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The Ship Depiction in the Tomb of Nebamun: The Earliest Egyptian Ship without a Hogging Truss

Samuel Mark
Texas A&M University at Galveston

Abstract

A scene in the tomb of Nebamun has been accepted without reservation since 1904 as portraying a Syrian patient sailing to Egypt in a Syrian ship while onshore he is being sent off by Syrians standing beside Asian humped bulls hitched to Syrian chariots. An analysis of this ship's features indicates it is an Egyptian ship. Furthermore, contemporary evidence in Egypt shows that Egyptians also had chariots, were breeding Asian humped bulls, and owned Syrian slaves. This scene can therefore be interpreted as a cured Syrian patient returning home in an Egyptian ship after being transported to the port of Thebes by Nebamun's personal slaves in his ox-drawn chariots or carts. Such a scene of departure would enhance Nebamun's status as a successful physician and produce a more tightly integrated subject consistent with other scenes in his tomb.

Introduction

The Theban tomb of Nebamun (TT17, temp. end Thutmose III to beginning Amenhotep II)[1] is of interest because it portrays a rare scene of a king's chief physician in Thebes receiving payment for treating a high-ranking Syrian (Fig. 1)[2] as well as one of only three cited depictions of Syro-Canaanite (henceforth Syrian) seagoing ships (see Figs. 1–4).[3] The central focus of this scene is a seated Nebamun, receiving offerings from his brother Sheni, and behind Sheni are two registers. In the lower register is a seated Syrian patient with his wife standing behind him, and this patient is being offered a cup from an Egyptian. To their right and in the above register are Syrians bringing Nebamun's payment.[4] No evidence exists to suggest an accompanying text was ever intended to identify the Syrian patient, and it is thus unlikely to represent a specific event. Consequently, treating wealthy, high-ranking foreigners may have been a relatively common occurrence for Nebamun,[5] suggesting he was a physician of international renown.

The bottom register has been interpreted as a scene of departure with Syrians standing next to Asian humped bulls hitched to chariots after having taken the Syrian patient to an unknown Syrian port, and they are watching as he sails away in a Syrian ship.[6] Although this interpretation is consistent with a possible storyline, it seems somewhat incongruous when compared to other scenes in this tomb, which are integrated units portraying the accomplishments of Nebamun. Additionally, only five or maybe six other tombs depict foreign ships, all of which "relate to each tomb owner's duties and responsibilities,"[7] but this scene of departure has no apparent relationship to Nebamun's duties, responsibilities, or any aspect of his life. The only apparent purpose of this scene is to show that an ill Syrian came from Syria, but his distinctive clothing and beard by themselves are indicators of his origin.[8] Scenes portraying seagoing ships are so rare they must have been of particular importance to a tomb owner,[9] allowing for the possibility that it has been misinterpreted. Moreover, a comparison of structural features on the ship in this scene (henceforth the Nebamun ship) with Egyptian and Syrian vessels indicates it is Egyptian, but probably a new type of ship built in response to changing circumstances during the reign of Thutmose III. Likewise, chariots were a status symbol in Egypt while Asian humped bulls were already being bred in Egypt by Nebamun's time. Finally, contemporary

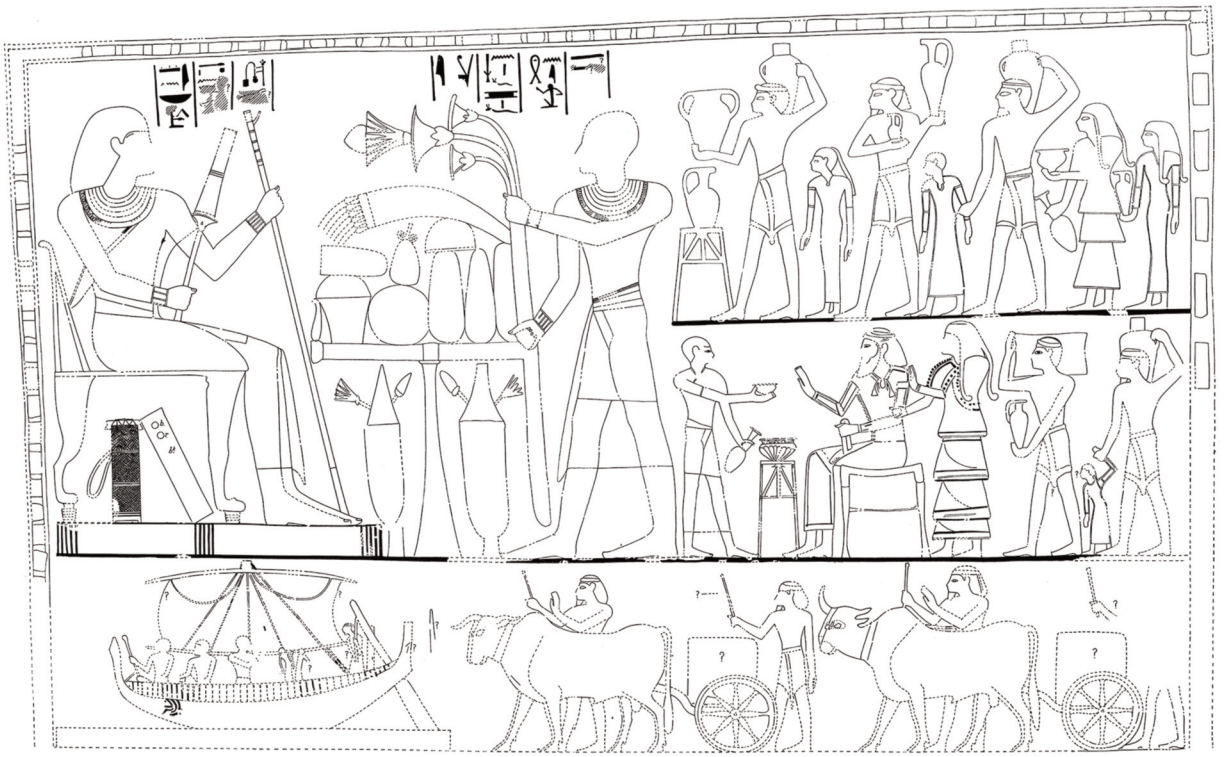

Figure 1: Scene of Nebamun and a Syrian patient and scene of patient departing, after Torgny Säve-Söderbergh, *Private Tombs at Thebes* I, *Four Eighteenth Dynasty Tombs* (Oxford: Oxford University Press, 1957), pl. 23.

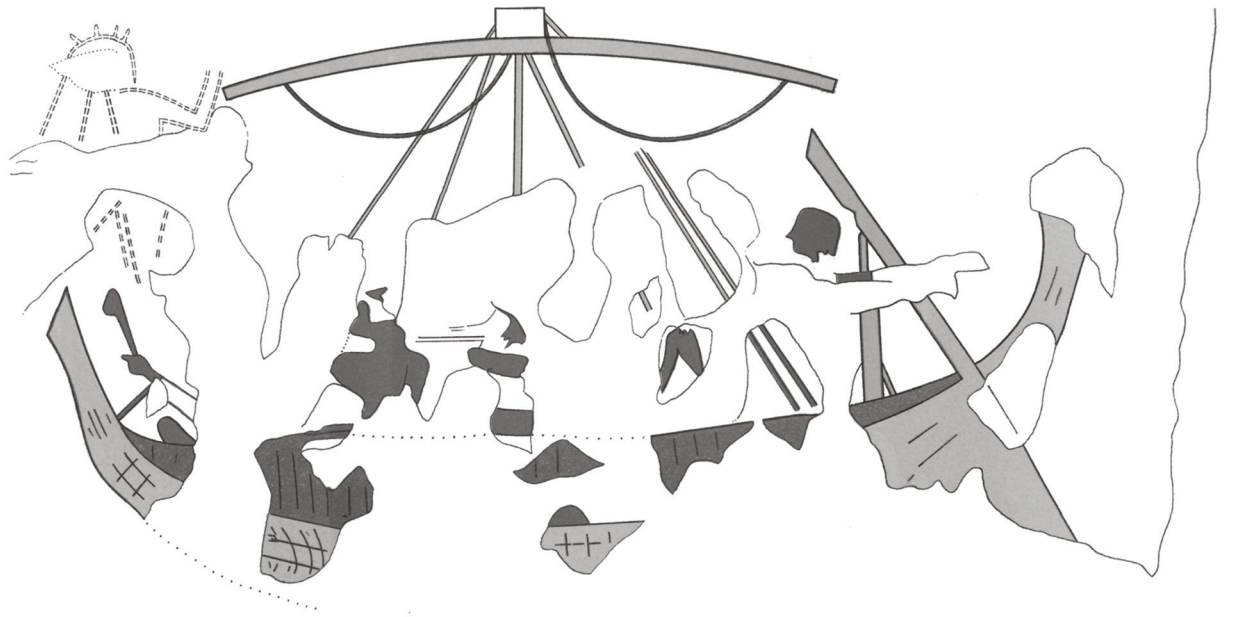

Figure 2: Ship from the tomb of Nebamun, after W. Max Müller, "Neue Darstellungen 'mykenischer' Gesandter und phönizischer Schiffe in altägyptischen Wandgemälden," *Mitteilungen der Vorderasiatischen Gesellschaft* 9.2 (1904), Taf. 3.

Figure 3: Scene of Syrian ships in port from the tomb of Qenamun, after Norman de G. Davies and R.O. Faulkner, "A Syrian Trading Venture to Egypt," *Journal of Egyptian Archaeology* 33 (1947): pl. 8.

Figure 4: Glyph of a *mnš* ship, after Shelley Wachsmann, *Seagoing Ships & Seamanship in the Bronze Age Levant* (College Station: Texas A&M University Press, 1998), fig. 3.10.

scenes of Syrian slaves in Egypt are portrayed in Theban tombs. This scene can thus be interpreted as the departure of a cured high-ranking Syrian from Egypt, which alone would enhance the status of Nebamun. If the slaves, humped bulls, and chariots —all high-prestige items—were Nebamun's property, and he provided them to his patients as transport, it would further enhance his status. This interpretation affords a more tightly integrated subject focused on Nebamun's accomplishments and status, and it is consistent with the content of other scenes in his tomb.

An Evaluation of the Nebamun Ship

The Nebamun ship has been accepted as a Syrian ship without reservation since it was first described by W. Max Müller in 1904.[10] The most thorough evaluation of Syrian ships is by Shelley Wachsmann who identifies specific features to differentiate Syrian from Egyptian ships by comparing Egyptian iconography of Syrian ships, including the Nebamun ship (Figs. 1–2) and ship depictions from the tomb of Qenamun (henceforth the Qenamun ships) (TT162, temp. Amenhotep III) (Fig. 3) with iconography from the Levant, and an Egyptian glyph of a *mnš* ship (temp. Ramses II) (Fig. 4).[11] According to Wachsmann, the *mnš* ship is Syrian based solely on similarities to the earlier Nebamun ship and proposes it evolved from it.[12] As a result, neither the Nebamun ship nor the *mnš* ship can be used as an example of a Syrian ship. It should be noted that as early as 1904 this register was already damaged, and instead of publishing photographs of it, both Müller and Torgny Säve-Söderbergh copied it and published only drawings. However, each of their drawings of the ship are very similar with the only disagreement being the reconstruction of the stern, which seems to have been fragmentary.

According to Wachsmann, a distinctive trait is the downward curving yard (a spar or spars to which the upper edge of a sail is attached), which is only seen on the Nebamun ship (Figs. 1–2), the Tell Abu Hawam graffito (Fig. 5), and two carved seals found at Ugarit (Figs. 6–7) all of which he classifies as Syrian. He also states that this yard is "a decidedly non-Egyptian trait."[13] There are difficulties with his

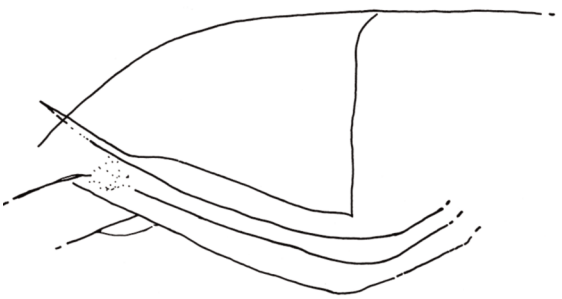

Figure 5: Tell Abu Hawam graffito after Shelley Wachsmann, *Seagoing Ships & Seamanship in the Bronze Age Levant* (College Station: Texas A&M University Press, 1998), fig. 3.13.

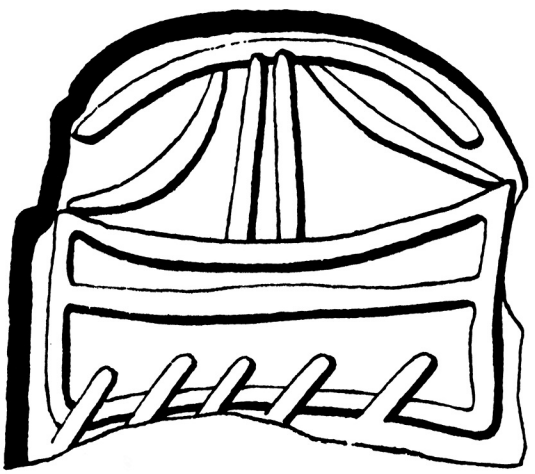

Figure 6: Seal with possible image of a ship, after Claude F. Schaeffer, "Fouilles et découvertes des XVIII^{e} et XIX^{e} campagnes, 1954-1955," in Claude F. Schaeffer (ed.), *Ugaritica* IV (Paris: P. Geuthner, 1962), fig. 114.

Figure 7: Seal with possible image of a ship, after Claude F. Schaeffer, "Fouilles et découvertes des XVIII^{e} et XIX^{e} campagnes, 1954-1955," in Claude F. Schaeffer (ed.), *Ugaritica* IV (Paris: P. Geuthner, 1962), fig. 115.

interpretations. The Tell Abu Hawam graffito is so crudely rendered it may not even depict a ship, and if it does, the left side of the yard curves downward while the right side is straight, making it impossible to determine the correct configuration. Furthermore, the curved side is so long it extends beyond the stern of the ship, suggesting either an artistic error or it represents something other than a yard.

Two seals found at Ugarit are inscribed with schematic carvings that appear to be ships. If so, one ship does have a downward curving yard (Fig. 6), but since it is carved on a scaraboid seal the artist may have rendered the yard to follow the seal's curved shape. On the second seal the yard curves back in on itself and the mast is located at the stern of the ship instead of near amidships (Fig. 7). Both features are structurally impossible, indicating the artist was not attempting to accurately record specific ship features but create pleasing artistic designs within a restricted space. Besides, the dating of both seals (1400–1300 BCE) as well as the Tell Abu Hawam graffito (1400–1200 BCE)[14] are so broad they may have been created long after Nebamun's time when ships were outfitted with a later type of brailed sail that typically is shown with a downward curving yard as seen on the Medinet Habu relief (Fig. 8).[15] The brailed sail first appears in Egyptian depictions of Nile boats no later than the Amarna period.[16]

Finally, the Ugarit seals and the Tell Abu Hawam graffito may not even portray Syrian ships. Wachsmann states that a number of models found at Byblos have been identified as Syrian ships only because they were found at this location, but structural features on some models are consistent with Egyptian vessels,[17] and that "Egypt's influence on Byblos during the second millennium is manifest in the ship models from that site, as it is in so many other areas."[18] Since both Ugarit and Tell Abu Hawam were international ports, local artists may have portrayed foreign ships like Egyptian artists did with the Qenamun ships and as did artists at Byblos with their ship models. Furthermore, when Claude Schaeffer published these seals he compared both ship images to Egyptian vessels.[19]

Since it is impossible to accurately identify the type of sail, the accuracy of details, the nationality of these three ship depictions, or even the specific period when they were created, they cannot be cited as reliable sources for distinctive Syrian ship features. Finally, these are the only known examples of what are cited as Syrian ships with downward curving yards. At the same time, Wachsmann dismisses the most detailed and firmly dated evidence for this feature on Syrian ships, the Qenamun ships (Fig. 3).

Wachsmann believes straight yards on the Qenamun ships are inaccurate representations

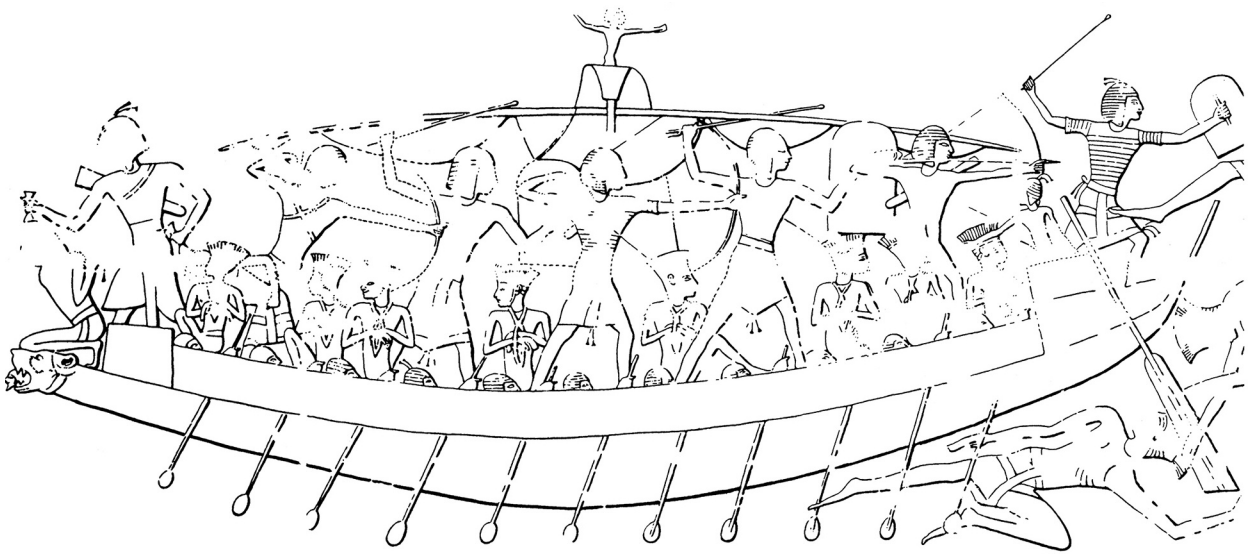

Figure 8: Egyptian ship portrayed on the Medinet Habu relief, after H.H. Nelson, *Medinet Habu* I: *Earlier Historical Records of Ramses III* (Chicago: Chicago University Press, 1930), pl. 39.

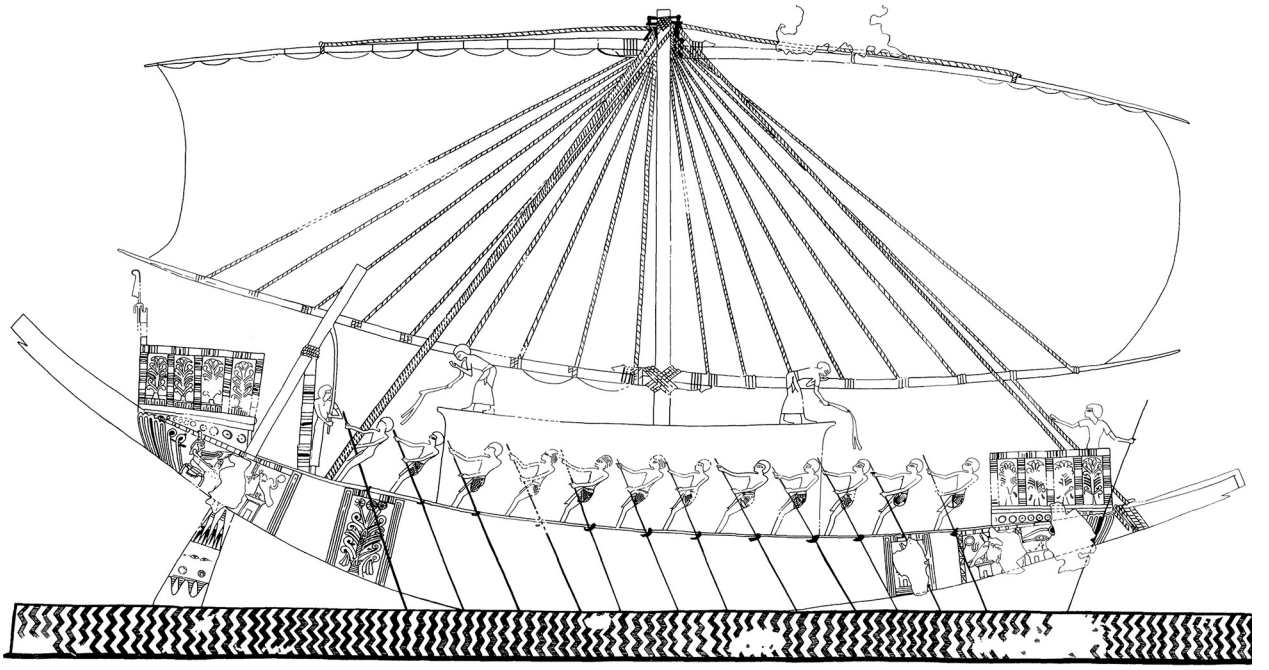

Figure 9: Nile boat from the tomb of Rekhmire, after Norman de G. Davies, *The Tomb of Rekh-mi-Re at Thebes* II (New York: Metropolitan Museum of Art, 1943), pl. 68.

because Egyptian artists were unaware of the shape of Syrian yards and substituted Egyptian yards for them, resulting in hybrid ships.[20] In regards to his statement that a downward curving yard is "a decidedly non-Egyptian trait," a review of iconography indicates it was relatively common for a short period around the time of Nebamun. Three different scenes from the tomb of Rekhmire (TT100, temp. Thutmose III and Amenhotep II) depict boats outfitted with this type of yard (Fig. 9) while other examples are seen in the tombs of Amenemhet (TT82, temp. Thutmose III), Intef (TT155, temp. Hatshepsut and Tuthmosis III), Benja (TT343, temp. Thutmose III), and Amenemopet (TT276, temp. Thutmose IV[?]).[21] A dearth of evidence for a downward curving yard on Syrian ships and its strong resemblance to an Egyptian yard support an interpretation of it being an Egyptian trait.

Mounted above the yard on the Nebamun ship is a rectangular structure that Wachsmann proposes is either a crow's nest or a masthead. If it is a crow's nest, he believes it was probably a Syrian invention because crow's nests are outfitted on the Qenamun ships (Fig. 3) and were later adopted by both Egyptians and Sea Peoples no later than the reign of Ramses III because all ships depicted on the Medinet Habu relief are outfitted with them (see Fig. 8).[22] His interpretation is improbable because the crow's nest on a Syrian ship always hangs from the side of a mast while the structure on the Nebamun ship and all crow's nests on the Medinet Habu ships are mounted on top of the mast and have different shapes.[23] Furthermore, the lines attached to a crow's nests on the Medinet Habu ships are curved, suggesting some slack, and they are attached to its top edge. In contrast, the lines attached to the rectangular structure on the Nebamun ship are straight, suggesting taut lines, and they are attached to the sides of this structure at different points, indicating a different function (cf. Figs. 2, 8). Finally, if Syrian shipwrights were already mounting their crow's nests on top of masts as early as Nebamun's time, they would have done so on the later Qenamun ships. Without the Nebamun ship no evidence exists that Syrians ever mounted their crow's nests on top of masts during the Bronze Age.

Wachsmann's second interpretation of a masthead is probably correct. A rectangular masthead with similar proportions was outfitted on Egyptian boats and seagoing ships. Furthermore, the placement and tautness of lines leading to the mastheads of Rekhmire's boat and Hatshepsut's ships are similar

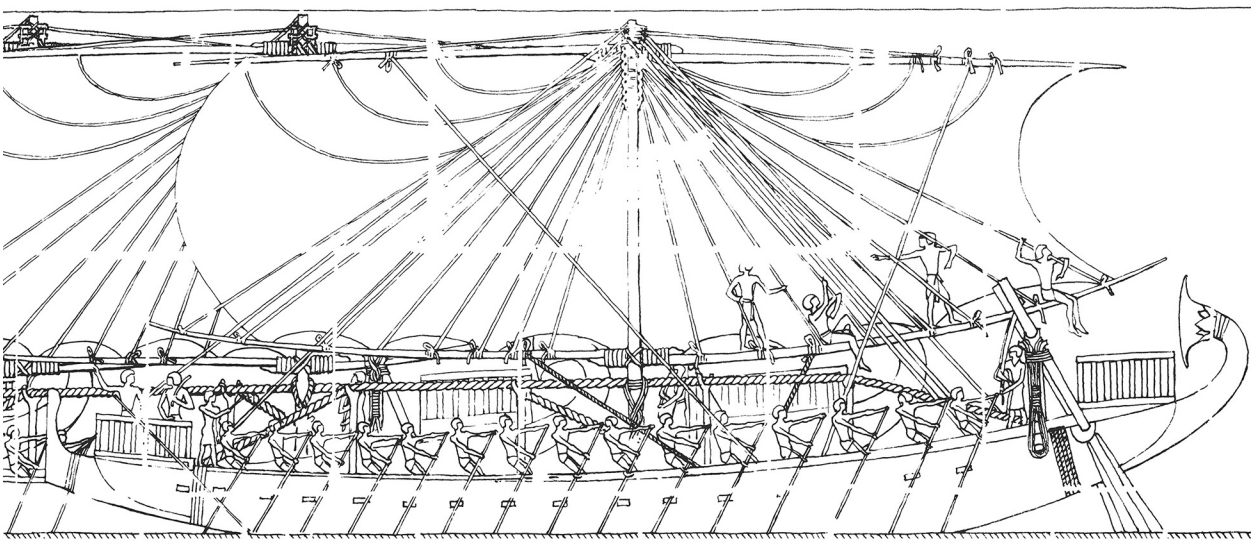

Figure 10: Hatshepsut's Punt ships, after Edouard Naville, *The Temple of Deir el Bahri* VI (London: Egypt Exploration Fund, 1908), pl. 74.

to those on the Nebamun ship (cf. Figs. 2, 9–10). In contrast, rectangular mastheads are not depicted on any of the Qenamun ships (Fig. 3), suggesting Syrians used a different structure to raise and lower yards. This type of masthead appears to be unique to Egyptian ships.

Tied to the yards of both the Qenamun ships and Hatshepsut's Red Sea ships are drooping lines on both port and starboard sides, suggesting they are slack (cf. Figs. 3, 10). On the Qenamun ships each port and starboard line is centered on a yard while on Hatshepsut's ships one end of each line is tied off to or near a masthead while the opposite end is tied to a yard. The Nebamun ship also has hanging port and starboard lines each with one end tied off to or near the masthead while the other end is tied off to the yard, like those on Hatshepsut's ships (cf. Figs. 1, 3, 10). The combination of a rectangular structure mounted on top of a mast directly above a downward curving yard with yard lines tied off to or near this rectangular structure is unique to Egyptian vessels.

Another set of distinguishing features are the stem and sternpost, which on the Qenamun ships lack decorations and are nearly identical (Fig. 3).[24] In contrast, on Egyptian ships of the New Kingdom the stem and sternpost have very different shapes. The stem on Hatshepsut's Punt ship is vertical along its outboard edge while the inboard edge is curving, and it lacks a decoration. In contrast, the sternpost is high, curved, and terminates with a lotus motif (Fig. 10). On the Nebamun ship the stem has a distinctive curve along the inboard edge and a shallower corresponding curve along the outboard edge. The top of the sternpost does not survive. As such, it is impossible to determine its complete shape or if it was decorated. A decoration on top of the sternpost on Egyptian seagoing ships is problematic in that they have only been recorded on Hatshepsut's Punt ships. Thus, it may have been limited to her reign, and if the Nebamun ship was not a royal Egyptian ship, the sternpost might not have been decorated. Although Müller and Säve-Söderbergh disagree about the stern's shape, they agree that it is different from the stem (cf. Figs. 1–2).[25] A stem and sternpost with different shapes is consistent with an Egyptian practice as seen on Hatshepsut's ships. The *mnš* ship also has a stem and sternpost with different shapes (cf. Figs. 1–2, 4, 10) consistent with an Egyptian practice.

On the Nebamun ship the quarter rudder is mounted on a stanchion, and according to Wachsmann it is "identical to that on contemporaneous Egyptian seagoing ships and on some Nile craft."[26] Egyptians appear to have invented this technique of mounting a rudder as early as the Sixth Dynasty, and by the New Kingdom it is a standard feature on Egyptian vessels as noted by Wachsmann.[27] In contrast, quarter rudders mounted on the Qenamun ships lack any evidence

of stanchions. A number of different methods were employed in ancient times to mount quarter rudders consistent with the way they are portrayed on the Qenamun ships.[28] As such, no reason exists to assume Syrians mounted their rudders on stanchions. Since only Egyptians are known to have mounted their quarter rudders in this manner, it is another diagnostic trait indicating the Nebamun ship is an Egyptian ship. A post is depicted above the quarter rudders on the *mnš* ship, and its location is consistent with the location of a rudder stanchion or a mast in the stern (Fig. 4).

According to Wachsmann, the bulwarks on the Nebamun ship and Qenamun ships are identical,[29] but a comparison of them suggests otherwise. On the Qenamun ships bulwarks appear to be wickerwork fences, consisting of closely spaced vertical posts each of which is very thick with a knob on top while parallel horizontal lines between these posts represent withies woven around them. A similar wickerwork fence was found on the Uluburun shipwreck, which has been identified as a Syro-Canaanite ship (*c*. 1300 BCE).[30] Although the bulwark on the Nebamun ship is represented with vertical lines, they are thinner, more widely spaced, lack knobs, and lack parallel horizontal lines that denote withies. Additionally, the wider spaces between vertical lines are painted a solid color, either orange or red orange,[31] suggesting wood, and, unlike the Syrians, the Egyptians had a long tradition of constructing bulwarks of wood as seen on Sahure's Mediterranean ships (Fifth Dynasty),[32] Hatshepsut's Punt ships (Fig. 10), and the Egyptian ships on the Medinet Habu relief (Fig. 8). Since a wooden bulwark is the most likely interpretation, its closest parallel is to an Egyptian structure. A bulwark similar to that on the Nebamun ship appears on the *mnš* ship (Fig. 4).

The hull profile of the Nebamun ship is also diagnostic. Egyptian artists portrayed the Qenamun ships with nearly identical forward and aft hull shapes (Fig. 3). They also portrayed some Egyptian craft with this same profile,[33] but Egyptian artists reserved an asymmetrical hull profile exclusively for Egyptian vessels. The Egyptian ships on the Medinet Habu relief, Rekhmire's Nile boats, and Hatshepsut's ships all have asymmetrical forward and aft hull shapes with a lower bow and higher stern (Figs. 8–10). The Nebamun ship has this same asymmetrical hull profile (Figs. 1–2).

The Nebamun ship does lack one feature found on the Qenamun ships, lacings at the bow, which Wachsmann assigns as an Egyptian feature. Although he concedes that Syrian ships were probably sailing to Thebes at this time, he still believes Egyptian artists substituted this Egyptian feature for an unknown Syrian feature.[34] An inconsistency with this interpretation is that New Kingdom artists never depicted any contemporary Egyptian vessels with bow lashings. Wachsmann therefore proposes that Egyptian artists borrowed them from Middle Kingdom boat models,[35] which is improbable for a number of reasons. This lashing pattern is more common during the Old Kingdom and is already very rare by the Middle Kingdom with examples limited to only a few decorated boat models. Those cited by Wachsmann consist of two models from the British Museum. Each has painted black lines near bow and stern, and they were interpreted as lashings, but lashings with no discernible function.[36] Only one other cited lashing pattern is on a type of model classified as a yacht from the Meket-Re tomb, but this pattern is painted only on two of four yachts. Herbert Winlock explains this discrepancy by proposing these lashings were part of leather covers,[37] but no evidence exists for Egyptians ever using such covers on boats. No other Middle Kingdom boats, either pleasure or working boats, have this lashing pattern. In contrast, Björn Landström interprets it as a painted decoration,[38] and the evidence supports his interpretation. A similar lashing pattern is depicted at both extremities of Sahure's royal sailboats, but no such lashings occur on the earlier and nearly identical Khufu I vessel, indicating it is a decoration instead of a structural feature.[39] Furthermore, if Egyptian artists did borrow this lashing pattern from these models, which is at both bow and stern, why is it only on the bows of the Qenamun ships?

Even if these painted lines on Egyptian boat models represent lashings, they disappear before the end of the Middle Kingdom at least two and a half centuries before the reign of Amenhotep III, making it unlikely Egyptian artists even knew this feature existed. If these were hybrid ships, then Egyptian artists would have created the bows of the Qenamun ships without lashings, like the bows of all Egyptian vessels. Wachsmann also fails to explain why they were omitted on the earlier Nebamun ship then added to the later Qenamun ships, and he fails to

substantiate his proposition that Egyptian artists were ignorant of Syrian ships. As previously noted, scenes in Theban tombs are typically integrated units portraying the accomplishments of their occupant, reflecting a tomb owner's duties and responsibilities. Qenamun was mayor of Thebes and must have had an interest, duty, and responsibility in the import of foreign goods into his city, which strongly suggests that the harbor scene depicted in his tomb was at Thebes.[40] In this scene Syrian ships on the left are tied off to the sterns of Syrian ships offloading their cargoes at the wharf (Fig. 3). Such a practice is consistent with a port so full of Syrian ships some had to wait for space to dock. As previously noted, such scenes are very rare, indicating they were of particular importance to a tomb owner.[41] It is therefore difficult to accept that Theban artists, as well as Qenamun, would be ignorant of Syrian ships that were crowding the port of Thebes, especially since artists were selectively ignorant of some large details, such as yards and bow lacings, but were aware of other unique features, such as the side-hanging crow's nest and wicker fence. All extant evidence suggests Syrian ships were a common sight at Thebes and local artists accurately depicted their structural details. Thus, these are not hybrid ships.

Wachmann's rejection of bow lacings on Syrian ships was possibly influenced by the discovery of a small section of bottom planking from the Uluburun shipwreck, which was joined with pegged mortise-and-tenon joinery.[42] Wachsmann apparently assumes that the earlier Qenamun ships were also built with only this type of wooden joint.

Since Wachsmann's publication, two 7th-century BCE vessels discovered at Mazarrón Spain have been identified as Phoenician.[43] The hull planking of both were constructed with pegged mortise-and-tenon joinery similar to that used to join the Uluburun hull fragments, but some vestigial lashings and wadding were reported along some hull seams while the frames were small, widely spaced, and secured with lacings.[44] These latter features are consistent with construction using pegged lacings. Even at this late date Phoenician ships still appear to be in a transitional state from pegged lacings to pegged mortise-and-tenon joinery.[45] Furthermore, the surviving sections of planking from the Uluburun ship were low in the hull below a cargo of copper ingots.[46] Based on the archaeological evidence, shipwrights would first begin their slow process of converting from planking that was edge joined with dowels and secured with pegged lacings to pegged mortise-and-tenon joinery in this section of hull while in the missing sections of this wreck, especially the extremities, the old method of fastening would typically continue to be used long after this process began.[47] Accordingly, the bow lacings on the Qenamun ships, dating approximately 80 to 50 years earlier than the Uluburun shipwreck, could accurately represent this feature on the bows of Syrian ships and could be an indication of pegged lacings.[48] In contrast, a lack of external bow lashings would be consistent with Egyptian ship construction, explaining their absence on the Nebamun ship.

All unique features on the Nebamun ship clearly identifies it as an Egyptian ship, but why has it been so widely interpreted as Syrian? The lack of a hogging truss is one reason. Hatshepsut's Red Sea ships are all outfitted with a hogging truss, and hogging trusses are also outfitted on all known Egyptian seagoing ships before her reign.[49] A hogging truss is a long, heavy cable, extending above deck for much of the length of a ship, giving additional longitudinal strength (Fig. 10). The prevailing belief is that it compensated for a lack of a keel and too few internal structural elements.[50] More than any other feature the hogging truss has been used to define Egyptian seagoing ships and has contributed to a belief that Egyptian shipwrights were very conservative. This alone is not surprising because all ancient shipwrights are characterized as conservative and were so for practical reasons.[51]

Shipbuilding was an expensive and time-intensive process. In most ancient cultures it was not fully funded by the state, and privately owned shipyards had limited resources. Slight variations in planking width or thickness, or the use of inferior materials, could result in the loss of one or even several months work or could create an area of weakness in a hull with potentially disastrous consequences. One way to avoid costly errors was to replicate as closely as possible the materials and techniques that a shipwright knew from experience were most likely to result in success. If a shipwright were well-trained and used traditional methods, he could predict the outcome of each vessel he built.[52]

Shipwrights also rarely adopted new techniques because they had to invest considerable time mastering them, limiting their shipbuilding time. Moreover, mistakes were more likely when a shipwright was ignorant of the nuances of a new

technique. Under these circumstances a shipwright would adopt innovations only when requirements changed and traditional techniques were no longer sufficient to produce a ship meeting a shipowner's needs. Consequently, under these economic and social conditions major changes in ship construction took place incrementally and over a considerably long period.[53]

Even in a profession where conservatism is a noted trait, Egyptian shipwrights are considered ultraconservative. This opinion is most forcibly expressed by Carl Sølver:

> Among the numerous pictures and models of ancient Egyptian ships there is not one that can be said to be really suitable for the open sea. It is remarkable how the Egyptians, in spite of their knowledge of foreign ships, went on building their own on the old method and left all initiative in the way of further progress in shipbuilding to other peoples, who were beneath them in civilisation, but understood the qualities required by sea-going ships. The almost incredible conservatism of the Egyptians must have been the cause.[54]

Lionel Casson concurs and believes that the earliest evidence for an end to this ultraconservatism appears on the Medinet Habu relief: "Eventually, even tradition-bound Egypt introduced radical changes in both hull and rig. These are visible in a relief showing the vessels she used to counter an amphibious attack on the Nile delta about 1200 BC. From that date on, Egypt ceases to have an independent tradition and joins the Mediterranean mainstream."[55] The "Mediterranean mainstream" refers to building ships with pegged mortise-and-tenon joinery and adopting the brailed sail. Curiously, no one has ever explained why the Egyptians suddenly decided to join the Mediterranean mainstream at this time after building ships with hogging trusses for over a millennium.

A review of the archaeological and iconographic data contradicts this ultraconservative view of Egyptian shipwrights, and instead suggests they were quite innovative, and they may have set the standard for this Mediterranean mainstream. Due to a lack of indigenous timber especially long lengths of it, Egyptian boatwrights adapted standardized construction techniques to build what appear to be 14 large symbolic boats at Abydos in the First Dynasty.[56] Furthermore, they designed their river vessels and seagoing ships to be completely broken down and rebuilt for preventative maintenance. This is a unique feat among ancient societies.[57] To build such vessels that were structurally sound, Egyptians imported very large timbers, especially Lebanese cedar (*Cedrus libani*, henceforth cedar), from which they crafted long, thick, and intricately-shaped planks that interlocked. Those on the Khufu I vessel range from 7 to 23 m in length and are 12–15 cm thick. Shipwrights then adapted this same design to build smaller and lighter Red Sea ships sometimes taking calculated structural risks to keep weight to a minimum because these ships had to be carried in pieces across the Eastern Desert.[58] A hogging truss was probably required on Egyptian ships because they were designed to be broken down and rebuilt, making them inherently weak, not because of a lack of keel and too few internal structural elements.[59] Additional Old Kingdom innovations beginning with the reign of Unas and continuing through the Sixth Dynasty include the invention and development of the tiller and the mounting of quarter rudders on stanchions. The latter allowed for fewer, larger, and heavier quarter rudders, as well as the first known stern rudder. What's more, Egyptian boatwrights made so many innovations in sail and hull design during this period it has been called a "phase of experimentation".[60]

Innovations no later than the Middle Kingdom included the earliest known bulkheads as represented by the Lisht timbers. By replacing naturally curving timbers for frames with bulkheads, boatwrights could build larger and sturdier vessels with shorter pieces of local timbers, like acacia (*Acacia nilotica*). Another innovation revealed by the Lisht bulkhead was a notch to secure a large and heavy longitudinal timber.[61]

If the Tale of the Shipwrecked Sailor is accurate, shipwrights of the Middle Kingdom replaced the earlier small, light Red Sea ships with huge Red Sea ships that were 120 cubits (62 m) long and 40 cubits (*c.* 21 m) at the beam.[62] In contrast, the Uluburun ship is estimated to have been 15 m long and 5 m at the beam.[63] Some might believe such large ships are as much of a fantasy as the giant, golden serpent described in this tale, but this seems improbable. To make a tale more believable to a reader or an

audience storytellers typically overlay fantasy elements (giant, gold serpent) on real, well-known elements (Red Sea ship). By doing so, it imparts a sense of reality to the fantasy, drawing a reader or audience into it.[64] Besides, most scholars believe such Red Sea ships are feasible,[65] and the depictions of Hatshepsut's Punt ships may represent such large ships (Fig. 10). Regardless, Hatshepsut's Punt ships were considerably larger than those built by Sahure, and her Punt ships may have been even larger than his Mediterranean ships,[66] but to build and transport her large ships across the Eastern Desert required innovations in construction and design since Sahure's time because all timbers were still carried by the same means, men and donkeys.[67]

In the New Kingdom the recessed keel seen on the Uluburun shipwreck has been proposed nearly two centuries earlier for Hatshepsut's Punt ships.[68] Furthermore, Thutmose III's expansion of his navy and the design and construction of vessels hauled overland on carts for his invasion of Naharin have been described as "innovative."[69] As previously mentioned, the earliest evidence for the brailed sail comes from Amarna iconography, and it was a radical new design, especially considering Mediterranean ships and Nile boats did not seem to have a critical need for it. In the eastern Mediterranean currents move in rather predictable counter-clockwise patterns and during the sailing season winds come rather consistently from the north. Even Odysseus in Homer's *Odyssey* describes the voyage from Crete to Egypt as an easy sail (*Od*. 14.252–57).[70] On the Nile consistent north winds allowed vessels to sail upstream and float downstream, and Egyptians sailed on it for centuries before the brailed sail appeared. On the Red Sea, in contrast, sailors were confronted with more difficult sailing conditions, including variable winds and sudden storms[71] to which a brailed sail is best suited. Additionally, since brailed sails lack a boom (a spar to which the lower edge of a sail is attached), as seen on the Qenamun and Hatshepsut ships (cf. Figs. 3, 10), they would be considerably lighter and easier to transport across the Eastern Desert as well as easier to maintain and repair on long voyages. These factors could have led Egyptian shipwrights to develope such a sail, and the earliest evidence for it is in Egypt during the Amarna period.

Finally, all unique features on the *mnš* ship suggest it was Egyptian, and as previously noted, Wachsmann proposes it evolved from the Nebamun ship. As such, all evidence indicates it is also an Egyptian ship. At the bow of this vessel is a large vertical post; its size and location are consistent with a foremast (Fig. 4). If so, it would be the earliest evidence for a ship with two masts, and if the vertical post at the stern is also a mast a *mnš* ship must have been a very big three-masted ship. While no other evidence exists for Egyptian ships with more than one mast so early, this is not surprising especially considering how few depictions of Egyptian seagoing ships survive from the Old through New Kingdoms. In contrast, large numbers of depictions of Greek seagoing ships survive from the 6th to the 3rd centuries BCE but only one two-masted galley, dating to the late 6th century BCE survives,[72] while either a Greek or Etruscan merchant ship with two masts portrayed on an Etruscan fresco dates to the early 5th century BCE. Thus, without these two depictions of foresails, what must have been a relatively common structure on Greek ships in the 5th century BCE would date no earlier than the 3rd century BCE.[73] Finally, if Wachsmann is correct that the *mnš* ship evolved from the Nebamun ship, it must have been in use for a relatively short period, especially considering such large craft, like obelisk barges and Punt ships, would have disappeared with the disintegration of the Egyptian state and a general economic collapse at the end of the Bronze Age.

The evidence clearly indicates that Egyptian boat- and shipwrights had a long and consistent history of innovation, and they were probably innovative because they worked for a large, centralized government with considerable wealth and resources. Moreover, these craftsmen built a variety of specialized vessels, depending on the needs of the king, including huge obelisk carriers, funeral vessels, large Red Sea ships, Nile boats, merchant ships, and military transports, allowing shipwrights to become masters at quickly adapting their construction techniques to comply with the changing needs of the king as well as in response to developing circumstances.[74]

As previously noted, Casson states that Egyptian ships portrayed on the Medinet Habu relief were evidence of radical changes in hull construction, but the only visual evidence for this change is the lack of a hogging truss (Fig. 8). Consequently, the lack of a hogging truss on the Egyptian Nebamun ship would also indicate a radical change in ship

construction, and an Egyptian ship sailing on the Mediterranean without a truss must have had a more rigid hull than earlier Egyptian ships. The easiest way for Egyptian shipwrights to build such rigid hulls was by pegging their mortise-and-tenon joints. Egyptian boat- and shipwrights had mastered building hulls with planks edge joined with mortise-and-tenon joints secured with transverse lashings at least as early as the Fourth Dynasty as seen in the construction of the Khufu I vessel.[75] Furthermore, Egyptian carpenters had mastered the use of the pegged mortise-and-tenon joint to build more rigid structures, like furniture, no later than the First Dynasty, and had the ability and social organization to adapt it to boats and ships but chose not to do so.[76] Thus, by the New Kingdom Egyptian craftsmen understood the advantages to using such a strong joint and a transition would have been relatively easy. In contrast, as indicated by the archaeological record, shipwrights building ships with planks edge joined with dowels and secured with pegged lacings required a considerably longer learning curve,[77] and they had fewer resources to do so, explaining why after some 600 years Phoenician shipwrights continued to use vestigial hull lacings in their ships.[78]

Changing events during the reign of Thutmose III are consistent with the appearance of a new type of ship probably because his appetite for cedar increased dramatically. Even in the Old Kingdom, large quantities of cedar were imported yearly for the construction of various types of boats and ships as well as other large-scale structures, such as temples. For example, the Khufu I vessel, which was 43.63 m long but only 5.66 m at the beam, still required approximately 38 tons of cedar for only the hull.[79] Further imports of cedar were required for smaller projects, like coffins, furniture, statues, and even mummification.[80] Cedar continued to be used for these same purposes in the New Kingdom. Thutmose III, however, needed additional cedar imports for new projects, including restoring and repairing large structures damaged or neglected during the Hyksos occupation and for his own prodigious building program, which exceeded "the works of the majority of his predecessors as well as his successors."[81] Finally, he built a large navy designed to transport his army, including horses and chariots, wherever they were needed as quickly as possible.[82] Cedar at this time has been described as "desperately coveted" by the Egyptians and so important that Thutmose III established a garrison in Ullaza to ensure shipments were uninterrupted.[83] Concurrently, practical factors limited the volume of yearly cedar imports.

One reason cedar was prized by the Egyptians was that these trees produced very large timbers. The previously mentioned Khufu I timbers were up to 23 m long. This same quality that was desired for building large structures made for a very bulky cargo, limiting the amount that could be transported to Egypt. Ships were also needed to transport large quantities of other Syrian goods due to Thutmose III's conquests, including weapons, jewelry, furniture, horses, cattle, lapis lazuli, cereals, incense, moringa oil, wine, and fruits.[84] Another limiting factor would be wharf space in Egyptian harbors. If the Qenamun scene accurately depicts port activity at Thebes with Syrian ships tied off to one another waiting to offload and load cargoes, Egyptian ports were congested at this time. Such congestion may have been a problem in Lower Egypt even before the reunification of Egypt by Ahmose I and Thutmose III's acquisition of an eastern empire. Under Hyksos rule, the Kamose stela mentions hundreds of ships carrying exotic cargoes to the seaport at Avaris (Tell el-Dab'a).[85] Finally, the best and safest sailing conditions existed between 27 May to 14 September with the outside limits being between 10 March and 10 November. Between 10 November and 10 March Mediterranean sea lanes would be virtually deserted except for exceptional reasons.[86] Therefore, considerable quantities of goods had to be shipped in a relatively short sailing season.

Cedar timbers were also expensive and required a considerable investment in time. First, they had to be carefully seasoned after which craftsmen fashioned them with the utmost care and attention to detail to reduce waste of a valuable import. Thus, if any structures, especially large structures, such as Mediterranean ships, could be built with indigenous timbers instead of cedar, it would considerably reduce cedar imports, allowing for the importation of other goods.

Meanwhile, Thutmose III's conquests in Nubia gave him access to new timber reserves, which, according to an inscription on the Gebel Barkal stela, consisted of nearly unlimited quantities of acacia and dom palm (*Hyphaene thebaica*), and the Egyptian army in Kush "cut them in the millions".[87] Additionally, this stela describes the construction of

special "Eight-ships" and "many ordinary vessels" every year in Nubia for the king.[88] Thutmose III also decreed that the channel at the First Cataract be cleaned out every year, allowing large quantities of gold, slaves, cattle, ivory, ebony, animal skins, harvests,[89] and the previously mentioned large quantities of timber to be shipped north. It has been proposed that these local timbers were used for the construction of Thutmose III's navy.[90] If so, seagoing ships could have been built in Nubia then loaded with cargoes for transport north and after offloading would continue on to the Mediterranean.

Building seagoing ships with local timbers would require a different method of construction as these trees do not produce the long and thick timbers like the Lebanese cedar tree. Egyptian boat- and shipwrights, however, appear to have already mastered building various types of vessels with indigenous timbers long before the New Kingdom as suggested by the Middle Kingdom hull planks and bulkhead of the fore mentioned Lisht barge, which were acacia or tamarisk (*Tamarix* sp.).[91] By the New Kingdom, boatwrights were building huge vessels with indigenous timbers. Hatshepsut's obelisk carrier is estimated to have been at least 63 m long and able to carry two obelisks with a combined weight of 748 tons,[92] and it was built with indigenous timber.[93] To do so Egyptian boatwrights must have mastered building large vessels by joining shorter, local timbers with mortise-and-tenon joinery secured by lashings, reflecting their innovative abilities. They could quickly adapt this technique to the construction of seagoing ships by removing the lashings and pegging the joints. Moreover, remains of Egyptian seagoing ships discovered at the ancient port of Thonis-Heracleion, dating as early as the 6th century BCE, revealed that Egyptian seagoing hulls were built with short, thick (*c*. 1 m long and 12–15 cm thick), rectangular planks constructed with a type of pegged mortise-and-tenon joinery. The most common wood used for these hull planks was acacia.[94] An advantage to this type of ship is that it could be constructed faster than cedar ships designed to be broken down and rebuilt because shipwrights no longer had to cut thousands of lashing holes. A disadvantage would be shorter sailing lifetimes since these ships could not be broken down for yearly detailed maintenance, but these ships would still be an excellent investment because they cost the Egyptian state little to build, especially those built in Nubia as tribute. The construction of such ships would therefore allow for an expansion of the navy while reducing cedar imports, freeing up cargo space for the importation of other goods.

It is widely accepted that Egyptian shipwrights were building ships with pegged mortise-and-tenon joinery no later than the reign of Ramses III,[95] whereas Wachsmann proposes they may have begun as early as the reign of Ramses II based on a shipbuilding scene from the tomb of Qaha,[96] but no one has ever explained why the Egyptians waited so long to do so. The only disagreement among scholars is when Egyptian shipwrights began to build ships with this joinery. Thus, the appearance of the Nebamun ship, an Egyptian ship without a hogging truss, shortly after Egypt's appetite for cedar dramatically increased while concurrently gaining access to considerable Nubian supplies of timber, including acacia, a wood Egyptians seem to have favored for building their later Mediterranean ships with pegged mortise-and-tenon joinery were probably not coincidental. All available evidence is consistent with the Nebamun ship being a new type of Egyptian ship built with pegged mortise-and-tenon joinery.

Oxen

Another reason the Nebamun ship has been accepted as a Syrian ship and this scene of departure has been cited as taking place in Syria is due to the breed of humped bulls and chariots described as "specifically Syrian objects which have been selected as being regarded as valuable because of their rarity" (Fig. 1),[97] and they are surrounded by Syrians. Humped bulls, however, are portrayed in a number of Egyptian tombs most of which are in tribute scenes, indicating they were a prized import.[98] They are also already depicted in Egyptian breeding herds in the tomb of Menkheperrasonb (TT86, temp. Thutmose III) while in the tomb of Benja, overseer of construction, a humped bull is depicted among various agricultural offerings (TT343, temp. Thutmose III), and both tombs appear to date slightly earlier than the tomb of Nebamun (temp. end Thutmose III to beginning Amenhotep II).[99] Andrew Gordon in his recent study of foreigners bearing gifts depicted in TT119 (temp. Hatshepsut to Thutmose III), which is also earlier than the tomb of Nebamun, notes that all animals, including an Asian humped bull, were "exquisitely drawn, unlike

the metals, indicating that the artist had a greater familiarity with the former."[100] Consequently, a number of these animals must have already been imported to Thebes early in the reign of Thutmose III, and by the time of Nebamun a number of the Egyptian elite owned them.

Egyptians typically used oxen to draw sacred funeral sleds and in the tomb of Huy at Thebes (TT40, temp. Tutankhamen) a Nubian princess is portrayed riding in a chariot pulled by a pair of oxen, which were probably preferred for such occasions because they were more docile than horses.[101] For this same reason ox-drawn chariots or carts would have been more suitable to transport Nebamun's patients. Furthermore, if Nebamun had the wealth to own Asian humped oxen and used them for this purpose, they would enhance his status. Humped oxen are therefore not evidence of a Syrian port of departure.

Chariots

Very little survives of what must have been either chariots or carts in this register. Evidence for carts is rare in Egypt. Still, a boat model mounted on a cart was found in the reburial of the Seventeenth Dynasty Queen Ahotep while carts are also portrayed in the tomb of Sobeknakht, dating to the early Eighteenth Dynasty.[102] It is not clear when the Egyptians first adopted the chariot, but "It is possible that when first adopted by the Egyptians, the chariot was used for hunting and as a means of transport for the aristocracy when visiting their estates."[103] The earliest evidence for the military use of chariots by Egyptians dates to the reign of Ahmose I. Fragmentary battle scenes portraying horse drawn chariots and fallen Asiatic enemies along with other types of combat from Ahmose's cult complex at Abydos were discovered in 1993, and chariots may have been used in the conquest of the Hyksos and the taking of Avaris.[104] Images of chariots inscribed on scarabs and plaques date to the reigns of Amenhotep I and Thutmose I.[105] Thus, chariots must have existed in Egypt for about a century and possibly longer by the time of Nebamun, and as such, it is difficult to accept that chariots or possibly even carts were a rarity in Egypt. Furthermore, Jaromir Malek states that even if the military importance of the chariot may have been overstated at this time, "there is no denying the prestige and importance of those who drove them."[106] Heidi Köpp-Junk concurs and states, "For the royal family and the elite in the New Kingdom, the chariot was the status symbol par excellence and the supreme mode of locomotion, both for private and public appearances and travel."[107] Having the wealth to own chariots or carts drawn by imported humped bulls in order to transport his patients would therefore indicate Nebamun's high status.

Syrians

The three Syrians in this scene of departure are the only apparent inconsistency with this interpretation (Fig. 1). Why would they be standing next to Egyptian chariots while watching an Egyptian ship sail away? A possible answer is that they are Nebamun's slaves. These individuals share the same characteristics as the Syrian porters wearing kilts in the above registers, and according to Säve-Söderbergh, even the Syrians wearing long robes in the first and second registers may be young slaves given as payment.[108] To command such a princely price for his services, especially if this was a relatively common occurrence, indicates a physician of renown, which would be consistent with the purpose of the scenes in his tomb.

Alternatively, Nebamun may have purchased them himself. The conquests of Thutmose III resulted in numerous Syrian slaves in Egypt.[109] From the tomb of Rekhmire foreign slaves are recorded making bricks and linen as well as herding animals.[110] Regardless of how Nebamun acquired these slaves, having acquired the wealth to do so from his medical skills would reflect highly on his status and accomplishments. Having such slaves, especially if they became bilingual, would be an asset to a physician with a practice in which interaction with high-ranking Syrian patients was common. Not only would they be able to help patients describe their symptoms, but they would make them more comfortable during their treatment, including meeting them at the harbor upon their arrival and returning them after completing their treatment.

Artistic Convention

Based on a review of all items depicted in the lowest register it allows for two interpretations. Either an Egyptian ship is carrying a Syrian patient from Syria to Egypt or an Egyptian ship is carrying a cured Syrian from Egypt to Syria. In regards to standard chronological placement of registers, the former

interpretation would be the most likely because the convention was that different sequences within an event usually moved chronologically from the bottom to the top.[111] Such a progression is seen in the tomb of Pahery at el Kab, which is either slightly earlier or contemporary with Nebamun's tomb, and in the earlier Hatshepsut's Deir el Bahari temple,[112] but the scenes in Pahery's tomb and Hatshepsut's temple are carved reliefs while those in Nebamun's tomb are painted on plaster due to the poor quality of the limestone.[113] Gay Robins notes that, especially in painted Theban tombs in the first part of the Eighteenth Dynasty, there was experimentation not only in the use of techniques but also in style and content of scenes.[114] Thus, there is no evidence that this chronological ordering was rigidly adhered to by Theban artists during Nebamun's time. Furthermore, J. J. Shirley notes that the scene of Nebamun receiving the Syrian patient along with his payment must have had particular importance to Nebamun as it was one of two scenes placed so they were "immediately visible to anyone entering the tomb," and thus "they are generally interpreted as containing information that most distinguishes or represents how a particular tomb owner wished to present himself."[115] The seafaring register may therefore have been on the bottom in a less visual location because it was less important to Nebamun, especially considering Nebamun is the primary figure in the medical scene above. Moreover, other published scenes from this tomb typically consist of four registers of equal height.[116] In contrast, the top two registers in the medical scene are larger than the scene of departure in the lowest register, making the medical scene the most visible and suggesting it was the most important (Fig. 1). G. A. Gabella notes a disconnect between the two scenes and the static nature of this scene of departure, allowing one to doubt it being a narrative scene if not for its uniqueness.[117] These variations from standard artistic convention may have extended to the chronological placement mentioned above. Finally, Shirley also notes that based on inscriptions and scenes in this tomb "Thebes was a place of importance and his connection to this specific city was how he wished to be remembered."[118] If so, a scene of an Egyptian ship departing from Thebes would be consistent with how Nebamun "wished to be remembered," but an Egyptian ship leaving from an unknown Syrian harbor would not.

Conclusion

Although the interpretation of an ill Syrian patient sailing to Egypt in the scene of departure does follow a logical storyline, it fails to celebrate an accomplishment of Nebamun's life, which is a constant theme in other scenes in his tomb, allowing for the possibility that this register has been misinterpreted. A review of structural details on the Nebamun ship reveals that all are unique to Egyptian vessels, indicating it and the later *mnš* ship were Egyptian ships. The former, however, must be a new type of ship as it lacks a hogging truss. The appearance of such a ship at this time would be consistent with changes taking place in Egypt as a consequence of Thutmose III's conquests to the East and the South as well as reflecting the innovative nature of Egyptian shipwrights. This review also suggests that the Qenamun ships accurately represent contemporary Syrian ships, instead of hybrid ships as has been widely accepted. An Egyptian ship in Nebamun's scene of departure supports the proposition that this scene has been misinterpreted. Furthermore, the evidence suggests that Asian humped bulls, chariots or carts, and Syrian slaves were high prestige items during the time of Nebamun. Owning them would be indicators of his success as a physician as would the departure of a cured, high-ranking foreign patient in a modern Egyptian ship producing an integrated scene consistent with the purpose of other scenes in this tomb, celebrating the achievements of Nebamun.

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3 See W. Max Müller, "Neue Darstellungen 'mykenischer' Gesandter und phönizischer Schiffe in altägyptischen Wandgemälden," *Mitteilungen der Vorderasiatischen Gesellschaft* 9.2 (1904), 23–38; Säve-Söderbergh, 1957, 25–27; Shelley Wachsmann, *Seagoing Ships and*

Seamanship in the Bronze Age Levant (College Station: Texas A&M University Press, 1998), 45–47; Shirley, 2007, 383–388.

4 Säve-Söderbergh 1957, 25–26; Shirley 2007, 389.

5 Shirley 2007, 391.

6 Säve-Söderbergh 1957, 25–27; Shirley 2007, 383–388.

7 Shirley 2007, 387.

8 Säve-Söderbergh 1957, 26.

9 Shirley 2007, 387–388.

10 Müller 1904, 923–933; see also Säve-Söderbergh 1957, 26–27; Wachsmann 1998, 45–47; Shirley 2007, 383.

11 Wachsmann 1998, 42–53.

12 Wachsmann 1998, 47.

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19 Schaeffer 1962, 134, 137.

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22 Wachsmann 1998, 51.

23 Vinson 1993, 137–138.

24 Wachsmann 1998, 51.

25 See respectively: Müller 1904, Taf. 3; Säve-Söderbergh 1957, pl. 23.

26 Wachsmann 1998, 51.

27 See also Müller 1904, 25–32.

28 See Lawrence V. Mott, *The Development of the Rudder* (College Station: Texas A&M University Press, 1997), 19–41; Samuel Mark, "A Different Configuration for the Quarter Rudders on the Khufu I Vessel (*c*.2566 BC), and Egyptian Methods of Mounting Quarter Rudders and Oars in the 4th and 5th Dynasties," *International Journal of Nautical Archaeology* 41.1 (2012): 84–93.

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41 Shirley 2007, 387–388.

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