ספינות צור לפי ספר יחזקאל

אבנר רמו



Phoenician ship and hippocampus. Silver coin. C. 340 BC. National Archaeological Museum. Beirut, Lebanon

The Phoenicians, a nation of mariners was the major Mediterranean sea-power between the 12th and the 6th centuries BC. They even sailed beyond the Straits of Gibraltar and were connected to the trade in the Atlantic. Although many ancient shipwrecks had been discovered, it is rarely suggested that some of them are Phoenician and even these claims are often disputed.



Phoenician warships with two rows of oars (Bireme). Relif from Nineveh. C. 700 BC.

In addition to the Phoenician towns, the Prophet Ezekiel mentions several locals that supplied Tyre with materials essential for building ships. But as the Prophet does not mention here any trade terms it appears that the delivery of these supplies was not carried out under regular commerce arrangements, or that the business side of such transactions was not known to him.

We read in the Book of Ezekiel:

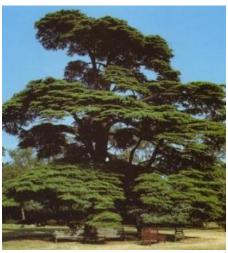
ברושים משניר בנו לך את כל-לחתים; <u>ארז מלבנון</u> לקחו לעשות תרן עליך. אלונים מבשן עשו משוטיך; קרשך עשו-שן <u>בת-אשרים מאיי כתים</u>.

"Of <u>cypress-trees</u> from Senir have they fashioned all you planks; they have taken <u>cedars from Lebanon</u> to make masts for you.

Of the <u>oaks of Bashan</u> have they made your oars; your deck have they made of ivory inlaid in <u>larch, from the isles of the Kittites</u>" (Eze 27:5-6).

The Greek translator assumed that ברושים משניר are "cedar from Sanir", and that: are "cypress from Lebanon." It is likely that here the translator misplaced the natural locale of these trees. The Greek translator also believed that אלונים מבשן are "woodland houses "Basanites" (an unknown tree), and that בת-אשרים מאיי כתים are "woodland houses from the islands of Chettiin." The English translator assumed that בת-אשרים here is "Larch." However, Larch (Larix) is a deciduous conifer of the Pinaceae family that is native to the cooler temperate Northern hemisphere but does not grow in בתים (a place-name in Cyprus) or anywhere else in the Middle-East.

The names שניר - "Senir" and אניר - "Hermon", are associated in several biblical verses (Deut 3:8; 1 Ch 5:23; Cant 4:8) where it is stated that while the Amorite's named Mount Hermon as Senir, the Sidonians' name it "Sirion." Ezekiel never mentions the names Hermon, or Sirion, but is using the Ammuru's equivalent – "Senir." This suggests that the Prophet was more familiar with the culture of the northern part of the Levantine coast.



Cedarus libani

The Hebrew word (*7**) (erez) was correctly translated to English as "cedar" which is a derivation of the Greek kedros, a name that they first used for the Greek Juniperus communis, but latter extended it to another (non-Greek) tree that grows in southern Asia Minor, western Syria, and Lebanon.

More than any other tree, * TX (erez) - "cedar", is mentioned in the Bible 73 times, and in 27 of them it is in relation to the land of Lebanon. No wonder that its scientific name is Cedarus libani

This tree is named in the Akkadian language: erenu(m). A similar name $\forall oren$ (oren) appears in the Bible only once (Is 44:14), and it is likely that $\forall oren$ here is a letter-substitution error of $\forall \forall oren$ (erez) - "cedar."

The same verse of the Book of Isaiah contain also the Hapax legomenon: תרוֹם (thirza) translated to English as "Ilex" (? The name was omitted in the Greek translation). However, this name could be a variant of the name אורי - (erez).

In the book of Kings we find that Cedar was used for אס (saphun) - "covering" (of the root: sphn) of the Hall of Justice (1 Ki 7:3, 7). The Prophet Jonah who was escaping from God on a ship sailing from Joppa to tarshish (Tarsus, in Cilicia, Anatolia) refers to it as (sephinah) - "ship" (Jon 1:5). As this Hebrew word is also of the root sphn, it is suggested that it is alluding to a ship built of cedar.

Egyptian records from the second half of the 2nd millennium BC mention "Gval's (Biblos) ships." The use of this term provides the evidence that at that period there were plenty of cedar trees in Mount Lebanon. However, the intensive exploitation of the trees in the following centuries took its toll, and the Phoenicians had to limit the use of the local cedars trees to the most essential functions of their ships. Ezekiel informs us that in his day, Lebanese cedar-wood was used for making the Ship's musts (Eze 27:5). The increasing scarcity of cedars (and probably also of other types of wood) forced the Phoenicians to look for them in other areas. They soon learned that the closest source of large quantities of good-quality cedars was in the forests of the Taurus Mountains near the town of Tarsus of Cilicia. Similarly to Isaiah (2:16; 23:1, 14; 60:9) Ezekiel indicates that the Phoenicians had מניות תרשיש (onioth tharshish) - "Tarsus' ships" (Eze 27:25), a term analogues to the Egyptian "Biblos' ships," indicating that near this rich source of cedars, the Phoenicians were now building their ships (see also 1 Ki 10:22; 2 Ch 9:21).



Aleppo Pine tree, Pinus halepensis

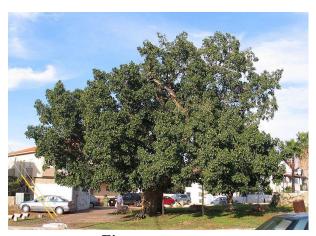
Currently and probably since antiquity one of the most common trees in Israel is the Jerusalem pine (*Pinus halepensis*). Although in contemporary Hebrew its name is ארן (*oren*), its biblical name is uncertain. As suggested above the name ארן (*oren*) may be a misspelled ארב (*erez*) - "cedar" (Is 44:14).

The Prophet Isaiah declared:

לבנים נפלו, וגזית נבנה; שקמים גדעו, וארזים נחליף.

"If bricks have fallen we will build with *gazit* [= hard or cut rock stones], if *shikmim* have been hewed down, we will replace them with cedars" (Is 9:9).

This verse suggests that שקמים (shiqmim) are likely to be ordinary and rife trees, a cheap substitute for cedar's wood (see also: 1 Ki 10:27; 2 Ch 1:15; 9:27).



Ficus sycomorus

Although the Hebrew שקמים (shiqmim) is translated to the English as "sycamores", the Ficus sycomorus is a fruit-bearing rather than a timber tree, and therefore a sycamore tree does not suit the context of this verse. The identification of shiqmim as sycamores has probably resulted from the early Greek translation of the Bible (Septuagint) where the

Hebrew *shiqma* was transliterated as *sycamine*. Although sycamore is a common tree in Egypt, it is not clear whether the translators, who apparently lived in Alexandria (Egypt), knew the true identity of the Hebrew biblical *shiqmim*.

Furthermore, Galil had pointed out that the *Ficus sycomorus* tree is a native of eastern central Africa and Yemen, and the sycamore trees currently growing in the Near-east are outside the spontaneous area of the plant and depend on man for their propagation (2). The prevalence of Sycamores in Egypt is probably the result of branches swept down the Nile, but as for Palestine it had to be carried by man. As the Sycamore fig is much inferior to the common fig (*Ficus carica*), a native of Palestine, it is hard to envisage a significant economical reason for growing sycamore trees there on a large scale.

However, we read that there were numerous shiqmin in the שבלה (shephelah) - "plain" (1 Ki 10:27; 2 Ch 1:15; 9:27). In David's list of "treasuries," that appears in the book of Chronicles, after the "shiqmin that are in the shephelah (plain)," we find the "herds that pastured in Sharon" (1 Ch 27:27-29). Therefore, when we hear the Prophet Amos saying: בי-בוקר אנכי, ובולס שקמים - "but I am a herdsman and boles shikmin" (Am 7:14), we have to conclude that he was involved in these closely associated "treasuries." Although the Hebrew word (boles) is translated as "fruit gatherer," the exact meaning of this word that appears in the Bible only once is not clear. Some have suggested that (boles) is a gasher who (with a knife) is slashing the newly formed sycamore's figs, an action that promotes the ripening of the fruit. But unlike Egypt or Cyprus, the figs of the Palestinian Sycamore do not need gashing to become edible, and therefore, the meaning of the word (boles) remains obscure.

I suggest that if שקמים (shiqmim) are indeed a poor man's cedars, then they could have been the Jerusalem pines (Pinus halepensis). In that case Amos' profession might have been collecting the resin oozing from tapping cuts made in the pine bark. The semi-fluid yellow to brownish resin (oleoresin) has two components: rosin and turpentine, and the mixture was used in making glues, varnishes, paints, soap, and as a remedy for several medical ailments. It appears that like herding, the labor-intensive collection of the pine sap was carried out by poor men in subsistence economies such as was in Palestine, but not in affluent societies such as that of the Phoenicians. Furthermore the Prophet Amos was from the village of Tekoa, in the Land of Yeudah (Am 1:1), while the Ficus sycomorus grows only in the plains along the seashore.





Pine sap

Therefore, it is not surprising that Ezekiel does not mention שקמים (shiqmim) in connection with Tyre, but the fact that he does not mention these trees in relation to the land of the Israelites either, may be another indication that he was not familiar with the Israelites' country.



Juniperus excelsa

The Hebrew ברושים (beroshim) is translated to English as "cypress," but the Akkadian "burashu" refers to a type of juniper (e.g. Juniperus excelsa. See Ref. 1). Boards (or planks) for ships were prepared from juniper trees, while cypress wood was normally used to make beams and not boards. As Ezekiel indicates that ברושים (beroshim) trees were used by the Tyrians to make 'לחתים' (luchotaim) - "boards", it seems likely that his (beroshim) are juniper trees.

In regard to shipbuilding Ezekiel mentions also: אלונים מבשן - "Alonim from Bashan," (Eze 27:6). It is generally assumed that the biblical "Bashan" is a land in the northwestern region of the current Kingdom of Jordan, south of the Yarmuk River. Yet one has to wonder why the biblical Bashan is associated with Lebanon in general (Is 2:13; Nah 1:4; Zec 11:1-2), or with Mount Hermon in particular (Jos 12:5; 13:11; 1 Ch 5:23). The Prophet Jeremiah orders those that: "resides in Lebanon nesting among the cedars":

עלי הלבנון וצעקי, ובבשן תני קולך - "Go up the Lebanon and shout; in the Bashan sound your voice" (Jer 22:20, 23).

We also read in the Book of Deuteronomy:

מערער אשר על-שפת-נחל ארנן, ועד-הר שיאן-הוא חרמון

"From Aroer, which is on the edge of the valley of Arnon, even to mount Sion--the same is Hermon" (Deu 4:48; see also: Deu 3:8; Jos 12:1).

Yet in the Book of Kings we find:

מערער אשר על-נחל ארנן, והגלעד והבשן.

"From Aroer, which is by the valley of Arnon, even Gilead and <u>Bashan</u>" (2 Ki 10:33).

The comparison between these verses suggests that Bashan is near Mount Hermon.

The Psalmist has a peculiar remark in relation to a certain snowy land:

הר-אלהים הר-בשן: הר גבננים הר-בשן. למה תרצדון-הרים גבננים: ההר-חמד אלהים לשבתו; אף-יהוה ישכן לנצח. רכב אלהים רבתים אלפי שנאן;

"Mountain of God [is] Mount Bashan; O many peaked mountain [is] mount Bashan. Why look you askance, you mountains of peaks, at the mountain which God had desired for His abode? Yea, YHWH will dwell therein for ever.

The chariots of God are myriads, even thousands upon shinan [thousands?]"(Ps 68:16-18).

In contrast to the description of the בשל (bashan) in these verses, the region that is traditionally believed to be the "Bashan" is a plateau and not a mountain (see also: Deu 33:22). Furthermore, if שנאן (shinan) here is a letter-insertion error of (sian) of Deu 4:48, then שנאן (shinan) could be another name of Mount Hermon. If this suggestion is correct then we have here another association between the שנאן (bashan) and Mount Hermon.

These verses suggest that at least some of the biblical mentioning of (bashan) - "Bashan" refer to an area in Lebanon rather than to the northern part of the Kingdom of Jordan.

In addition to Ezekiel, the Prophets Isaiah and Zechariah also refer to אלוני הבשן. "Alonim from Bashan" (Is 2:13; Zec 27:6). As described by the Prophets Isaiah and Amos, אלווי (alon) is a deciduous tree (Is 6:13) that has a hardy wood (Am 2:9). These descriptions match that of the Lebanese oak - Quercus libani, which according to Meiggs thrives in elevations between 1600 and 4000 ft (3). While Juniper, Cedar, and Cypress make softwood, the wood of the oak tree is a hardwood, and consequently, oak is the only one in this short list of trees that could be used for making oars.



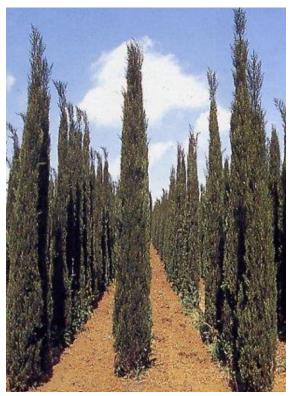
Quercus libani

As indicated by Casson, whenever available, the strong and relatively light fir (Abies) wood was normally the ancient shipwrights' first choice (4). Even for making oars the preferred woos was fir, but Meiggs indicated that only *Abies alba* of Macedonia, Italy, and Sicily, when grown in high forest conditions, where the trees are closer together, is producing a knotless, long, and straight timber fit for making oars. The forests of Lebanon did not have this type of fir, or a large quantity of any type of fir, or the conditions to grow oar-quality fir wood, and the Tyrians had to use the local oak for that purpose. Therefore, when we hear Ezekiel saying: "From the oaks of Bashan they made your oars" (Eze 27:6), we have no reason to mistrust his information.

Ezekiel also mentions that the ship's קרש (qeresh) - "deck" (?) was made of: מרים מאיי כתים - "(be)theashurim from citim (Cittion in Cyprus)."

As indicated above the Hebrew "(be)theashurim" is translated to English as "larch," but we should note that this Hebrew name is semantically related to the Akkadian shurmenu," and the Aramaic "shurwina," the names of the cypress tree (Cupressus sempervirens).

Another frequently appearing Hebrew name of a biblical tree is אשרה (asherah, 39 times). It is not unlikely that the names asherah and (be)teashurim were derived from the same root.



Cupressus semperviens

In the Book of Kings we read

וגם האשרה עמדה בשמרון

"And the asherah that stood [upright] in Samaria" (2 Ki 13:6).

One could imagine a 115 ft vertical and symmetric conical cypress standing in Samaria. The fact that such impressive trees were planted around ancient temples (e.g. temple of Artemis), and were considered sacred (they were also associated with the Greek god of the underworld, Hades), explains how some of these trees survived for more than a thousand years.

We could also understand why these trees revered by pagan religions would be considered abomination to the followers of the Hebrew's God. Moses orders the Israelites that as soon as they will come to the Promised Land, they should cut down (Ex 34:13), hew down (Deu 7:5), and burn with fire (Deu 12:3) every אשרה (asherah) of that land. Furthermore, the Israelites are banned from planting new asherah trees (Deu 16:21), and the Prophet Micah speaks about uprooting such trees (Mic 5:13).

Although cypress trees were native of the Israelites' lands, and the long strait logs made from them were suitable for roofing, it appears that by the Solomonic period, the anti-asherah campaign achieved its goal, and for the temple's roof, it was necessary to import cedar logs from Lebanon. The 8th century BC Prophet Isaiah refers to Lebanon's תאשור (teashur) trees, translated to English (but not to Greek) as "larch" (Is 60:13). However, it is not unlikely that the name תאשור (teashur) is also a variant of אשרה (asherah).

The extensive exploitation of *Cupressus sempervirens* by the Phoenicians probably reached such a proportion that by the 6th century BC they had to import them from other lands. As the tree is a native of the entire eastern Mediterranean region, including Cyprus, we have no reason to doubt Ezekiel's information that in his day Tyre indeed imported from Cyprus cypress wood.

In the book of Ezekiel it is indicates that (be)theashurim wood was used to make the Ship's קרש (qeresh; Eze 27:6). It is not unlikely that the meaning of the Hebrew (qeresh) is a "beam." The only other books of the Bible that refer to קרש (qersh; p. qerashim) are Exodus and Numbers.

In the instructions for building of what appears to have been a fence around the tabernacle, we find:

ועשית את-הקרשים למשכן, עצי שטים עמדים.

"You shall make the *qerashim* for the tabernacle [from] upright standing *shitiim* trees" (Ex 26:15; 36:20).

Although the Hebrew שטים (shitiim) is translated to English) as "acacia" this understanding is not supported by the Greek translator who assumed that שטים (shitiim) are some kind of unidentified "decay resistant wood." Therefore the English translation appears to be a mere speculation. However, the similarity in the description of the שטים (shitiim) to that of the אשרה (asherah) of Samaria, suggest that from both of these treetypes one could prepare straight beams.

There are some other similarities between the biblical עצי שטים (a'tsei shitiim) and (a'tsei arazim) - "cedar trees." In the Book of Exodus we find the expression: עמודי שטים - "shitiim bars" (Ex 26:32, 37; 36:36), while in the Book of Kings we find: "עמודי ארזים - "cedar pillars" (1 Ki 7:2). In the Book of Exodus we read about: עמודי את־המזבח עצי שטים - "And you shall make the altar of shitiim-wood" (Ex 27:1), while in the Book of Kings we find: מזבח ארי - "cedar altar" (1 Ki 6:20). In fact while cedar trees are not mentioned in the Book of Exodus (nor in the Book of Deuteronomy), עצי שטים (a'tsei shitiim) are mentioned in this book 26 times. The only other mention of עצי שטים (a'tsei shitiim) is in the Book of Deuteronomy (Deu 10:3; in singular עמים (shitah) appears also once in Is 41:19). Furthermore, the Egyptian name of cedar was "ash" which raises the possibility that "שטים (shitiim) is a variant of the Egyptian name for cedar.

It was indicated by Casson, that the development of true seagoing ships, both merchantmen and war crafts, had occurred only after the introduction of inner structure that was made of several transverse beams supporting the hull against the water pressure. It appears that Ezekiel is informing us that in his day, the beams holding the hull of the Tyrian ships were made of Cypress wood imported from Cyprus.

Another item obtained for outfitting ships is:

שש-ברקמה ממצרים היה מפרשך, להיות לך לנס;

"Of <u>fine linen with richly woven work</u> from Egypt was your sail that it might be to you for an ensign" (Eze 27:7).

The Hebrew word **vu** (*shesh*) appear in the Bible several times mostly as a material for fine clothing.

In the book of Ezekiel we read:

ואלבישך רקמה, ואנעלך תחש; ואחבשך בשש, ואכסך משי.

"I clothed you with riqmah (embroiderd cloth), and shod you with sealskin, and I wound you with shesh (fine linen), and covered you with silk" (Eze 16:10).

We may conclude that שש-ברקמה (shesh beriqmah) was a fine and apparently an expensive item imported from Egypt, yet even in Egypt it was never used for making sails. Previously Diakonoff indicated that שש (shesh) is not a suitable fabric for making sails (5).

Although the Hebrew Hapax legomenon: מברשך (miphrasech) was translated to English as "your sail" we should note that Ezekiel does not tell us here that this item was used to harness the wind. The Hebrew word מברשך (miphrasech) is of the root (prs) and Ezekiel uses several times words from this root to mean: "spreading" (e.g. spreading a net, Eze 12:13; 17:20; 19:8; 32:3).

Ezekiel indicates that the purpose of מפרשך (miphrasech) was: להיות לך לנס - "be your ensign" or standard, probably spread from the top of the ship's mast down (see Is 33:23).

The last ship's component mentioned by Ezekiel is:

תכלת וארגמן מאיי אלישה היה מכסך.

"Blue and purple from the isles of Elishah was your awning" (Eze 27:7).

I suggest that the Hebrew word מכסה (mechashe) is not "awning" but a "ship's sail."

In the book of Genesis we read that after the flood subsided:

ויסר נח את-מכסה התבה

"And Noah removed the michse [covering?] of the ark" (Gen 8:13).

This מכסה (michseh) is clearly different from the צהר (tsohar) or the חלון (khalon) - "window", and the מתח (petakh) - "door", which Noah made in the upper part and the side of the ark, respectively (Gen 6:16; 8:6). We may wonder, why after the landing of the ark it was necessary to remove its "covering", and therefore we may suspect that the Hebrew מכסה (michseh) is not "covering" but a different part of the ark. On the other hand, after the ark rested on the ground, the ark's sail was no longer needed and therefore Noah could remove it.

In the Book of Samuel we read:

ותקח האשה, ותפרש את-המסך על-פני הבאר

"And the woman took and spread the covering over the well's mouth" (2 Sam 17:19).

The assumption of the translators that the meaning of מכסה (masach), like מכסה (michseh), is "covering" suggests the possibility the מכסה (michseh) is an order-type error of מכסה (masach).

The Psalmist wrote: פרש ענן למסך - "He spread a cloud for a screen" (Ps 105:39).

There are several references to the use of אסס (masach) - "screen" at the entrance of a tent" (Ex 26:36; 39:38; Ex 3:25; 4:25). For such a purpose the ססד (masach) must have been a sheet made of sturdy material.

In the book of Exodus we read:

ועשית מסך לפתח האהל, תכלת וארגמן

"And you shall make a $\underline{\text{screen}}$ for the door of the Tent, of blue, and purple" (Ex 26:36).

Now, we read again in the Book of Ezekiel:

תכלת וארגמן מאיי אלישה היה מכסך.

"Blue and purple from the isles of Elishah was your awning" (Eze 27:7).

The comparison between these verses points again to the similarity between מכסה (michseh) and אסד (masach) - "screen." It appears that like the אמס (masach) - "screen" at the tent's entrance, the מכסה (michseh) of the ship, was made of a durable material tough enough to serve as the ship's sail.

Several words from the root (nsk) are associated with wind in several biblical verses (Is 19:14; 29:10; 30:1; 41:29). As exchange between the alveolar nasal consonant (n) and (m) occur in multiple biblical verses, the association between מכסה (michseh) and (masach) - "screen" (or a "sail") and wind is not unlikely.

The Prophet Ezekiel tells us that Tyre obtained its sails, which were blue and purple in color, from מאיי אלישה - "the islands of Elishah."

Several scholars suggested that the Biblical אלישה (elishah) is Carthage. Although Ezekiel tells us that Tyre is the undisputed master of the seas, and the commencement of the commercial sea-lanes leading to all other sea islands (Eze 26:4, 8, 17; 27:3), in his day Carthage was already independent, and controlled most, if not all, the formerly Phoenician colonies of the western Mediterranean Sea. It is unlikely that Tyre could obtain then ship's sails from independent (and trade competitor) Carthage not through the normal commercial arrangements.

Other scholars believe that the biblical אלישה (elishah) is Cyprus or a certain area in Cyprus. For several millennia Cyprus was one of the major sources of copper of the Near-east region, and the Sumerian word for copper is "alas," which appears as a derivative of Alashia. The name Alashia, referring to Cyprus, appears also in a letter from the 12th century BC found in Ugarit (6). Therefore, it is most likely that Ezekiel tells us that Tyre was receiving dye-impregnated sails from one of its subsidiaries in Cyprus.

Aubet claims that the Phoenicians learned the techniques of shipbuilding from the Egyptians, a country with a long shipping tradition (7). From the "Histories" of Herodotus, as well as from their own inscriptions, it is known that the Egyptians manufactured their ship-sails from the papyrus sedge. The sails of seagoing ships appear in Egyptian wall paintings dyed in red-purple colors (e.g. Deir el Bahri, Medinat Habu).



This model of a 15th century BC merchant sea-going Egyptian ship was made after the wall painting at Deir el Bahri. The ship was about 22 meters long and 5 meters wide. It did not have a wooden keel but got its stability from a thick rope fastened under tension at either extremity of the ship. There were fifteen rowing oars on either side, two connected oars used as rudder, a single mast and a 15 meter wide horizontal sail. The stern was decorated with a carved lotus flower.



Papyrus sedge (Cyperus papyrus)

The dyeing of the papyrus sails was probably done to retard rotting of the organic material. Bekendorff et al reported that the precursors of Tyrian purple, which are extracted from marine snails together with the dye, show effective bacteriostatic and antifungal activities against marine and human pathogens (8). The papyrus sedge (*Cyperus papyrus*) has a wide distribution and it can be found in wetlands of tropical and temperate regions including Africa, the Levant and along the Mediterranean coast.



Bolinus brandaris (originally called Murex brandaris by Linnaeus), and commonly known as the purple dye murex or the spiny dye-murex

Textile fragments from the 1st century BC found in Enkomi (near Famagusta, Cyprus), the capital of Alaysiya (Alashia), indicate on the presence of a local dye industry that extracted the red-purple-blue dye from the local marine snails (9-10). Therefore, we have no reason to doubt that, as stated by Ezekiel, the sailed made in אלישה (elishah) from local papyrus sedge or imported from Egypt, were dyed blue or purple in Elishah, and then shipped to Tyre.

After listing the materials used for building Tyre's ships, Ezekiel relates to the manpower employed in its navy. The rowers were from Sidon and Arwad, the ship's rigging was carried out by men from Zemira, while the shipwrights were the elders and experts from Byblos (Eze 27:8-9). The Egyptian records of the 2nd millennium BC, referring to the ships built by the Byblians support Ezekiel's last remark.

After evaluating Ezekiel's description about the materials obtained by Tyre for its merchantman navy, and its מלחים (malachim) - "mariners" (Eze 27:9), we have to acknowledge that for a professional prophet Ezekiel's knowledge about these subject matters is quite impressive.

- A. Malamat. Campaigns to the Mediterranean by Iahdunlim and other early Mesopotamian rulers. Studies in Honor of Benno Landsberger on his seventy-fifth birthday, April 21, 1965. University of Chicago Press. Chicago. 1965. pp 365-373.
- 2. J. Galil. Ancient technique for ripening sycomore fruit in east Mediterranean countries. Economic Botany 22:178-190, 1968.
- 3. R. Meiggs. Trees and timber in the ancient Medeterranean world. Clarendon Press. Oxford. 1982.
- 4. L. Casson. Ships and seamanship in the ancient world. John Hopkins University Press. Baltimore. 1995.
- 5. I.M. Diakonoff. The Naval power and trade of Tyre. Israel Exploration Journal 42:168-193, 1992.
- 6. M.C. Astour. New Evidence on the last days of Ugarit. Am J Archeol 69:253-258, 1965.
- 7. A.E. Aubet. The Phoenicians and the west. 2001. p.172.
- 8. K. Benkendorff, J.B. Bremner and A.R. Davis. Tyrian purple precursors in the egg masses of the Australian muricid Dicathias orbita: A possible defensive role. J Chem Ecol 26:1037-1050, 2000.
- 9. V. Daniels. Further work on the Dye analysis of textile fragments from Enkomi. Dyes in History and Archeology 6:3-7, 1987.
- 10.D.S. Reese. The Mediterranean Shell purple-dye industry. Am J Archaeol 90:183, 1986.