as a whirlpool, a gulf nearly on a level with the water. Three times each day the water rushed into a frightful chasm and three times it was disgorged. If the vessel came too close near the whirlpool when the tide was rushing in, it would be totally engulfed and broken into pieces²².

Scylla and Charybdis have been identified as respectively located as a shoal-rock on the coast of the Italian mainland, where there is now still a rock as well as a place with the name of Scylla and a vortex (whirlpool) caused by the meeting of currents at the top end of the Strait of Messina on the Sicilian side of the Strait²³. If the ships tried to avoid the vortex, they were likely to land up too close to the rock and vice versa. Mazel²⁴ states that villagers living in the vicinity of the vortex told him that it was still in existence in the 19th century but has since disappeared. As the area is volcanic and breaks in tectonic plates can cause friction, geological changes may have caused the vortex to disappear. He reports that when sailing in this part of the Mediterranean, strange phenomena can occur such as tremors which can affect the sailing vessel²⁵.

Moreover, recent investigations have discovered that there is still another phenomenon present in the Strait of Messina: the regular occurrence of an 'internal wave' (See **Figure 4**). This is also where there is an underwater sill present, an elevation like a threshold at the depth of about 80 m. To the south the depth increases rapidly to 800 m, 15 km south of the sill and to the north it increases to a lesser extent and reaches a depth of 400 m, 15 km from the sill. The water to the north of the sill belongs to the Tyrrhenian Sea and is warmer. The water to the south of the Sea is the colder and saltier Levantine Water. These water masses do not mix but flow over each other and are separated at a depth of 150 m. Even though there is very little tidal displacement in the Mediterranean Sea (on average about 10 cm difference between high and low tide), the tidal displacement in the Strait of Messina is much larger because the tides north and south of the Strait are approximately in phase opposition. This can lead to currents through the Strait with speeds up to 3.0 meters/second. This in turn can also still be influenced by changes in wind

²⁰ T. Bulfinch, *The golden age of myth and legend*, Ware, 1993, pp. 299-300.

²¹ Bulfinch, *The golden age*, pp. 299-300.

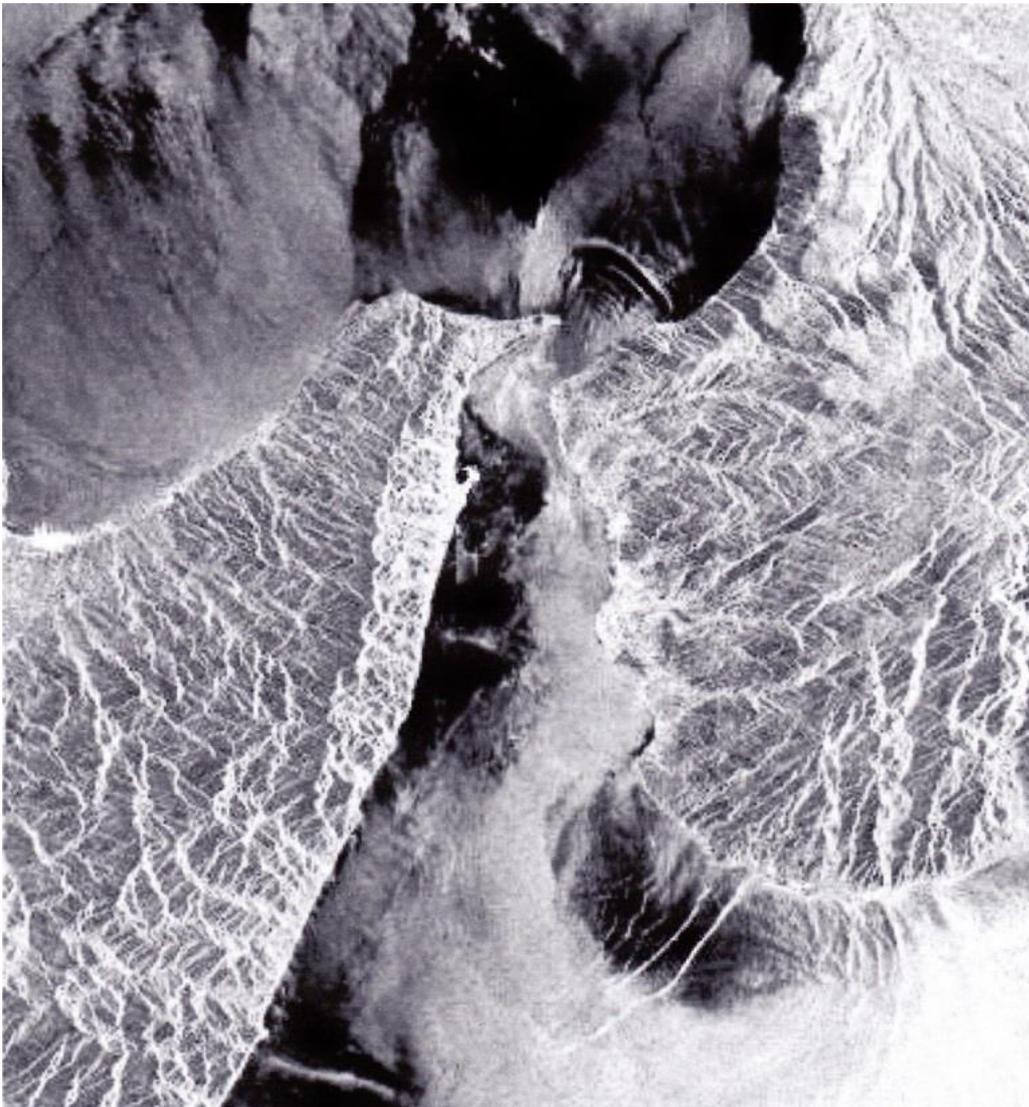
²² Bulfinch, *The golden age*, pp. 299-300.

²³ Jean Mazel, *De Feniciërs beschaving en expansie*. Deventer, 1971, p. 101.

²⁴ *De Feniciërs*, p.101.

²⁵ Mazel, *De Feniciërs*, p. 102.

and air pressure²⁶. Therefore, this ‘internal wave’ occurs between the two different layers of water (cold and warm) and is caused by the obstruction – when the tidal flow pushes the layered water body over the sill²⁷. Even though these waves are not easily visible on the surface, they influence the surface current and cause a change in sea surface roughness (choppier waves). Modern techniques such as satellite images have made it possible to detect these phenomena, which seafarers already experienced in ancient times, but could not explain²⁸. The Greeks had ample reason to fear passage through the Strait and the reference to this phenomenon in ancient literature most definitely had a purpose.



²⁶ <http://internalwaveatlas.com/Atlas2PDF/IWAtlas2Pg11StraitofMessina.pdf>

²⁷ This leads to a series of underwater waves fanning out either to the north of the Strait or southward into the Strait, depending on the direction of the tide.

²⁸ <http://www.ifm-geomar.de/fileadmin/personal/fb1/po/pbrandt/RSES07.pdf>

Figure 4: Strait of Messina. The semi-circular wave patterns visible just above the Strait, as well as at the bottom of the picture in the centre, show the internal waves generated by the sill in the narrowest part of the Strait (<http://www.ifm-geomar.de/fileadmin/personal/fb1/po/pbrandt/RSES07.pdf>)

The Phoenicians initially had settlements on the eastern coast of Sicily and thus must have sailed through the Straits of Messina, probably between the twelfth and eighth century BC²⁹. When the Greeks appeared on the scene in about 720 BC, however, the Phoenicians abandoned the eastern coast of Sicily completely and only retained settlements on its north-western side, such as Panormus (now Palermo) and Soluntum, as well as the island of Motya off its west coast. These were also easy to reach from the newly established settlement at Carthage³⁰. Motya, with its man-made inland harbour (called *cothon*) was located in a shallow lagoon with excellent anchorage. In about 600 BC its fortifications were drastically improved³¹, see **Figure 5a & 5b**). In order to reach it there was no need to sail through the dangerous Strait of Messina.³² As such it was a much safer place to reach, as the Phoenician ships could sail along the south coast of Sicily, which provided shelter from the prevailing north winds³³.

²⁹ Mazel, *De Feniciërs*, p. 138 – Aubet, *Phoenicians*, p.138.

³⁰ Markoe, *Phoenicians*, p.102.

³¹ M. A. Edey (ed), *The sea traders*, Amsterdam, 1974, pp.151-155.

³² This would also have made much economic sense. If an entire ship floundered with its cargo, it was an expensive loss and by only retaining foothold on the western and north-western coast of Sicily, there was no longer a need to sail past the dangers of Scylla and Charybdis.

³³ Aubet, *Phoenicians*, p.160.

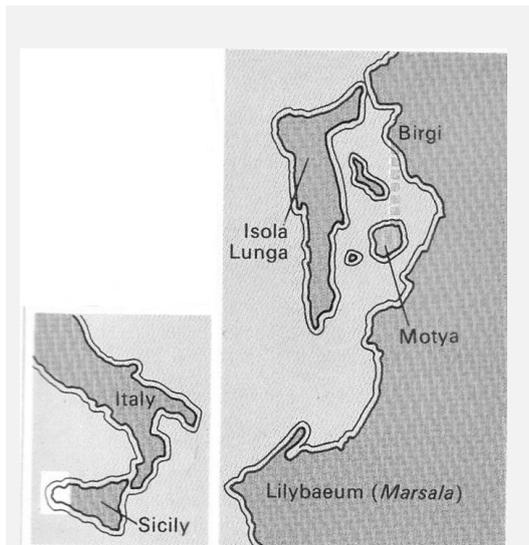


Figure 5a: Motya was located off the western tip of Sicily surrounded by a safe lagoon³⁴

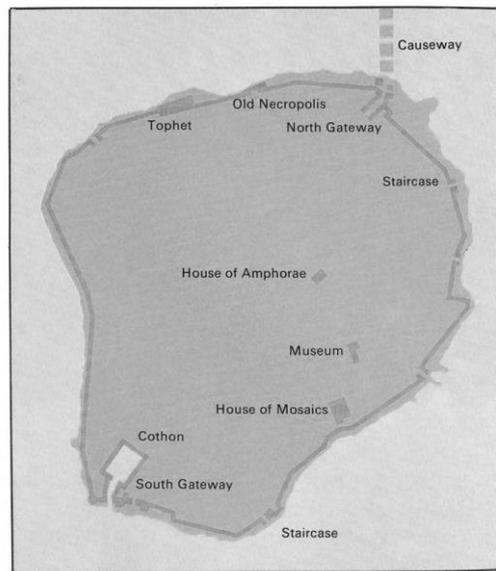


Figure 5b: Motya had a dug harbour, called a cothon, as well as a causeway, which connected it to the mainland³⁵

3.2 Pillars of Hercules

The Strait of Gibraltar was known as the ‘Pillars of Hercules.’ This name originates from the mythological stories about the ‘Twelve Labours of Hercules’ (Heracles, in Greek). As the son of a Greek god and a human mother, he was supernaturally strong and had to fulfil twelve impossible tasks. One of these was to open the Strait of Gibraltar, by pushing two mountains to either side, hence the ‘Pillars of Hercules’³⁶.

In the course of their westward movement, in search of metals and other trade, the Phoenicians eventually reached the Strait of Gibraltar. When this took place exactly is still subject to debate and speculation. The archaeological record of the Phoenician presence in Spain only goes back to the eighth century BC, but their trade exploration may have started long before that (1104/3 BC)³⁷. Somewhere around that time Phoenician ships started sailing through the Strait of Gibraltar which was a hazardous undertaking.

The narrow Strait, only about 14 km wide and ranging in depth from 300 – 900m is the place where the Atlantic meets the Mediterranean. When the colder and less salty water from the Atlantic flows into the Mediterranean, it

³⁴ Edey (ed), *Sea traders*, p. 151.

³⁵ Edey (ed), *Sea traders*, p. 153.

³⁶ Bulfinch, *The golden age*, p. 179.

³⁷ Aubet, *Phoenicians*, p.173.

floats on top of the warmer and heavier salt laden water of the Mediterranean. More water flows eastward, from the Atlantic to the Mediterranean, due to the evaporation in the Mediterranean³⁸. The current from the Atlantic can reach a speed of up to 5 or 6 knots, which only begins to slacken when it reaches Cape Gata, quite far along the coast of Spain in the Mediterranean Sea³⁹.

When large tidal flows enter the Strait, internal waves (which are waves at the density boundary layer) are set off at the Camarinal Sill as the high tide relaxes. These waves can be from 80 – 100m in height and travel eastward as an internal bore (a tidal flood with a high abrupt front⁴⁰), but because they occur at great depths, almost nothing is visible on the surface. They can however be traced by the sun-glint on the water. The propagation of the eastward waves (into the Mediterranean) is not constant, but can move into northeast, central or southeast mode. This means that the incoming water flows either towards the south coast of Spain, straight to the island of Alboran or to the north of Morocco.

The whole phenomenon makes for very unpredictable wave patterns in the narrow strait, as well as outside it. These waves may have influenced the shipping from the Phoenician settlements that were located there, such as Malaga, Toscanos and Sexi (Almuñecar) (**Figure 6**)⁴¹.

³⁸ <http://internalwaveatlas.com/Atlas-PDF/IWAtlas-Pg099-StraitGibraltar.PDF>. On the western side of the Strait there is a shallow submarine barrier close to where the continental shelf ends, called Camarinal Sill, which restricts the water flowing in.

³⁹ Aubet, *Phoenicians*, p. 157.

⁴⁰ Webster's, p.128.

⁴¹ <http://internalwaveatlas.com/Atlas-PDF/IWAtlas-Pg099-StraitGibraltar.PDF>

Furthermore, the prevailing wind directions in the Strait are only east or west winds, with east winds prevailing in the months of March, July, August, September and December with alternating east or west winds during the other months of the year. Moreover certain winds prevail in certain years, leading to years being called easterly or westerly, depending on which wind prevails (Aubet, *Phoenicians*, p. 157).

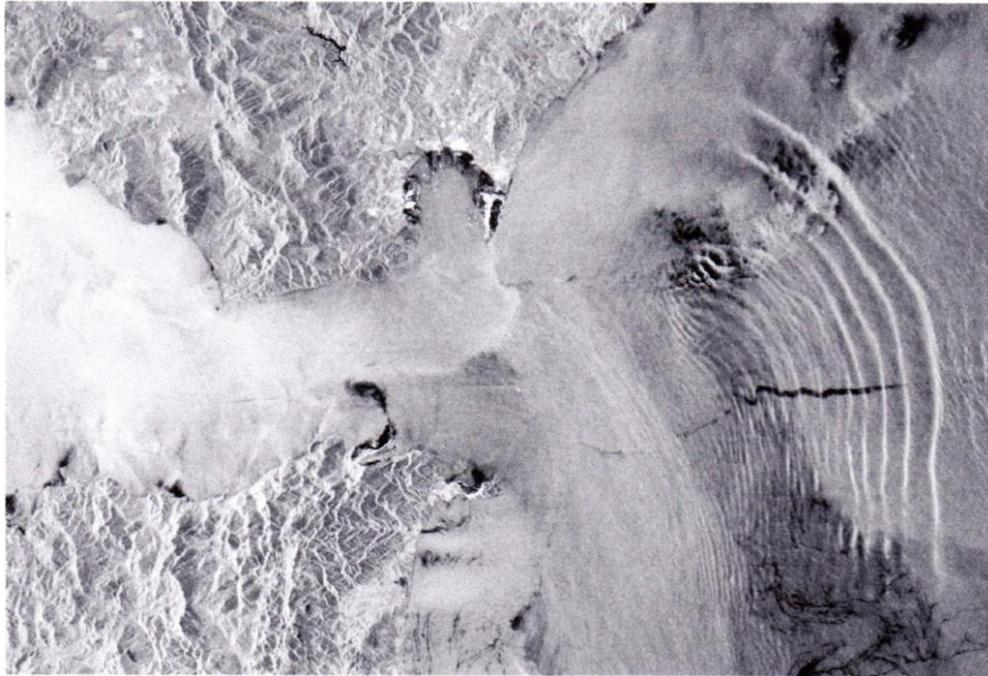


Figure 6: Strait of Gibraltar. ERS-1 SAR image acquired on 1 January 1993 at 22:39 UTC (orbit 7661) showing sea surface manifestation of a packet of internal solitary waves generated in the Strait of Gibraltar and propagating eastward into the Mediterranean Sea. The dark line intersecting the packet results from an oil spill, probably released from a ship. Imaged area 100 km x 50 km (<http://www.ifm-geomar.de/fileadmin/personal/fb1/po/pbrandt/RSES07.pdf>)

When west winds prevail it is very dangerous to sail through the strait to reach the Atlantic⁴². The optimal conditions to sail through the Strait from east to west would be with an easterly wind and outgoing tide.

Sailing from west to east through the Strait was considerably easier, as wind, tide and greater flow inward, would all have contributed to the ship being propelled in that direction. Also the main current prevalent in the Mediterranean along the coast of North Africa, which flows in an easterly direction, would have made sailing to either Carthage or Tyre easier than the outward journey⁴³. That the Phoenicians sailed through the Strait of Gibraltar is certain, as they had established a settlement at Gadir (now Cadiz) close to the mouth of the Guadalete, in order to ship metals from the area of Rio Tinto and the valley of the Guadalquivir to Carthage and Tyre⁴⁴. The most westerly

⁴² Aubet, *Phoenicians*, p.157

⁴³ Aubet, *Phoenicians*, pp. 163-164

⁴⁴ Aubet, *Phoenicians*, pp. 221-223. They also had a settlement on the island of Mogador, off the northwest coast of Africa, where they produced purple dye (Mazel, *De Feniciërs*, p. 209).

settlement of the Phoenicians was Cadiz and they were also operating from Mogador in front of the west coast of Africa. They had experience of sailing on the open sea, so the likelihood that they indeed reached Cornwall to obtain tin, is a distinct possibility⁴⁵.

Strabo quoted a story about how determined the Phoenicians were to hold on to their market in tin plus other materials: a Phoenician ship was en route to its trading destination and its skipper perceived that a Roman ship was shadowing him. Rather than give Phoenician trade-secrets away, he deliberately wrecked his ship and was compensated by his city. The Roman ship was also destroyed on the same rocks⁴⁶.

4. Conclusion

Sailing mainly took place during the summer months as the bad weather conditions during winter made seafaring a hazardous undertaking. The ‘mythological’ Greek stories of the dangers of Scylla, Charybdis and the Pillars of Hercules are not a figment of the imagination as the physical aspects of the different sea passages caused a number of very real dangerous conditions for ships to negotiate.

Ships did not always remain close to the coastline, but from early on sailed the open sea as indicated by the wrecks investigated near Ashkelon. The difficult sea and wind conditions can explain why the Phoenicians built ships that were higher, bigger and stronger than those that were used to transport goods to Egypt and along the Levantine coast (ships of Tarshish over against Byblos ships). Heavier loads (such as metal ingots and amphorae filled with wine, olive oil or fish instead of wood and papyrus) and the dangerous conditions made the construction of stronger ships an absolute necessity. The skills and achievements of the Phoenicians are often underestimated.

Moreover they fished extensively for Blue Fin Tuna (M. Kurlansky, *Salt a world history*, London, 2003, p. 46), as well as mackerel and sardines in Atlantic coastal waters off the coasts of southern Spain and Morocco. The fish was processed and packed into amphorae before being shipped to destinations in the Mediterranean (Markoe, *Phoenicians*, p. 48). The Phoenicians are even reported to have eaten whale meat, as whales were still abundant in this part of the Atlantic, although it is not sure whether they hunted whales or made use of one that had beached itself (M. Kurlansky, *The Basque history of the world*, London, 2000, p. 48).

⁴⁵ According to Strabo, the Phoenicians of Cadiz traded with the Cassiterides. These are assumed to be the islands off the south-west of England, now called the Scilly Isles (Mazel, *De Feniciërs*, p. 133). Remains of many tin mines are still present in Cornwall (Mazel, *De Feniciërs*, pp. 133-137 - W. C. H. Rowe & E. R. Nute (eds), *Cornwall. One of the four nations of Britain*, Truro, 2012, p. 9).

⁴⁶ E. Chaline, *Fifty minerals that changed the course of history*, Ontario, 2012, pp.188-190 - <http://phoenecia.org/canaancornwall.html#ixzz2c7pfMZSd>