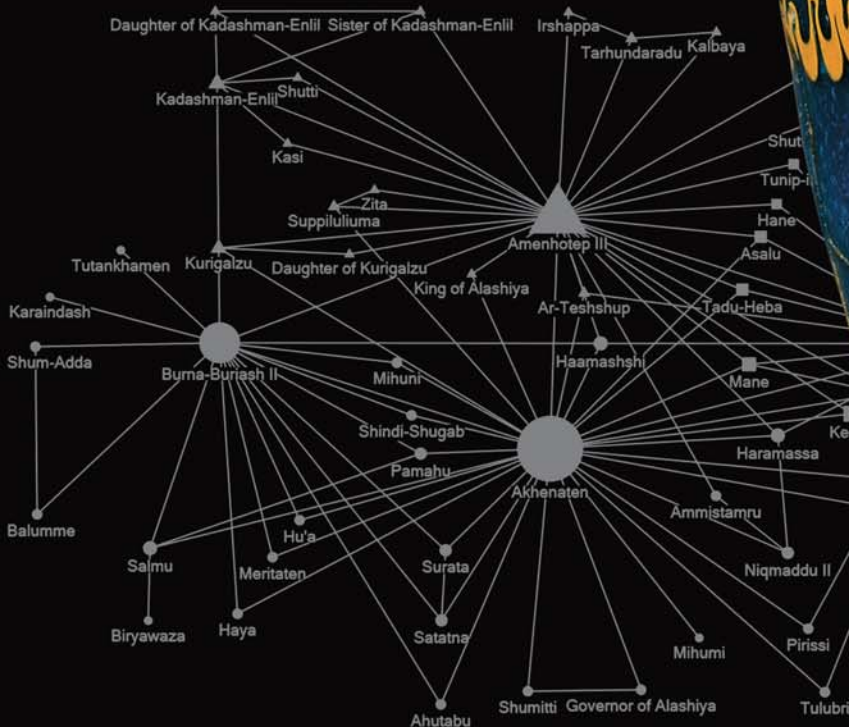
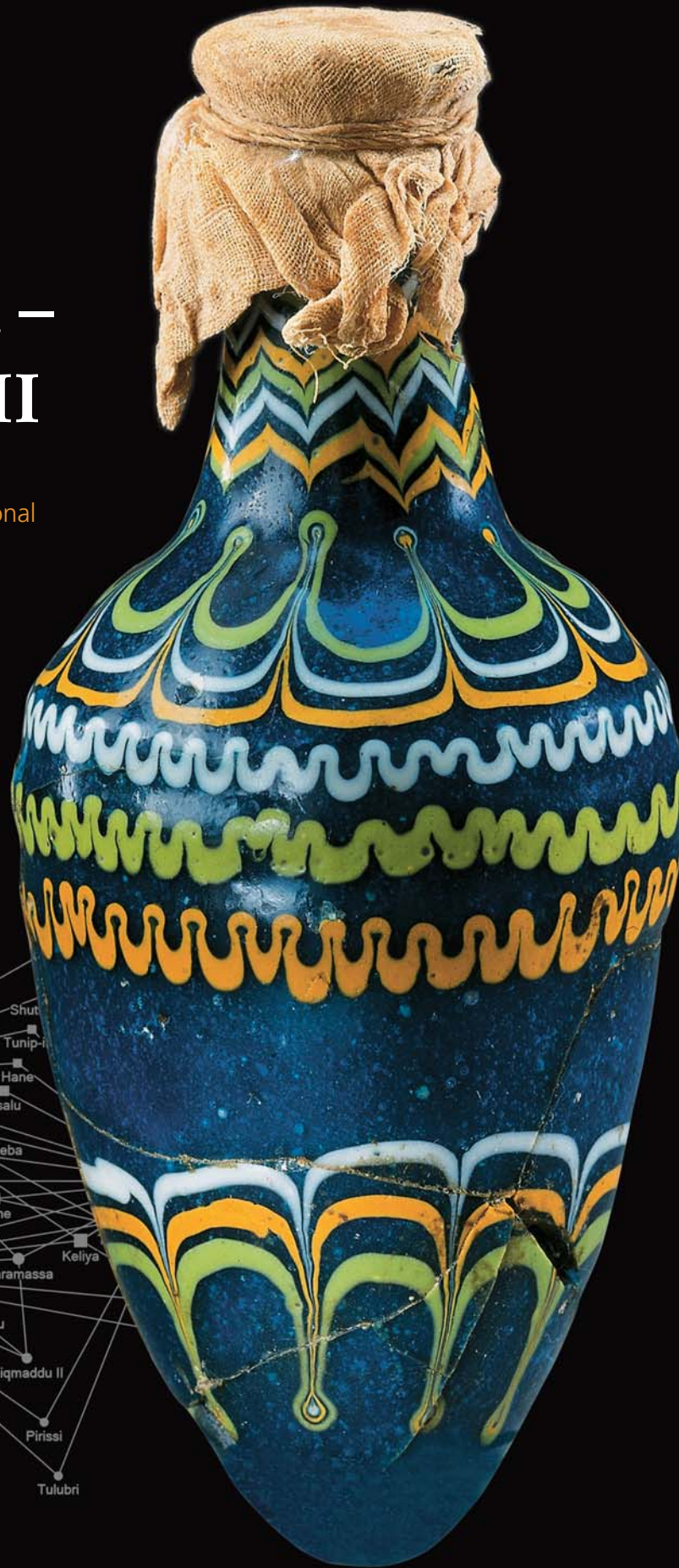


There and Back Again – the Crossroads II

Proceedings of an International
Conference Held in Prague,
September 15–18, 2014

edited by Jana Mynářová,
Pavel Onderka
and Peter Pavúk



There and Back Again – the Crossroads II

Proceedings of an International Conference Held in Prague,
September 15–18, 2014

edited by Jana Mynářová,
Pavel Onderka
and Peter Pavúk

Charles University in Prague
Faculty of Arts
2015



The book was published from the financial means allocated for the research project of the Czech Science Foundation GA ČR P401/12/G168 “History and Interpretation of the Bible”.

Reviewed by Luca Girella and Jordi Vidal

Contributors: A. Ahrens, F. Blakolmer, L. Bonadies, V. Boschloos, D. H. Cline, E. H. Cline, S. Cohen, P. P. Creasman, V. Dubcová, J. P. Emanuel, G. Gestoso Singer, F. Höflmayer, D. Kahn, U. Matić, E. Morero, A. Morriconi, E. F. Morris, J. Mynářová, P. Onderka, N. Papadimitriou, P. Pavúk, R. Prévalet, G. Tucci, Z. Simon, V. Vrtal, J. Weingarten, H. Wilde

Cover: Glass flask of Maiherperri from the Egyptian Museum in Cairo. Photo by Andreas F. Voeglin, Photographer Antikenmuseum Basel, Switzerland; the entire Social Network of the Amarna letters with four clusters (© D. H. Cline – E. H. Cline).

Type-setting layout: AGAMA® poly-grafický ateliér, s.r.o., Praha
Print: PBTisk a.s.

© Charles University in Prague, Faculty of Arts, 2015

ISBN: 978-80-7308-575-9

SAILING FROM PERIPHERY TO CORE IN THE LATE BRONZE AGE EASTERN MEDITERRANEAN

Jeffrey P. Emanuel

The unprecedented interactivity and complexity of the Late Bronze Age has been well documented.¹ Though clearly an imperfect model, the dynamics of this period have frequently been described using the jargon of World Systems Theory, as its terminology competing and complementary cores, associated interfaces, peripheries, and small worlds, etc. offers a means to visualize and analyse the relationships between state actors on the world stage (see now Galaty – Parkinson 2010; Tartaron 2013). Echoes of the elite communication and core-core exchange so well-known from the Amarna period can be found in elite emulation in the peripheries and, further downstream, in local import substitution that took place in areas around the Eastern Mediterranean, while the Mycenaean pottery that blanketed the region in this period provides material testimony to the sheer scale of the widespread and interlocking trade networks that supported the Late Bronze Age system on multiple levels. The “restructuring of power relationships and economic roles” that marked the collapse of the LBA world, in turn, demonstrate the vulnerability inherent in such a delicate and interdependent system (Sherratt – Sherratt 1998: 339–341).

The maturation of the Late Bronze Age system was marked in part by the apparent evolution of peripheral actors from the fringe of the multi-level economic system they supported into principal actors upon whose actions the fate of the whole ultimately ended up balancing (Sherratt 1998; *id.* 2003; Sherratt – Sherratt 1998). Key among these were the merchants and intermediaries who operated deep within the multi-level economic system of the age: traders, itinerant sailors, and in some cases mercenaries whose involvement in the system may have begun as an effort by states to expand their economic influence and regional prowess relative to their partners and rivals. These non-state actors were not “peripheral” in the World Systems sense, but their position at the periphery of state and non-

¹ I would like to extend my sincerest gratitude to the organizing committee, Jana Mynářová and Peter Pavúk (Charles University in Prague) and Pavel Onderka (National Museum in Prague), for their efforts in putting together this conference. A preliminary version of this paper was presented at the Maritime Archaeology session of the American Schools of Oriental Research Annual Meeting on 17 November 2012. I would like to extend my heartfelt thanks to Professor Shelley Wachsmann (Texas A&M University) and Professor Michal Artzy (University of Haifa) for their constructive feedback and encouragement on this topic.

state interaction is perhaps best described by that term. As Artzy and Sherratt in particular have noted, the symbiotic relationship between these seems to have evolved to such a degree that these middle-men became integral parts both of international communication and of national economic activity, and they ultimately became such a critical part of the overall system that they ended up playing what may have been a key role in its ultimate downfall.²

Related to this is another reality that appears, at the most casual glance, to be similarly paradoxical: the volume of piratical activity in the seemingly peaceful Late Bronze Age, best known from Amarna, Ramesside, Hittite, and perhaps Mycenaean textual sources.³ On closer inspection, this is not such a paradox after all: such a state of affairs should, in fact, be expected in an affluent, internationalist period like the Late Bronze Age. After all, piracy is naturally most successful when coastal settlements and trade routes are present, regular, and prosperous (Horden – Purcell 2000: 157). Excessive piratical activity in less prosperous circumstances, on the other hand, could result in the wholesale abandonment of coastal sites in the affected areas, and thus the loss of raiding targets that supported such activity (Hitchcock – Maeir 2014: 4; cf. Emanuel 2012: 5, 6 n. 20, with further references). Many of the peripheral actors who propped up the Late Bronze Age system may have found their origin in, or spent their “off-season” conducting, piratical activities (Ormerod 1924: 74–77; Wachsmann 1998: 320). When the system was strongest, though, many of these remained legitimate and largely peaceful, ultimately becoming, in Artzy’s words, “an essential part of a trade network, a position obtained because of their peculiar expertise: capital in the form of a boat and knowledge of navigation, the requirement for successful maritime commerce.” However, as the Late Bronze Age wore on and the economic situation became less favourable from the point of view of some “fringe” merchants and mariners, a number may have, as Artzy has so vividly put it, “reverted to marauding practices,” causing “the image of ‘Sea Peoples’ familiar to us from the Egyptian sources” to emerge (Artzy 1997: 12; cf. Hitchcock – Maeir 2014: 11).

Oared Galley and Brailed Sail

This brings us to the subject of maritime technology. It should be no surprise that those who depended most upon the sea for their livelihoods may have been among the first to experiment with innovative technologies (Georgiou 2012: 527). Though perhaps not responsible for their invention, a subset of these “nomads of the sea” may have played a key part in driving maritime innovation, laying the

² *Inter alia*, Artzy 1997; *id.* 1998; *id.* 2003; *id.* 2013; Sherratt 1998; *id.* 2003; Sherratt – Sherratt 1998; cf. Routledge – McGeough 2009: 22; Gilan 2013: 66; Hitchcock – Maeir 2014: 11–12.

³ Linder 1970: 317–324; Palmer 1980; Baruffi 1998; Emanuel 2012; *id.* 2015; Gilan 2013; Hitchcock – Maeir 2014.

groundwork for one or more inflection points that saw the widespread adoption of new technologies and tactics.

One such inflection point in the Eastern Mediterranean can be traced to the transition from the Late Bronze to the Early Iron Ages, in the years surrounding 1200 BCE, and its impetus may be seen in the tools and tactics of the aforementioned peripheral mariners of the LBA. It is at this time that the Helladic oared galley began to be paired with a new type of rigging, with a square sail and single (upper) yard which could be manoeuvred from the stern in a manner similar to Venetian blinds (Roberts 1991: pls. XVIIa, XIX–XX; Wachsmann 1998: 251; Mark 2000: 130, fig. 5.8).

The oared galley represents a true break with Minoan and Cycladic tradition (as seen, for example, at Akrotiri), and it has been called “the single most significant advance in the weaponry of the Bronze Age Eastern Mediterranean” (Wedde 1999: 465). Until this point, ship design had been typified by Minoan sailing vessels and Cycladic craft like those known from Akrotiri, and sailing craft had relied on large square sails held fast by an upper yard and a lower yard (called a “boom”). This “boom-footed square sail” was best suited to downwind travel, while the brailed rig offered an improvement in manoeuvrability and access to more points of sail (Sølvér 1936: 460; Casson 1971: 273–274; Roberts 1991: 55, 59, pls. XVIIIa, XX). Once outfitted with this rig, the galley became an ideal vessel for rapid, sustained travel, as well as for raids and other activities that required both agility and celerity.

Though the sails are furled in in the representation, just this type of ship and rigging combination can be seen in action in the famous naval battle relief from Ramesses III’s mortuary temple at Medinet Habu (Epigraphic Survey 1930: pls. 37–39, henceforth MH I; cf. Wachsmann 1981; also 1982; 1998: 164–172; 2000: 116–122; 2013: 33–84; Fig. 1). Equally remarkable are the Egyptian vessels shown in this battle: these appear to be based on riverine “traveling ships,” rather than being derived in form from Helladic vessels, yet they possess identical rigging to the Sea Peoples ships. Other innovations present in identical form on the two sides’ ships are the top-mounted crow’s nests and decking. These elements would eventually be incorporated into the ship architecture of the Greeks and Phoenicians, thus ensuring their endurance far beyond the LBA–Iron I transition. While examples of these individual components can be seen in Aegean and Syro-Canaanite ship iconography, though, Medinet Habu provides the first example for their use in combination, which makes their identical appearance on vessels representing two distinctly different cultures such a remarkable occurrence (Figs. 2–3).

The appearance of these innovations on Egyptian ships is a *hapax* that appears only at Medinet Habu. All the same, though, they are also depicted as fully and properly integrated components. Such an appearance may indicate a “breaking-

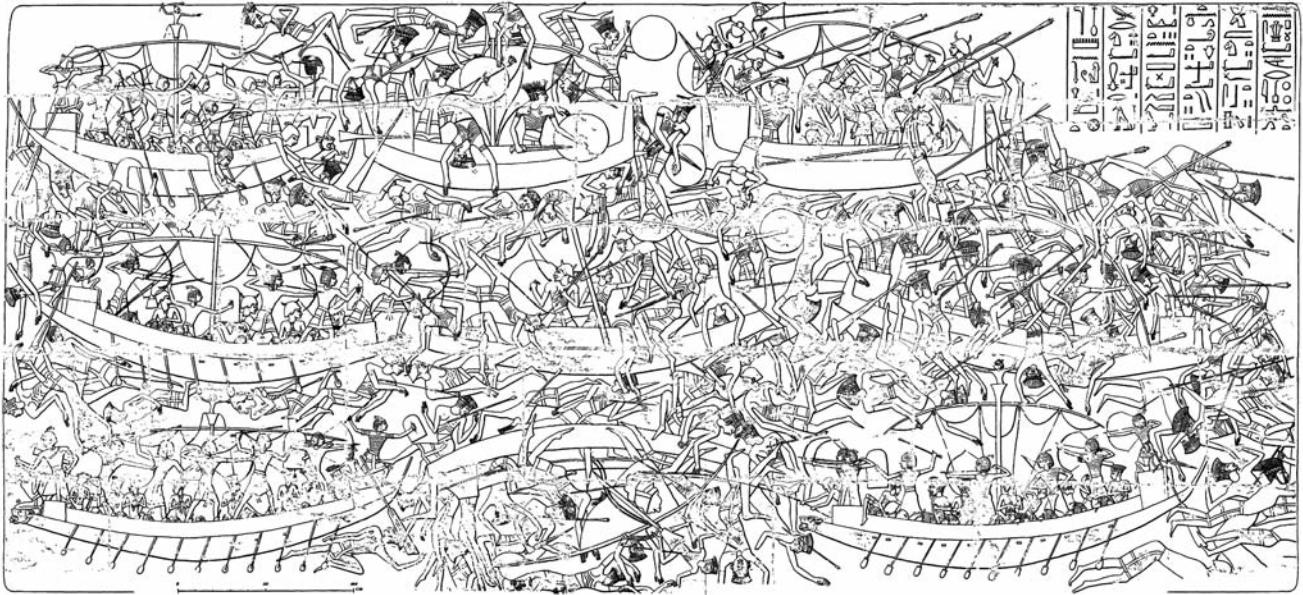


Fig. 1

Naval battle relief from Ramesses III's mortuary temple at Medinet Habu (MH I, pl. 39).

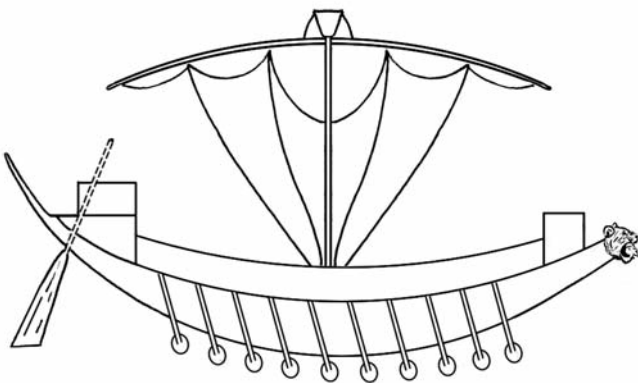


Fig. 2

Egyptian ship from the Medinet Habu naval battle (illustration by the author).

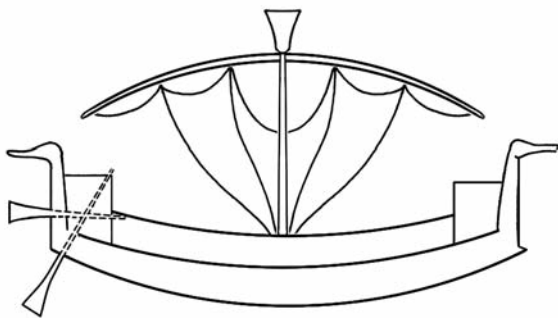


Fig. 3

Sea Peoples ship from the Medinet Habu naval battle (illustration by the author).

in" period prior to the combat memorialized at Ramesses III's mortuary temple, during which Egyptian shipwrights (such as they were) and sailors familiarized themselves with these new components. Such a period was likely necessary due

to the radical departure the loose-footed, brailed sail represented from the traditional Egyptian rig, with its boom and “web of lifts” (Raban 1989: 170; cf. Roberts 1991: 55–56, pls. XVIIb, XVIIIa; Wachsmann 1998: fig. 2.11; Tzachili 1999).

Where, then, did these elements come from, and how were they transferred to the land of the pharaohs? Given its prominence in the LBA Eastern Mediterranean world, and its status as a target of pirates (e.g. ARE II §916; EA 38; cf. Emanuel 2012), Egypt surely had occasion to come into some form of contact with peripheral actors discussed above. This contact likely spanned the spectrum of these pirates, raiders, and traders’ activities, from legitimate communication, transportation, and exchange to illicit action like coastal raiding. A possible example of the former holds an important clue regarding the earliest use of the brailed rig, and Egypt’s exposure to it, can be seen on a fragmentary relief from Saqqara (Capart 1931 pl. 67; Fig. 4). The relief, unfortunately found out of context, has primarily been assigned to the 18th Dynasty (Capart 1931: 62; Schulman 1968: 33; Millet 1987; Vinson 1993: 136 n.12, 138–139), though the Canaanite amphoras pictured in the scene may permit a later date (cf. Killebrew 2007: 167–173, figs. 1.3, 4.6). Remarkably, the relief depicts portions of the masts, furled sails, downward-curving yards, and top-mounted crow’s nests of two seagoing ships in identical fashion to those seen at Medinet Habu, despite a temporal distance between the two of perhaps a century or more. Remarkably, the parallels even extend to minute details like the container suspended from the rigging of one of the Saqqara ships, which is also seen on one of the Egyptian ships (E1) at Medinet Habu (Nelson 1943 fig. 4; Vinson 1993: 137). Unfortunately, no evidence of hull design is to be found on this fragmentary relief.

Maritime contact between New Kingdom Egypt and the coastal polities of the Levant is attested from at least the 18th Dynasty, of course, with elements of ship construction being transferred to Egypt and ships themselves being appropriated by Thutmose III in the 15th century.⁴ Further, Thutmose III’s shipyards, located in the Memphite district of *prw-nfr*, appear to have been staffed with Syro-Canaanite shipwrights.⁵ Though the brailed rig is not yet attested at this early date, such close contact between Syro-Canaanite mariners and Egypt certainly demonstrates one straightforward mechanism of direct technological transference. Further, unlike the brailed rig, the downward-curving yard can also be seen in depictions of Levantine seagoing vessels from the 14th century BCE. A Levantine provenience of the top-mounted crow’s nest and downward-curving yard helps explain both their absence on galleys depicted in their native Aegean milieu and their presence on Sea Peoples’ vessels of Helladic oared galley type that are shown in the area of

⁴ Breasted 1906–1907 §§454, 460 (henceforth ARE II); Säve-Söderbergh 1946: 35; Sasson 1966: 128 n. 12; Wachsmann 1998: 313, 321, 330.

⁵ Glanville 1930; *id.* 1932; Säve-Söderbergh 1946: 37; Sasson 1966: 128; Redford 1992: 225; Wachsmann 1998: 223.



Fig. 4

Relief from Saqqara showing two vessels with downward-curving yards, brailed rigs, and top-mounted crow's nests (Vinson 1993: fig. 4b).

the Levant and Egypt, while the development of the brailed rig in the area of the Canaanite littoral could also explain its nearly simultaneous appearance on Egyptian and Aegean ships at a slightly later date.

In the Aegean, the Helladic oared galley, brailed sail, and warriors in the 'Sea Peoples' tradition can be found on pictorial pottery from Kynos (modern Livanates) in central Greece. Fragments of a krater dating to LH IIIC Middle (late 12th–early 11th century BCE) show antithetic oared galleys, manned by rowers and spear-wielding warriors wearing "hedgehog helmet"-style headgear,⁶ which is likely equivalent to the feathered headdresses seen most prominently in depictions of the "Sea Peoples" at Medinet Habu.⁷ These "feather-hatted" and "hedgehog-helmeted" warriors suddenly appear around the Aegean and Eastern

⁶ Dakoronia 1990; *id.* 1996; *id.* 2006; Wachsmann 1998: 130–132; Emanuel 2015.

⁷ Sandars 1985: 134; Vermeule – Karageorghis 1982: 132; Mountjoy 2005: 425; Yasur-Landau 2013: 30, 34.

Fig. 5

Sea battle illustration
on a Transitional
LH IIIB2–IIIC Early
(or LH IIIC) krater from
Bademgediği Tepe
(Mountjoy 2011: fig. 3).



Mediterranean at this time, and it may be no coincidence that some of their earliest representations can be found in the earliest scenes of naval combat, and in conjunction with oared galleys (Yasur-Landau 2013: 27; Emanuel 2015). The earliest representation of this type of headdress may be found on a late 13th–early 12th century BCE krater from Bademgediği Tepe (ancient Puranda) in western Anatolia (Meriç – Mountjoy 2002: 92; Mountjoy 2005; *id.* 2011: 484, 487). Like the Kynos krater (and like the Medinet Habu relief more broadly), the Bademgediği Tepe vessel features a scene of naval combat, albeit an unfortunately fragmentary one. Atop the decks of two antithetic ships are rows of warriors holding spears and round shields (Fig. 5). We cannot see either ship’s rigging, but the vessel on the left (facing right) clearly depicts rowers manning oars on a level below that of the warriors, thus confirming the presence of at least partial decking, as on the Kynos vessels.

Though its sail, yard, and backstay are not pictured, the nearly complete ship at right on the Livanates krater, referred to as “Kynos A,” is clearly outfitted with the brailed rig (Fig. 6). Though it is clear that Kynos A is closely related to the ships depicted at Medinet Habu, there are structural differences between this painted representation and the vessels shown in Ramesses III’s famous relief. The yards and sails so clearly shown at Medinet Habu are absent from the Kynos vessels, and the latter also lack crow’s nests atop their masts. Though we should always remember that the absence of a feature in iconography does not necessitate its physical or historical absence (after all, even the most faithful representations of ships are not ships themselves! (Wachsmann 2013: xviii–xix)), the crow’s nest is not a known feature of Helladic or Egyptian vessels in the pre-Medinet Habu period (cf. Wachsmann 1998: 253). The first crow’s nests to appear in LBA representations of seagoing ships come from Egyptian depictions of Syro-Canaanite vessels, and are found in the 18th dynasty tomb of Kenamun (TT 162) and the 19th–20th Dynasty tomb of Iniwia (Landström 1970 figs. 403, 406). Because of this, it has

**Fig. 6**

Sea battle illustration on a LH IIIC Middle krater from Pyrgos Livanaton (Mountjoy 2011: fig. 2).

been suggested quite plausibly that the crow's nest originated in the area of the Syro-Canaanite littoral (e.g. Davies – Faulkner 1947: 43; Wachsmann 1981: 214; *id.* 1998: 51, 56). Given their regular contact with the region, as well as the clear value of a lookout on a raised platform for raiding and paramilitary functions, it is perhaps unsurprising that some group(s) of Sea Peoples may have adopted the crow's nest from Levantine seafarers along with the brailed rig (Wachsmann 1981: 214–216; *id.* 1998: 252; *id.* 2013: 262 n.135).

Transference to Egypt

The Saqqara relief demonstrates that Egyptians came into contact with the brailed rig and top-mounted crow's nest prior to Medinet Habu (likely by a century or more). However, they do not seem to have adopted it immediately. Why is this, and who might have provided the knowledge and the impetus for the implementation of this innovation?

As noted above, these new elements of maritime technology only appear on Egyptian vessels once: in the context of a naval battle against the identically-equipped ships of the Sea Peoples. This suggests there was little impetus for its adoption prior to the increase until around that time. In light of this, I would suggest that, rather than adopting this technology directly from Syro-Canaanite shipwrights, its transfer may have taken place through contact with the aforementioned “pirates, raiders, and traders” Artzy's “nomads of the sea” during the century prior to Ramesses III's famous battle. The first overt mention in the Ramesside period of seaborne threats against Egypt can be found in the formulaic Aswan stele of Ramesses II's second year, in which the pharaoh claims (among other conquests) to have “destroyed the warriors of the Great Green (Sea)” so that Lower Egypt can “spend the night sleeping peacefully” (Kitchen 1996: 182, hence-

forth RITAT II; de Rougé 1877: 253.8; cf. Emanuel 2013: 24 n. 30). Ramesses mentions these raiders by name in the Tanis II rhetorical stele: “Sherden...came bold-hearted... in warships from the midst of the Sea,” he claims, and were defeated and “carried off to Egypt” as prisoners (RITAT II 120).

As the first Sea Peoples group to be specifically named as such in the Egyptian sources and the first whose capture and impressment is documented (Emanuel 2013: 15) it is worth considering that elements of the ships sailed by the these raiders at the time of their initial defeat by Ramesses II may have been used as prototypes for the hybrid Egyptian vessels that were sailed against the maritime component of the later invasion. Though it should not be assumed that the Sherden hailed from the Aegean (or that the warriors with horned helmets in the Medinet Habu naval relief are, in fact, Sherden), there is good reason to associate this group with a variation of the Helladic oared galley.

First, the Sherden are associated with their fellow Sea Peoples by virtue of their apparent participation in two separate invasions: the Libyan migration of Merneptah’s fifth year, and the invasion of Ramesses III’s eighth year as recounted in the posthumous Great Harris Papyrus (not the version inscribed at Medinet Habu). The second is a model, recently republished by Wachsmann, of a Helladic galley from Gurob in Middle Egypt (Wachsmann 2013). The model features a curved hull; stanchions, which on a real ship would have supported the superstructure and partial decking; and a stem-post decorated with what may be an upturned bird’s head similar to those on the Kynos vessels and other Helladic galley representations.

The Sherden are connected to the region where the model was discovered by the monumental Wilbour Papyrus, a registry from the reign of Ramesses V that assesses landholdings in Middle Egypt for tax purposes. Over 100 Sherden, “standard-bearers of the Sherden,” and “retainers of the Sherden,” sometimes “together with [their] brethren,” are listed in the document as landowners and occupiers. These Sherden bear “good Egyptian names” (Gardiner 1948a: 80), and appear amid frequent mentions of multigenerational residency (Gardiner 1948a: 80; *id.* 1948b: 28, 62, e.g., §§59.27.19 and 150.59.9, 25). While this seems to support significant Egyptianisation by this time, the continuation of the term “Sherden” as an identifier for individuals at least into the 11th century BCE, along with the Gurob ship-cart model, suggests that not all of these individuals had yet become assimilated (Emanuel 2013: 18–19, 21; Wachsmann 2013: 206).

None of the Sherden listed in P. Wilbour are explicitly associated with maritime pursuits, this should not necessarily be surprising, and it may even have been by design (Emanuel 2013: 15, 25 n. 35). The seafaring nature of the Sherden is clear from the previously discussed evidence. However, an effort may to have been made to downplay the nautical affinities of those who had entered Egyptian service and society. For example, Sherden in the Egyptian military and society are

never referred to as being “of the Sea,” an epithet that appears to be reserved for those fighting against Egypt. It is possible that this may also help explain the variation in the horned helmets seen in the Medinet Habu naval battle and the traditional depiction of Sherden headgear as a type of “our Sherden” versus “their Sherden” representation (Roberts 2009). Altogether, though, the ship-cart from Gurob, if properly attributed to a Sherden, is powerful evidence not only for this group’s association with the Helladic oared galley, but also for at least one member’s attempt to maintain his foreign identity during what seems to have been a period of accelerated acculturation into Egyptian society.

Changes in Egyptian Terminology

Returning to Tanis II for a moment, it is noteworthy that the encounter it describes was unique enough that it apparently forced the Egyptians to invent a new term for “warship” in order to commemorate it.⁸ The result was the vivid, if stilted, $\text{ḥ}^{\text{r}}\text{w } \text{ḥ}^{\text{z}}$ (*m-ḥry-ib p3 ym*), which can be literally translated as “ships of fighting (in the heart of the sea).” As seagoing ships had been used for some time in the Egyptian military,⁹ the need to fabricate a new term suggests something new in the minds of the Egyptians responsible for its transmission or documentation. This may mean the Sherden sailed in a new type of vessel, that they employed new raiding tactics, or (likely) a combination of both (Emanuel 2013: 15).

As Artzy has previously suggested (Artzy 1988; *id.* 1997: 3 n.10), the introduction of a new vessel type into the Egyptian repertoire (and vocabulary) may also be supported by the determinatives used in the Tanis II inscription and in Ramesses III’s Inscription of Year 8 at Medinet Habu. The determinative utilized with $\text{ḥ}^{\text{r}}\text{w}$ in Tanis II is a typical Late Bronze Age Syro-Canaanite ship, similar in form to the aforementioned trading vessels depicted in the 18th Dynasty Tomb of Kenamun (Yoyotte 1949: 67; Landström 1970 fig. 403). At Medinet Habu, on the other hand, the determinatives are dramatically different. The Year 8 inscription mentions ships four times: the Sea Peoples’ ships are referenced once, and three types of Egyptian vessels are said to have been “prepared like a strong wall... along the Nile mouth” against the assault (MH I pl. 46, col. 20; Edgerton – Wilson 1936: 54). Each reference to an Egyptian ship is accompanied by a distinct determinative, which seems related to that ship’s function. Most interestingly, the ḥ^{r} ship, known terminologically from Tanis II, is paired with a different determinative in Ramesses III’s inscription. Instead of a Syro-Canaanite cargo ship, the determinative used at Medinet Habu appears to be a vessel of the same type as that manned by the Egyptians in the naval battle relief.

⁸ Yoyotte 1949: 67; Kitchen 1999: 174 (henceforth RITANC II; Emanuel 2013: 15).

⁹ Spiegelberg 1896: 82.5; Sethe 1909: 998.1; Jones 1988: 130.5, 131.13; cf. also Faulkner 1941: 18.

Experimentation and Familiarization

The Egyptian iconographic record contains a small number of images that may depict experimentation with the brailed rig. Each of these, however, is problematic, primarily because of the presence of a boom in the most secure representations (Vinson 1993; *id.* 1994). At Medinet Habu, on the other hand, the brailed rig is paired with a loose-footed square-sail. Further, though the Saqqara relief suggests that Egyptians may have come into contact with this rig via Syro-Canaanite traders in the late 18th or 19th Dynasties along with the top-mounted crow's nest it is possible that the full value of such a technological "package" only truly became apparent when the Sherden and their *ḥꜣw ḥꜣ m-ḥꜣy-ib pꜣ ym* were encountered (and likely captured) early in Ramesses II's reign. Of course, the distinction need not be binary, as both the Sherden and those aboard the ship offloading Canaanite amphorae in the Saqqara relief may belong to the population elements variously referred to as "pirates, raiders, and traders" or as "nomads of the sea" in other words, actors upon the periphery of the world stage, who interacted with those at the core and ensured the multidirectional flow not only of objects, but of ideas and of information (Artzy 1997; *id.* 1998; Sherratt 1998; *id.* 2003; Emanuel 2012; Gilan 2013; Hitchcock – Maeir 2014). These may even be related (or even identical!) groups; we simply lack the evidence, at present, to make such clear identifications and to draw such fine distinctions between the various individuals and groups operating in such capacities at this time. However, appropriating innovative maritime technology from these "rebellious-hearted" enemies in the first quarter of the 13th century BCE would have allowed for roughly a century of experimentation and familiarization prior to the snapshot in time etched on the walls of Medinet Habu.

Conclusion

Dissemination of materials, technology, customs, and information from core to periphery is commonly found throughout the study of systems, both ancient and modern. Of course, the flow of information, material, etc. never goes only one way. However, in the brailed rig, we appear to have a case of a technological innovation not only being transmitted from core to core, with the assistance of those on the periphery (as would be the case if it were being carried from, say, the Mycenaean Aegean to Ramesside Egypt by these seaborne intermediaries), but from individual peripheral actors to multiple cores with general simultaneity. While iconography suggests that this diffusion only achieved shallow penetration in Egypt, the vessel type memorialized at Medinet Habu is a clear forebear of the Greek *dieres* and Phoenician bireme of the Iron Age, two of the most important vessel types of the ancient world (Casson 1971: 55–60; Wachsmann 1998: 174). In this sense, even if these "nomads of the sea" were not responsible for inventing

the brailed rig, they seem to have served as a mechanism for its diffusion across the Mediterranean, where it remained a key piece of maritime technology for the next millennium and beyond.

Bibliography

Artzy, M.

1988 "War/Fighting Boats in the Second Millennium BC in the Eastern Mediterranean." *Report of the Department of Antiquities, Cyprus* 1988, 181–186.

1997 "Nomads of the Sea." In *Res Maritimae: Cyprus and the Eastern Mediterranean from Prehistory to Late Antiquity*, edited by S. Swiny, R. L. Hohlfelder, and H. W. Swiny, 1–16. ASOR Archaeological Reports 4. Atlanta: Scholars Press.

1998 "Routes, Trade, Boats, and 'Nomads of the Sea'." In *Mediterranean Peoples in Transition, Thirteenth to Early Tenth Centuries BCE*, edited by S. Gitin, A. Mazar, and E. Stern, 439–448. Jerusalem: Israel Exploration Society.

2003 "Mariners and their Boats at the End of the Late Bronze Age and the Beginning of the Iron Age in the Eastern Mediterranean." *Tel Aviv* 30, 232–246.

2013 "On the Other Sea Peoples." In *The Philistines and Other 'Sea Peoples' in Text and Archaeology*, edited by A. E. Killebrew, and G. Lehmann, 329–344. Atlanta: Society of Biblical Literature.

Baruffi, J. T.

1998 *Naval Warfare Operations in the Bronze Age Eastern Mediterranean*. Chicago: University of Chicago, unpublished Ph.D. dissertation.

Basch, L.

1987 *Le musée imaginaire de la marine antique*. Athens: Institut hellénique pour la préservation de la tradition nautique.

Breasted, J. H.

1906–1907 *Ancient Records of Egypt*, 2. Chicago: University of Chicago Press.

Capart, J.

1931 *Documents pour servir à l'étude de l'art égyptien*, 2. Paris: Les éditions du Pégase.

Casson, L.

1971 *Ships and SeamanSHIP in the Ancient World*. Princeton: Princeton University Press.

Dakoronia, Ph.

1990 "War-Ships on Sherds of LHIIIC Kraters from Kynos." In *TROPIS II: 2nd International Symposium on Ship Construction in Antiquity*, edited by H. Tzalas, 117–122. Athens: Hellenic Institute for the Preservation of Nautical Tradition.

1996 "Kynos...Fleet." In *TROPIS IV: 4th International Symposium on Ship Construction in Antiquity*, edited by H. Tzalas, 159–172. Athens: Hellenic Institute for the Preservation of Nautical Tradition.

2006 "Mycenaean Pictorial Style at Kynos, East Locris." In *Pictorial Pursuits: Figurative Painting on Mycenaean and Geometric Pottery*, edited by E. Rystedt, and B. Wells, 23–29. Skrifter Utgivna av Svenska institutet i Athen 53. Stockholm: Svenska Institutet i Athen.

Davies, N. de G. – Faulkner, R. O.

1947 "A Syrian Trading Venture to Egypt." *Journal of Egyptian Archaeology* 33, 40–46.

- Edgerton, W. F. – Wilson, J. A.
 1936 *Historical Records of Ramesses III: Texts in Medinet Habu I–II. Translated With Explanatory Notes*, Studies in Ancient Oriental Civilizations 12. Chicago: University of Chicago Press.
- Emanuel, J. P.
 2012 “Cretan Lie and Historical Truth: Examining Odysseus’ Raid on Egypt in its Late Bronze Age Context.” In *Donum Natalicium Digitaliter Confectum Gregorio Nagy Septuagenario a Discipulis Collegis Familiaribus Oblatum*, edited by V. Bers, D. Elmer, D. Frame, and L. Muellner, 1–41. Washington, DC: Harvard Center for Hellenic Studies.
- 2013 “Šrdn from the Sea: The Arrival, Integration, and Acculturation of a Sea People.” *Journal of Ancient Egyptian Interconnections* 5/1, 14–27.
- 2015 “The Late Bronze-Early Iron Transition: Changes in Warriors and Warfare and the Earliest Recorded Naval Battles.” In *Ancient Warfare: Introducing Current Research*, edited by G. Lee, H. Whittaker, and G. Whightson, 191–209. Cambridge: Cambridge Scholars Press.
- Epigraphic Survey
 1930 *Medinet Habu I. Earlier Historical Records of Ramses III*, Oriental Institute Publications 8. Chicago: University of Chicago Press.
- Faulkner, R. O.
 1941 “Egyptian Military Standards.” *Journal of Egyptian Archaeology* 27, 12–18.
- Gardiner, A. H.
 1948a *The Wilbour Papyrus II: Commentary*. London: Oxford University Press.
 1948b *The Wilbour Papyrus III: Translation*. London: Oxford University Press.
- Georgiou, H. S.
 2012 “Bronze Age Sailing and Homeric Evidence.” In *Archaeology and Heinrich Schliemann: A Century After His Death: Assessments and Prospects, Myth–History–Science*, edited by G. S. Korres, N. Karadimas, and G. Flouda, 523–529. Athens, http://www.aegeussociety.org/images/uploads/publications/schliemann/Schliemann_2012_523-530_Georgiou.pdf (accessed on 3 June 2015).
- Gilan, A.
 2013 “Pirates in the Mediterranean A View from the Bronze Age.” *Mittelmeerstudien* 3, 49–66.
- Glanville, S. R. K.
 1930 “Records of a Royal Dockyard at the Time of Thutmose III: Papyrus British Museum 10056, Part I.” *Zeitschrift für Ägyptische Sprache und Altertumskunde* 66, 105–121.
 1932 “Records of a Royal Dockyard at the Time of Thutmose III: Papyrus British Museum 10056, Part II.” *Zeitschrift für Ägyptische Sprache und Altertumskunde* 68, 7–41.
- Hitchcock, L. A. – Maier, A. M.
 2014 “Yo-ho, Yo-ho, a Seren’s Life for Me.” *World Archaeology* 20, 1–17.
- Horden, P. – Purcell, N.
 2000 *The Corrupting Sea: A Study of Mediterranean History*. Oxford – Malden: Blackwell.
- Jones, D.
 1988 *A Glossary of Ancient Egyptian Nautical Titles and Terms*. London – New York: Kegan Paul International – Routledge.
 1995 *Boats*. Austin: University of Texas Press.

- Killebrew, A. E.
2007 "The Canaanite Storage Jar Revisited." In *Up to the Gates of Ekron: Essays on the Archaeology and History of the Eastern Mediterranean in Honor of Seymour Gitin*, edited by S. White Crawford, A. Ben-Tor, J. P. Dessel, W. G. Dever, A. Mazar, and J. Aviram, 166–188. Jerusalem: Israel Exploration Society.
- Kitchen, K. A.
1996 *Ramesside Inscriptions Translated and Annotated: Translations II*. Oxford: Blackwell.
1999 *Ramesside Inscriptions Translated and Annotated: Notes and Comments, 2*. Oxford: Blackwell.
- Landström, B.
1970 *Ships of the Pharaohs: 4000 Years of Egyptian Shipbuilding*. Garden City: Doubleday.
- Linder, E.
1970 "Naval Warfare in the El-Amarna Age." In *Marine Archaeology*, edited by D. J. Blackman, 317–324. Colston Papers 23. Hamden: Archon Books.
- Mark, S. E.
2000 *Homeric Seafaring*. College Station: Texas A&M University, unpublished Ph.D dissertation.
- Meriç, R. – Mountjoy, P.
2002 "Mycenaean Pottery from Bademgediği Tepe (Puranda) in Ionia: A Preliminary Report." *Istanbulur Mitteilungen* 52, 79–98.
- Millet, N. B.
1987 "The First Appearance of the Loose-Footed Squaresail Rig in the Mediterranean." *Journal of the Society for the Study of Egyptian Antiquities* 17, 89–91.
- Mountjoy, P. A.
1998 "The East Aegean-West Anatolian Interface in the Late Bronze Age: Mycenaean and the Kingdom of Ahhiyawa." *Anatolian Studies* 48, 33–67.
2005 "Mycenaean Connections with the Near East in LH IIIC: Ships and Sea Peoples." In *Emporia: Aegeans in the Central and Eastern Mediterranean*, edited by R. Laffineur, and E. Greco, 423–431. Aegaeum 25. Liège: Université de Liège.
2011 "A Bronze Age Ship from Ashkelon with Particular Reference to the Bronze Age Ship from Bademgediği Tepe." *American Journal of Archaeology* 115/4, 483–488.
- Nelson, H. H.
1943 "The Naval Battle Pictured at Medinet Habu." *Journal of Near Eastern Studies* 2, 40–55.
- Ormerod, H. A.
1924 *Piracy in the Ancient World*. London: Hodder and Stoughton.
- Parkinson, W. A. – Galaty, M. L., eds.
2009 *Archaic State Interaction: The Eastern Mediterranean in the Bronze Age*. Santa Fe: School for Advanced Research Press.
- Raban, A.
1989 "The Medinet Habu Ships: Another Interpretation." *International Journal of Nautical Archaeology* 18/2, 163–171.
- Roberts, O. T. P.
1991 "The Development of the Brail into a Viable Sail Control for Aegean Boats of the

- Bronze Age." In *Thalassa: L'Égée préhistorique et la mer*, edited by R. Laffineur, and L. Basch, 55–64. Aegaeum 7. Liège: Université de Liège.
- Roberts, R. G.
 2009 "Identity, Choice and the Year 8 Reliefs of Ramesses III at Medinet Habu." In *Forces of Transformation: The End of the Bronze Age in the Mediterranean*, edited by C. Bachhuber, and R. G. Roberts, 60–68. BANEA Themes from the Ancient Near East 1. Oxford: Oxbow.
- de Rougé, E.
 1877 *Inscriptions hiéroglyphiques copiées en Égypte pendant la mission scientifique de M. le Vicomte Emmanuel de Rougé*. Paris: F. Vieweg.
- Routledge, B. – McGeough, K.
 2009 "Just What Collapsed? A Network Perspective on 'Palatial' and 'Private' Trade at Ugarit." In *Forces of Transformation: The End of the Bronze Age in the Mediterranean*, edited by C. Bachhuber, and R. G. Roberts, 22–29. BANEA Themes from the Ancient Near East 1. Oxford: Oxbow.
- Sandars, N. K.
 1985 [1978] *The Sea Peoples: Warriors of the Ancient Mediterranean*, 2nd ed. London: Thames and Hudson.
- Säve-Söderbergh, T.
 1957 *Four Eighteenth Dynasty Tombs, Private Tombs at Thebes 1*. Oxford: University Press.
- Schulman, A. R.
 1968 "A Private Triumph in Brooklyn, Hildesheim, and Berlin." *Journal of the American Research Center in Egypt* 7, 27–35.
- Sethe, K.
 1909 *Urkunden des Ägyptischen Altertums IV, Urkunden der 18. Dynastie IV*. Leipzig: J. C. Hinrichs.
- Sherratt, E. S.
 1998 "Sea Peoples and the Economic Structure of the Late Second Millennium in the Eastern Mediterranean." In *Mediterranean Peoples in Transition: Thirteenth to Early Tenth Centuries BCE*, edited by S. Gitin, A. Mazar, and E. Stern, 282–314. Jerusalem: Israel Exploration Society.
 2003 "The Mediterranean Economy: 'Globalization' at the End of the Second Millennium B.C.E." In *Symbiosis, Symbolism, and the Power of the Past: Canaan, Ancient Israel, and Their Neighbors from the Late Bronze Age Through Roman Palaestina*, edited by W. G. Dever, and S. Gitin, 37–62. Winona Lake: Eisenbrauns.
- Sherratt, A. – Sherratt, E. S.
 1998 "Small Worlds: Interaction and Identity in the Ancient Mediterranean." In *The Aegean and the Orient in the Second Millennium*, edited by E. H. Cline, and D. Harris-Cline, 329–343. Aegaeum 18. Liège: Université de Liège.
- Siddall, R.
 2013 "Analysis of the Pigments from the Gurob Ship-Cart Model." In *The Gurob Ship-Cart Model and Its Mediterranean Context*, by S. Wachsmann, 243–247. College Station: Texas A&M University Press.

- Singer, I.
1983 "Western Anatolia in the Thirteenth Century B.C. According to the Hittite Sources." *Anatolian Studies* 33, 205–217.
2000 "New Evidence on the End of the Hittite Empire." In *The Sea Peoples and Their World: A Reassessment*, edited by E. Oren, 21–34. University Museum Symposium Series 11. Philadelphia: The University Museum, University of Pennsylvania.
2006 "Ships Bound for Lukka: A New Interpretation of the Companion Letters RS 94.2530 and RS 94.2523." *Altorientalische Forschungen* 33, 242–262.
- Sølver, C. V.
1936 "Egyptian Shipping of about 1500 B.C." *The Mariner's Mirror* 22, 430–469.
- Spiegelberg, W.
1896 *Rechnungen aus der Zeit Setis I.* Strassburg: K. J. Trübner.
- Stager, L. E.
1995 "The Impact of the Sea Peoples in Canaan (1185–1050 BCE)." In *The Archaeology of Society in the Holy Land*, edited by T. E. Levy, 332–348. London: Facts on File.
- Stager, L. E. – Mountjoy, P. A.
2007 "A Pictorial Krater from Philistine Ashkelon." In *Up to the Gates of Ekron: Essays on the Archaeology and History of the Eastern Mediterranean in Honor of Seymour Gitin*, edited by S. White Crawford, A. Ben-Tor, J. P. Dessel, W. G. Dever, A. Mazar, and J. Aviram, 50–61. Jerusalem: Israel Exploration Society.
- Stager, L. E. – Schloen, J. D. – Master, D. M., eds.
2008 *Ashkelon 1: Introduction and Overview*. Winona Lake: Eisenbrauns.
- Stern, E.
1991 "Phoenicians, Sikils, and Israelites in the Light of Recent Excavations at Dor." In *Phoenicia and the Bible*, edited by E. Lipiński, 85–94. *Studia Phoenicia* 11. Leuven: Peeters.
- Steffy, J. R.
1994 *Wooden Ship Building and the Interpretation of Shipwrecks*. College Station: Texas A&M University Press.
- Stieglitz, R. R.
2000 "Hebrew Seafaring in the Biblical Period." *Mediterranean Historical Review* 15/1, 5–15.
- Tartaron, T. F.
2013 *Maritime Networks in the Mycenaean World*. Cambridge: Cambridge University Press.
- Tiboni, F.
2005 "Weaving and Ancient Sails: Structural Changes to Ships as a Consequence of New Weaving Technology in the Mediterranean Late Bronze Age." *International Journal of Nautical Archaeology* 34/1, 127–130.
- Tzachili, I.
1999 "Before Sailing: The Making of Sails in the Second Millennium B.C." In *Melete-mata: Studies in Aegean Archaeology Presented to Malcolm H. Weiner as he Enters his 65th Year*, edited by P. Betancourt, V. Karageorghis, R. Laffineur, and W.-D. Niemeier, 857–862. *Aegaeum* 20. Liège: Université de Liège.

Vermeule, E. – Karageorghis, V.

1982 *Mycenaean Pictorial Vase Painting*. Cambridge: Harvard University Press.

Vinson, S.

1993 "The Earliest Representations of Brailed Sails." *Journal of the American Research Center in Egypt* 30, 133–150.

1994 *Egyptian Boats and Ships*. Buckinghamshire: Shire Publications.

Wachsmann, S.

1981 "The Ships of the Sea Peoples." *International Journal of Nautical Archaeology* 10/3, 187–220.

1982 "The Ships of the Sea Peoples: Additional Notes." *International Journal of Nautical Archaeology* 11/4, 297–304.

1998 *Seagoing Ships and Seamanship in the Bronze Age Levant*. College Station: Texas A&M University Press.

2000 "To the Sea of the Philistines." In *The Sea Peoples and Their World: A Reassessment*, edited by E. Oren, 103–143. University Museum Symposium Series 11. Philadelphia: The University Museum, University of Pennsylvania.

2013 *The Gurob Ship-Cart Model and its Mediterranean Context*. College Station: Texas A&M University Press.

Wedde, M.

1999 "War at Sea: The Mycenaean and Early Iron Age Oared Galley." In *Polemos: Le Contexte Guerrier en Égée à l'âge du Bronze*, edited by R. Laffineur, 465–476. Aegaeum 19. Liège: Université de Liège.

Wilson, J. A.

1974 "Egyptian Historical Texts." In *Ancient Near Eastern Texts Relating to the Old Testament*, edited by J. B. Pritchard, 227–263. Princeton: Princeton University Press.

Yasur-Landau, A.

2010 *The Philistines and the Aegean Migration at the End of the Late Bronze Age*. Cambridge: Cambridge University Press.

2013 "The 'Feathered Helmets' of the Sea Peoples: Joining the Iconographic and Archaeological Evidence." *Talanta* 44, 27–40.

Yoyotte, J.

1949 "Les Stèles de Ramsès II a Tanis: Première Partie." *Kémi* 10, 65–75.

