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Previously unknown element in construction of ancient Egyptian ships from the Late Period and its probable designation

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Excavations of a submerged city of Thonis-Heracleion in the Nile's Delta brought to light numerous ancient shipwrecks dating to the 8th–2nd centuries BC. Many of these ships show parallels with a Nilotic freighter *baris* as described by Herodotus (*Hist.* 2.96). Massive constructional pieces, apparently playing an important role in structure of a *baris*, were recently discovered at the bows of these ships. This new archaeological discovery allows reconsidering ancient Egyptian nautical terms applied to the bow of a ship and proposing the most probable word for a bow piece.

Keywords: Maritime archaeology, Thonis-Heracleion, ancient shipwrecks, *baris*, Egyptian Late Period, Ptolemaic Period, nautical terms, ancient Egyptian language.

Ports and channels of a submerged city of Thonis-Heracleion contain remains of 80 ancient ships and many more were located by remote-sensing methods under the sediments¹. The majority of these ships are dated to the Late (664–332 BC) and Ptolemaic Periods (332–31 BC). Although these ships belong to several types, most of them show particular constructional features of a *baris* (pl. *barides*) as described by Herodotus (*Hist.* 2.96) in the middle of the 5th c. BC. Herodotus referred these ships to local shipbuilding techniques. It is possible that the Greek term *baris* (βάρις) derives from a name of an Ancient Egyptian boat type that was called *br* or *byr*². At the same time it has been suggested that the Egyptian

¹ Goddio 2007; Goddio 2011; Fabre, Goddio 2013; Belov 2020; Robinson, Goddio 2021.

² Casson 1971: 341 note 64; Vinson 1998.

³ Vinson 1993: 147, notes 69, 70; Vinson 1994: 44–45.

⁴ Casson 1971: 341, note 64; Vinson 1994: 44–45; Vinson 1998: 252.

word *br* probably had a foreign origin³. The term *br* first appears in the 18th Dynasty and refers to a sea-going craft⁴. Later the meaning of the term apparently changed. Textual evidence from Greek papyri suggests that the *baris* was primarily a Nilotic freighter and a transport vessel⁵. In Greek literature, the *baris* is connected with Egypt since the time of Aeschylus (525–456 BC)⁶.

The description of the *baris* by Herodotus corresponds well with construction of ships from Thonis-Heracleion and their specific features are documented in his text⁷. However, it is not the case of a massive wooden piece found at the bows of many ships. It is possible that Herodotus did not pay attention to this detail because it was too tiny in construction of smaller *barides* he probably described⁸.

The presence of such a piece in construction of Ship 43 was first reported in 2014⁹, and recently four bow pieces coming from four different ships were excavated and published¹⁰. The bow pieces were cut of massive crutches or trunks of acacia wood. They have a form of one half of a truncated cone, or, to suggest a more vivid parallel — a form of a cork from a champagne bottle cut in two along its vertical axis. Their length varies between 125 and 161 cm and width — between 48 and 120 cm. The underside of the piece was sculpted to accommodate the keel plank and the strakes of the planking (figure 1). The main destination of the bow piece was to solidify the bow which was lacking a conventional stem.

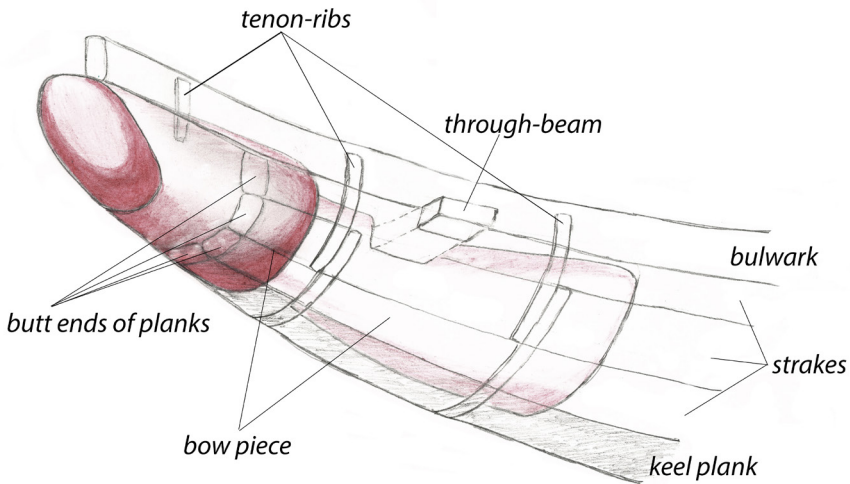


Figure 1. Reconstruction of the bow of the *baris* from Thonis-Heracleion (A. Belov)

⁵ Casson 1971: 340 note 60, 341, note 64; Vinson 1998: 254.

⁶ Arnaud 2015: 114, note 52.

⁷ Belov 2014b; Belov 2015.

⁸ Boreux 1925: 237.


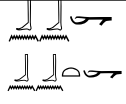


⁹ Belov 2014a: 116–118, figs. 61–62; 134–136, fig. 73; Robinson 2015.

¹⁰ Belov 2024.

The dates for four ships with bow pieces vary from the 8th to the 2nd centuries BC corresponding to the Late and Ptolemaic Periods. However, the application of this piece of complex shape, cut of very hard wood, seems to indicate a local shipbuilding tradition preceding the Late Period. This architectural solution was applied in order to close the hull of flat-bottomed vessels which were lacking stem; the latter were a characteristic feature of the Mediterranean shipbuilding tradition. In classical sources the *baris* is described as a typically Egyptian vessel¹¹ and this conclusion is corroborated by its construction¹².

The aim of this short note is to inquire which word could be used in ancient Egyptian language to denote a bow piece.

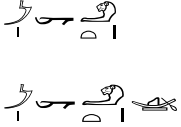


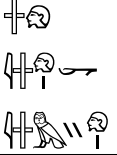


Ancient Egyptian nautical terms are not easy to identify with certainty as they often appear only in religious texts dating to the Old Kingdom (mainly in the Book of the Dead and Coffin Texts). Several terms associated with the subject are mentioned in the ‘Story of Wenamun’¹³, probably composed during the 22nd dynasty (943–746 BC). Table 1 contains a list of major terms that may hypothetically refer to the bow part of the ship with their proposed translations.

Hieroglyphics	Transliteration	Jéquier (1911)	Wb = Erman & Grapow (1926-1963)	Jones (1988)	Sérvajejan (2021)
	w3d.t		Wb I, 268, 14 — designation of the bow	p. 159, III.32, stem, bow of ship	p.214 — term corresponds not to the structural element but to the element determined by its shape
	bnbn bnbn.t		Wb. I, 459, 16 ; Wb I, 460, 18 — beam or similar made of cedar	p. 163, III.48, stem (?) of a boat	p.214 — term rare and uncertain
	šrt		Wb IV, 523, 18 — fore part (der Vorderteil) of a ship	p. 189, III.163, bow of a ship	p. 209 — 'nose' (šrt) was another designation of the bow for Ancient Egyptians, other alternatives having been 'head' and 'eyes'. p.214 — term rare and uncertain
	h3.t		Wb III, 19, 13 — bow, fore part	p. 173, III.97, bow, forepart, prow of boat	p.213–214 — h3.t, bow, p.217 — bow, fore part of a ship

¹¹ Arnaud 2015: 114, note 52; Casson 1971: 341.

¹² Belov 2019: 8–9.

¹³ Goedicke 1975; Belova, Sherkova 1998.

	<p><i>m3-h3.t</i></p>	<p>p.44 — dash under the first sign shows that it is not a syllable, but an ideogram: two parts of a wooden sickle-shaped boat: one at the bow, one at the stern</p>	<p><i>m3</i>: Wb II, 6,3;4 — forward or aft end of the ship; <i>m3</i>: Wb II, 23,7 — to tow a ship; Wb II, 25, 14 — wooden part of a ship</p>	<p>p. 166, III.62, bowpiece</p>	<p>p.213 — <i>m3-h3.t</i>, 'stem', p.214 — constructed with <i>h3.t</i> to which a <i>m3</i> is added. p. 214–215. <i>m3</i> - determinative shows that this is a structural wooden piece of the bow and stern. Word-for-word: 'wooden piece of the bow'. Certain ritual craft are sickled-shaped. p.217 — stem</p>
	<p><i>tp</i></p>		<p>Wb V, 263 — head, top</p>		<p>p.207, 210 — 'bow', 'cap', 'head' (<i>tp</i>)</p>
	<p><i>tp nfr</i></p>		<p>Wb V, 285–286; Wb V, 286B — Late Period: good order, to do something right</p>		<p>p.207–209 — 'bow', 'cap', 'head' (<i>tp</i>) (+optalmoi = eyes) in good 'direction' (<i>tp nfr</i>). p.210 — <i>Tp nfr pw</i> = 'it's a good cap, good direction', 'the bow (= head) is oriented in good direction'</p>
	<p><i>imj tp</i></p>		<p>Wb V, 264, 7,8 — situated on the head</p>	<p>p. 154, 9 — stern post, 'béquille de gouvernail'</p>	
	<p><i>tp.tj</i></p>		<p>Wb V, 295,1 — used in nautical context</p>		
	<p><i>tp.t</i></p>		<p>Wb V, 295, 6 — 'some large beam of cedar'; Wb V, 295, 3 — 'large wooden beams as a part of a cargo on a ship'</p>	<p>p. 192, III.174, <i>tpty</i>, unidentified part of a boat, 'stem and stern', 'two heads', the end-pieces / finials at stem and stern, 'tête (avant), tête (arrière)', 'bridge' — wooden platform amidships or at prow of ship</p>	

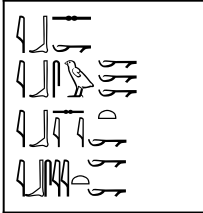
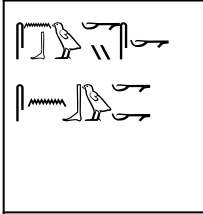

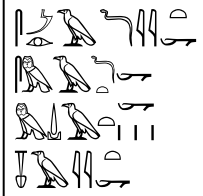
	<p><i>ibs</i> (and var)</p>	<p>p. 65, n. 24 — existing translations: cabin's roof, rope, tiller, hull, deck, stanchion, thwart</p>		<p>p. 153, III.7 bow timbers (?)</p>	
	<p><i>snbwj.s</i> <i>snbwj</i></p>	<p>p.68-69, n.29 — two wooden pieces, comparison with the spread legs of a god. Signs of sickles indicate the bow</p>	<p>Wb IV, 161, 10 — 'paired part of a ship'; <i>snb</i> — Wb IV, 160, 8, 9, 10 — 'a plant used for tying knots (sailor's knots?)' or 'a fruit tree' (Wb IV, 161, 11).</p>	<p>p. 186, III.144, meaning unknown</p>	
	<p><i>š3w</i></p>	<p>cf p. 56, n.12 — reeds, decoration of the prow</p>	<p>Wb IV, 401, 5 — 'a kind of ship's rope'</p>	<p>p. 189, III.159, finials (?) of hull, 'end-pieces'</p>	
	<p><i>smgdj.t</i> <i>mg3.t</i> <i>sm3j.t</i></p>	<p>p.62, n.19 — bow (Piehl, Brugsch). Point of convergence and junction of the boat's planking - stern.</p>	<p>Wb IV, 127, 5 — 'name of a part of a ship?'</p>	<p>p. 185, III.142, meaning unknown</p>	

Table 1. Ancient Egyptian terms referring to the bow part of a ship and their translations as per following publications: Jéquier 1911; Boreux 1925; Erman, Grapow 1926-1963; Jones 1988; Servajean 2021 (the table has been compiled by Galina Belova)

The term *w3d.t* mentioned in the text of Spell 99 of the Book of the Dead is translated as 'bow'¹⁴. This text contains a dialogue between the Dead and the Ferryman who prepares his craft to take the former across the celestial waters. According to Faulkner, the Dead says: 'Take her larboard side and fix it to the stern; take her starboard side and fix it to the bow'¹⁵. This text is misty because it is full of mythological, mystical and symbolical meanings and does not permit any certainty of translation. Another translation of the term suggested by Jones — 'stem' — has no solid grounds. Servajean discards this term in his analysis of structural parts of the ship. Therefore this term could not designate a bow piece.

The term *bnbn* (*bnbn.t*) may be translated as 'beam or a similar piece made of cedar'¹⁶. The translation 'stem (?) of boat' proposed by Jones and followed by Hannig & Vomberg¹⁷ is unconvincing as this term may refer to any cedar timber.

¹⁴ Jones 1988: 159, III.32; Faulkner 1993: 91; Sethe 1918: 3–4; Wb I: 268, 14.

¹⁵ Faulkner 1993: 91.

¹⁶ Germ. 'Balken', Wb. I: 459, 16; Wb I: 460, 18.

¹⁷ Hannig, Vomberg 1998: 723.

The term *šrt* (nose) metaphorically means ‘bow, forward part of a ship’¹⁸. The parallel between the head, eyes or nose and the bow of the ship exists in many languages as Servajean judiciously remarks¹⁹. However, this term definitely does not refer to any constructional detail.

The meaning of the previous term may be confidently extended to the term *h3.t*. There are strong arguments to transliterate *m3-h3.t* as a composite word²⁰ which is usually translated as ‘bow, fore part of the ship’. In fact *m3* may mean ‘forward’ or ‘aft end of a ship’²¹. Thus this word is precised depending on the context and *m3-h3.t* would designate a bow. It is interesting to note that the verb *m3* means ‘to tow a ship’²² and any ship is usually towed by the bow. However, there are no reasons to translate the word *m3-h3.t* as ‘stem’²³ because this word refers just to the forepart of the ship. The word *m3-phwty* would be an antonym with the meaning ‘aft part of the ship’.

The term *tp* means ‘head’, ‘top’²⁴ and its connection with the bow of the ship and direction is convincing²⁵. In some cases the term *tp* was used as a dual to designate two extremities of the ship (*tp.wj*)²⁶. The term *tp nfr* had appeared in texts from the Old Kingdom²⁷ and was still in use in the Late Period²⁸ when it had a meaning ‘good order’ or ‘to do something in a right way’. This complex word consists of the noun *tp* (‘head’) and the adjective *nfr* (‘perfect’, ‘good’). The expression *tp nfr pw* should be translated as ‘good bow’, ‘good orientation of the bow’²⁹. This expression is close to modern nautical commands ‘Steady!’, ‘Steady the helm!’ and ‘Lie the course!’

Several other terms designating the parts of the ship contain the word *tp*. The term *imj tp* in reference to a ship probably means some conspicuous element located in its forward part. This is undoubtedly the meaning of the term in Spell 99 of the Book of the Dead which is erroneously translated by Jones as ‘stern post’³⁰. There are no grounds to link this element with the stern as Hannig and Vomberg do³¹. The determinative *ht* (wood) rather indicates a wooden piece at the bow of the ship.

The term *tp.tj* in all evidence is a synonym for *imj tp*. It is also used in nautical context³². An adjective *tpj* means ‘located at’³³. Thus the term *tp.tj* may be translated as ‘something located at the bow’ and its determinative shows that this is a wooden detail. It could be a beam or any other wooden piece at the bows. This term has broad meaning and cannot be linked with any specific element of construction.

The term *tp.t* ‘some large beam of cedar’³⁴ may not be considered as a synonym to *tp.tj* as proved by one of papyri in the collection of the British Museum (BM10383). Here the dual number is rendered by a demonstrative pronoun. The text describes a merchant who discovered a stolen mast that belonged to him. In particular it reads: ‘(1)...these two yardarms (?) [*t3j tp.t* 2] in their place. A merchant came and recognized the mast (2) but the prince

¹⁸ Germ. ‘der Vorderteil’, Wb IV: 523, 18.

¹⁹ Servajean 2021: 209.

²⁰ Servajean 2021: 213.

²¹ Wb II: 6, 3, 4.

²² Wb II: 23, 7.

²³ Jones 1988: 166, III.62; Servajean 2021: 213.

²⁴ Wb V: 263.

²⁵ Servajean 2021: 213.

²⁶ de Buck 1936: 404a.

²⁷ Wb V: 285–286.

²⁸ Wb V: 286B.

²⁹ Servajean 2021: 207–213.

³⁰ Jones 1988: 154, 9.

³¹ Hannig, Vomberg 1998: 721 — ‘stanchion of the rudder’s loom’.

³² Wb V: 295, 1.

³³ Wb V: 276a.

³⁴ Wb V: 295, 6.

refused to give it to him'³⁵. The term *tpj* may refer to wooden beams that are transported on ships as a cargo³⁶. It is also the meaning of 'beams' or possibly 'poles' that this term takes in the 'Story of Wenamun'³⁷.

The translation of *ibs* as 'bow-timbers'³⁸ is purely conjectural. In different contexts this term may be also translated as 'wooden part of a ship'³⁹ or it may designate various parts of ships from the roof of a deckhouse to a thwart⁴⁰. Thus it is impossible to prove that this term or one of its derivatives meant 'bow-timbers'.

The term *snb.wj* according to Jéquier⁴¹ may mean 'bow part of the ship' but the references to mystical texts are inconclusive. Ancient Egyptian lexicon preserved other meanings of the word *snb*. The first of them is to translate it as 'a plant used for tying knots (sailor's knots?)'⁴². The second is 'a fruit tree'⁴³. The planks cut of 'a fruit tree' were used in Ancient Egyptian boatbuilding. For example, the ritual Ship 11 from Thonis-Heracleion was entirely built of sycamore, a 'Tree of Life' for Ancient Egyptians⁴⁴. However, the use of the word *snb.wj* in dual number indicates the double nature of the construction element in question. The most appropriate translation of this term would be 'the planking of two sides of the ship'.

Jéquier translates the term *š3w* as 'reeds, decoration of the ship's prow'⁴⁵. Jones⁴⁶ suggests a translation 'finials, endpieces'⁴⁷. The 'Story of Wenamun' contains a phrase *p3 dpt ht n 'š* — 'a boat or ship of 'š wood'⁴⁸. In any case this term does not seem to be appropriate for a bow piece.

The term *sm3dj.t. (md3.t)* in the New Kingdom was written as *sm3j.t*. The meaning of the term is vague while Jéquier proposes 'a stern part of the ship'⁴⁹. The term probably originates in a verb *sm3* 'to unite', especially 'to unite two or several things together'⁵⁰. The term *sm3dj.t* was sometimes written with the ending of *dt* and *dtj*. Starting from the New Kingdom the word *dt* had a meaning of a 'whole body', for example 'a body of the obelisk'⁵¹. It is possible that the term *sm3dj.t* consists of two roots — *sm3* ('to unite') and *dt* ('whole body'). The word *sm3* is a significant element in an allegorical representation of united Egypt. Thus the term *sm3dj.t* may be translated as 'consolidating into a whole'. It is also remarkable that the word *sm3* means lungs and trachea which are anatomically united. These organs played an important role in Ancient Egyptian mythology symbolising the 'breath of Life'. Remarkably even the form of this hieroglyph resembles the bow piece viewed from above.

To conclude it may be noted that the semantic considerations and also the fact that the term *sm3j.t* was used in the New Kingdom, allow suggesting it as the most probable candidate for the word designating the bow piece. The *baris* always existed in the Ptolemaic and

³⁵ Peet 1930: 125, 3/1, II, pl. XXII.

³⁶ Wb V: 295, 3.

³⁷ Golénischeff 1889: 87, note 18; Belova, Sherkova 1998.

³⁸ Jones 1988: 153.

³⁹ Hannig & Vomberg 1998: 721.

⁴⁰ Jéquier 1911: 65, no. 24.

⁴¹ Jéquier 1911: 62.

⁴² Wb IV: 160, 8, 9, 10.

⁴³ Wb IV: 161, 11.

⁴⁴ Robinson, Goddio 2021.

⁴⁵ Jéquier 1911: 56, n. 12.

⁴⁶ Jones 1988: 189, III.159.

⁴⁷ With a reference to Wb 4: 401, 5 — 'a type of cable on a ship'.

⁴⁸ Golénischeff 1889: 90–91, n. 37–38.

⁴⁹ Jéquier 1911: 62.

⁵⁰ Wb III: 446; 446a.

⁵¹ Wb V: 504, 10.

Roman periods and it is mentioned in a document dating to the end of the 2nd century AD⁵² for the last time. Thus, there must have existed Greek and Roman terms for the bow piece and this question could be a subject for future research.

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⁵² Arnaud 2015: 115.

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Неизвестная конструктивная деталь кораблей Позднего периода и ее вероятное наименование в древнеегипетском языке

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В ходе раскопок затопленного города Фонис-Гераклей были обнаружены многочисленные остатки древних кораблей, датирующихся VIII–II вв. до н.э. Конструктивные особенности многих из этих судов соответствуют характерным для древнеегипетских грузовых кораблей *барис*, описанных в сочинении Геродота (История, II.96). Массивные деревянные детали, обнаруженные в носовой части *барисов*, очевидно, играли важную роль в их конструкции. Рассматриваемая в данной статье деталь, которую условно можно назвать «брештуком», была изучена в ходе анализа конструкции нескольких кораблей во время экспедиции 2022 года. Автором также предпринята попытка идентификации древнеегипетского термина, использовавшегося для обозначения «брештука».

Ключевые слова: подводная археология, Фонис-Гераклей, древние кораблекрушения, *барис*, Поздний период, птолемеевский период, древнеегипетские морские термины, древнеегипетский язык.

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