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# MARITIME WORLDS COLLIDE: AGENTS OF TRANSFERENCE AND THE METASTASIS OF SEABORNE THREATS AT THE END OF THE BRONZE AGE

JEFFREY P. EMANUEL 

*Primary sources from the end of the Bronze Age have long been read as suggesting a time of chaotic transition, particularly with regard to threats from the sea that the established powers had no means of combatting. While the scale and severity of seaborne attacks seems to have increased in the late 13th century, these were not in themselves new phenomena, as a state of maritime threat seems to have been a constant for coastal polities and mariners in the Late Bronze Age eastern Mediterranean. However, a combination of internal and external factors in the late 13th and early 12th centuries combined to make these attacks more effective than they had been in the past, and polities more vulnerable to them. These included the rapid spread of improvements in maritime technology, particularly from the Aegean and the Levant, via high-intensity ‘zones of transference’, as well as an increase in the scale of ship-based combat operations, due in part to the displacement of people during the Late Bronze Age collapse. This paper addresses this in two parts, beginning with the ‘background’ evidence for a constant state of maritime threat in the centuries leading up to the end of the Bronze Age, and concluding with the ‘foreground’ evidence for zones of transference and the transmission of groundbreaking elements of naval technology in the years surrounding the Late Bronze–Early Iron Age transition.*

## I. INTRODUCTION

Documentary evidence from the end of the Bronze Age in the Eastern Mediterranean is spectacular in its portrayal of a chaotic time of transition, with vivid textual references to fast-moving enemy ships which appear from nowhere, set fire to cities, and quickly disappear, leaving behind only ruin and fear. These texts and inscriptions are complemented by the famous sea battle depiction from Medinet Habu, an intense carved relief depicting naval combat whose painted original must have been striking to behold, as well as by fragments of pictorial pottery from the Greek mainland and western Anatolia showing ships of warriors facing off in combat on the high seas. The significance of these individual data points can certainly be overstated, and each has been imputed with its own share of significance at different times in the past. However, the collapse of the great Late Bronze Age civilizations around the turn of the 12th century BCE certainly attests to significant changes in the delicate balance of the eastern Mediterranean world at this time. While the appearance in the Late Bronze–Early Iron Age transition of true sea battles in Egyptian, Aegean, and Anatolian art is suggestive of a new and different threat, though, a certain level of low-intensity conflict seems to have been a constant along the Levantine coast at least as far north as Ugarit, as well as on Cyprus and in Egypt, throughout the Late Bronze Age.

Rather than amphibious warfare being a new phenomenon, then, the established powers had experience dealing with these threats. In spite of this, a combination of internal and external factors in the late 13th and early 12th centuries combined to make seaborne attacks more effective than they had been in the past, and polities more vulnerable to them. These included the rapid spread of improvements in maritime technology via high-intensity ‘zones of

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transference,' as well as an increase in the scale of ship-based hostilities, due in part to the displacement of people during the Late Bronze Age collapse.

In order to properly understand the role of these changes at the end of the Bronze Age, it will be beneficial to first review the evidence for this constant state of sea-based conflict, considering the brief increases in intensity and corresponding lulls in light of some specific actions—and, in the case of some Ugaritic and Hittite texts, some less specific allusions to action—taken in response to these ongoing threats. Following this, we will discuss the role of 'zones of transference' in the spread of ideas and innovations, before considering the role of Levantine 'agents of transference' in the development and spread of the maritime technology that was so critical to the events at the end of the Late Bronze Age.

## 2. BACKGROUND I: EARLY THREATS AND COASTAL FORTIFICATIONS

Evidence from 18th dynasty sources suggest that both Egypt and Cyprus in particular were regular targets of seaborne raiders, probably by multiple aggressors. Some of these were identified with the geographic region of Lycia by the king of Alašiya, whose letter to the Egyptian pharaoh (Amarna letter EA 38) simultaneously declares his own innocence with regard to the charge of sanctioning raids on Egypt, and denounces the "men of Lukki" whom, he claims, wage annual campaigns against his own territory (Moran 1992, 111). Meanwhile, an Egyptian inscription commissioned by Amenhotep son of Hapu, dating to the reign of Amenhotep III, refers to establishing defenses "at the heads of the river-mouths", likely a measure taken against maritime raiders (Breasted 1906–7, §916; Helck 1979, 133). After the date of this inscription, but still a full century prior to the vividly depicted battles of Ramesses III's reign, Ramesses II claimed in the Aswan stele of his second year to have "destroyed" [fh; also 'captured'] the warriors of the Great Green (Sea)", so that Lower Egypt can "spend the night sleeping peacefully" (de Rougé 1877, 253.8; Kitchen 1996, 182). In a separate inscription on the Tanis II rhetorical stele, Ramesses mentions the defeat and conscription of seaborne Sherden warriors "whom none could ever fight against, who came bold-[hearted], in warships from the midst of the Sea, those whom none could withstand" (Kitchen 1996, 120). This is frequently assumed to have been the same battle as that referenced in the Aswan stele, although there is no clear evidence that this is the case (Cline and O'Connor 2012, 186). The aggressor is not named in the Aswan inscription, and the frequency with which the coasts of Egypt seem to have been raided during this period certainly leaves open the possibility that this text refers to a different adversary. Likewise, the likely 'mixed multitude' nature of these raiders, discussed further below, suggests that even references to the same 'groups' might not refer to the people from the same point of origin, nor to people with a single cohesive identity.

Based on its absence from extant written accounts, the defeat of these "bold-hearted" enemies seems to have coincided with a temporary dissipation of the threat to Egypt from maritime raiders, which seems to have lasted for the remainder of Ramesses II's reign. The defeat and capture of the Sherden and the raiders mentioned in the Aswan stele may have contributed to this, as may the series of forts Ramesses II established in the western Delta and along the North African coast, from Memphis to as far west as Zawiyet Umm el-Rakham, some 300 km from Alexandria. While these fortresses likely served multiple purposes, such as protecting water sources and serving as depots or processing centres into Egypt from beyond her borders, as can be seen, for example, at the site of Askut in Nubia (Smith 1991, 125; Morris 2005, 821, 827), one of their main purposes seems likely to have been defense of the desert coast and the fertile Nile Delta from sea raiders, from restless, eastward-looking Libyans, or from a combination of both (Habachi 1980; Yurco 1999, 877; Snape 2010, 273–275). This seems particularly true for Zawiyet Umm el-Rakham, an "isolated military outpost reared against a backdrop of near total emptiness" located at the western edge of

the Egyptian frontier (White and White 1996, 29). Zawiyet Umm el-Rakham sat a scant 20 km west of Marsa Matruh, the small, lagooned site that may have served as a revictualing station for mariners, and may have been the southwesternmost known point on the Late Bronze Age maritime trading circuit, or perhaps even have been a base for pirates, much as the coastal waters of Crete and Cilicia were at times (White 1986; 1999; Hulin 2002; Bietak 2015; Hitchcock and Maer 2016).

Effective as they may have been for the duration of his lengthy reign, Ramesses II's line of fortresses does not appear to have survived beyond his death in 1213 BCE. As these defenses went out of use, as if on cue, the Sea Peoples arose once again in Pharaonic records, this time in the accounts of Merneptah (P. Anastasi II and the accounts of the Libyan invasion) and, ultimately, those of Ramesses III.

### 3. BACKGROUND II: UGARIT, ḪATTI, AND ALAŠIYA

Frequently-cited texts from Ḫatti and Ugarit of likely 13th and early 12th century date may either demonstrate the devolution of the Late Bronze Age Mediterranean system, or provide further evidence for continuous conflict between maritime raiders and coastal polities (as well as larger powers who owned an interest in the latter). Two texts from Ugarit, RSL 1 and RS 20.238, are both particularly relevant and often treated as companion letters. In the former, the sender—likely either the king of Alašiya or the king of Karkemiš—admonishes King 'Ammurapi of Ugarit to prepare the city against a rapidly-approaching seaborne enemy: "If indeed they have spotted [enemy] ships", he writes, "make yourself as strong as possible. [...] Surround your towns with walls; bring troops and chariotry inside. [Then] wait at full strength for the enemy" (Hoftijzer and Van Soldt 1998, 343–344; Singer 2011, 117 n.394).

The second text, a letter from 'Ammurapi to the king of Alašiya, has traditionally been seen as a response to RSL 1, although this is obviously not the case if the latter was sent from Karkemiš. 'Ammurapi writes that "the ships of the enemy have been coming. They have been setting fire to my cities and have done harm to the land. Doesn't my father know that all of my infantry and [chariotry] are stationed in Ḫatti, and that all of my ships are stationed in the land of Lukka?" He concludes with a report and a plea: "Now the seven ships of the enemy which have been coming have done harm to us. Now if other ships of the enemy turn up, send me a report somehow(?) so that I will know" (Hoftijzer and Van Soldt 1998, 343). Also relevant is a report sent from the prefect of Alašiya to 'Ammurapi, which states that "(the) twenty enemy ships—even before they would reach the mountain (shore)—have not stayed around but have quickly moved on, and where they have pitched camp we do not know" (Hoftijzer and Van Soldt 1998, 343). These numbers presented no small threat: depending on their size, the seven ships listed in RS 20.238 may have contained up to 350 rowers (and, therefore, potential warriors), while the twenty ships mentioned in RS 20.18 may have collectively contained as many as one thousand if each was a fifty-oared *pentekontor* (Emanuel 2015b, 203–204).

Traditional assumptions aside, the relationship between these texts is difficult to discern, as is their meaning. They clearly speak of a threat, particularly from the sea, and of circumstances which seem to have prevented Ugarit from mounting a proper defense of its borders, but they also raise several questions. In particular, why were Ammurapi's ships "stationed in the land of Lukka" instead of at their home port at this time of need? Two other texts, RS 94.2530 and RS 94.2523 (now christened Aḫḫiyawa Text 27A and AhT 27B; Beckman, Bryce and Cline 2011) describe a mission to Lukka on behalf of Ḫatti, to deliver a shipment of metal ingots to "the (Aḫḫiyawans)". Does this, or a similar undertaking, explain their absence from Ugarit at this critical time, as Singer (2006, 250) once suggested? If so, this seems to have been an extraordinarily poorly-timed expedition, particularly because it

evidently removed the entire Ugaritic fleet from its home port and thereby abandoned the defense of their coastal waters.

The idea that it would have taken every serviceable ship at ‘Ammurapi’s disposal to carry out this venture is difficult to accept, particularly in light of the key role the Ugaritic fleet seems to have played in Ḫatti’s maritime strategy, such as it was—a fact recognized in Karkemiš, as evidenced by RS 34.138, a letter instructing the queen of Ugarit that she may not send her ships to places more distant than Byblos and Sidon on the Phoenician coast (Singer 2000, 22). What, then, can help us make sense of this situation? It is admittedly speculative, but perhaps Ugarit maintained a number of combat-capable vessels, much smaller than its merchant fleet, which carried the dual charge of defending the coastal waters against pirates and invaders and escorting shipments of particular value or import to foreign ports.<sup>1</sup> As we have seen, piratical activity was a significant threat at this time, and individual merchants and polities alike may have attempted to mitigate this threat in part by placing armed individuals on heavily-laden merchant ships, as suggested by the Syrian, Aegean, and possibly Balkan or Italic weapons and armor on the Uluburun vessel (Pulak 1998, 207–208; Yasur-Landau 2010, 44; Sauvage 2012, 171, 290). Could it be possible that vessels carrying precious cargo were also provided with combat-equipped escorts? If this were the case, then ‘Ammurapi’s declaration that “all of my ships are stationed in the land of Lukka [and] haven’t arrived back yet” may mean that this critical, albeit notional, subset of the Ugaritic fleet was, most inopportunistly, away on such an escort mission when the enemy ships were wreaking havoc on the city and its surrounding territory (but cf. Singer 2011 65–66).

The companion complaint that Ugarit’s infantry and chariotry were “stationed in Ḫatti” may be related to events taking place elsewhere in northwestern Syria at this time, as well. Two texts, RS 16.402 and RS 34.143, address the king of Ugarit’s unwillingness to send troops to the aid of the Hittite viceroy in Karkemiš, who was responsible for overseeing the vassal state of Ugarit on behalf of the Hittite king. The viceroy was evidently dealing with an enemy that had established what Singer referred to as a “bridgehead” in Mukiš (Singer 2011, 119–121). In the Ugaritic letter RS 16.402, a representative informs the queen that the enemy is in Mukiš, while RS 34.143, the king of Karkemiš accuses the king of Ugarit of misrepresenting the location of his army, which is evidently supposed to be aiding the combat effort in Mukiš, but is positioned in the northern city of Apšuna instead. Mukiš consisted of the ‘Amuq plain and its surrounding areas, with its major center at Alalakh. Could the enemy movement in Mukiš recorded in RS 16.402 and RS 34.143 be connected to the arrival in the ‘Amuq of the intrusive people (or peoples) with Cypro-Aegean affinities who would ultimately settle Tell Ta’yinat and the surrounding area and establish the polity of *Palistin* (Harrison 2009; Janeway 2013; Emanuel 2015a)? We should note again that this is not confirmed by text or archaeology, but rather is one possible conclusion that could be drawn from a synthesis of the available evidence. Alternatively (or also), it is possible that this overland movement through Mukiš is related to the seaborne threats noted in RS 20.18 and RS 20.238, and that it should therefore be seen as the land component of a combined land and sea assault. This would be a similar situation to that described by the Hittite king Šuppiluliuma II (KBo XII 38), who claimed that he met “ships of Alašiya [...] in the sea three times for battle.” He continues, “and I smote them; and I seized the ships and set fire to them in the sea. But when I arrived on dry land(?), the enemies from Alašiya came in multitude against me for battle [...]” (Güterbock 1967, 78).

Based on the Medinet Habu inscriptions and this Hittite claim to having fought three sea battles and a land battle against the “enemies from Alašiya”, the tactic of parallel land and sea assaults seems to have been the *modus operandi* of at least some groups at this time—perhaps one or more of those we associate with the ‘Sea Peoples’. Whatever the reason for Ugarit’s dire defensive situation, the seven ships of RS 20.238 seem to have been sufficient to cause

significant damage to the lands under his control. We cannot be certain where these texts fit in Ugarit's late history, nor if they are representative of anything other than the standard threats a wealthy coastal polity had to endure from the sea simply as what we might call "the price of doing business." However, as noted above, the destruction and permanent abandonment of the site attests to the fact that something did eventually change in the early 12th century, and that Ugarit finally met an aggressor whose attacks it could neither fend off nor recover from.

#### 4. FOREGROUND I: INTERCONNECTIVITY AND MARITIME ZONES OF TRANSFERENCE

Geography and topography naturally lend themselves to some territories becoming the heavily trafficked crossroads between people and polities, with some of these, in turn, becoming what we may call 'zones of transference'. We use this term carefully, with the intention of communicating the idea of a zone of contact, communication, and the transmission of ideas and innovations, but with conscious avoidance of the implications of asymmetry that are implicit in the term 'contact zone', which was coined by Pratt to address intercultural contact "in contexts of highly asymmetrical relations of power, such as colonialism, slavery, or their aftermaths" (Pratt 1991, 34). These zones of transference do not facilitate the simple unidirectional transmission of an idea or innovation; they instead lay the groundwork for a multidirectional, multilayered diffusion of technologies and cultural influence. Though not identical, these zones of transference may overlap to a degree with zones of 'transculturation' or 'entanglement' (Hitchcock 2011; Hitchcock and Maeir 2013), in which intense contact has resulted in the fusion of aspects of multiple material cultures or customs. Once again, this terminology has been carefully selected, and it represents a shift from language we have employed in the past (Emanuel 2014, 42–46). While the term 'hybridity' has commonly been used to describe this combination of multiple cultural features, it brings with it the baggage associated with colonial studies, where it has been variously described as "exceptions within a system that is at once exclusivistic and dependent upon the recognition of difference" between coloniser and colonised (Dean and Leibsohn 2003, 6), and as the moment "in which the discourse of colonial authority loses its univocal grip on meaning and finds itself open to the trace of the language of the other" (Young 1995, 22). Thus, not only does the term *hybrid* carry with it an association of undue dominance, but it also implicitly suggests a connection between only two parties—the colonizer and colonized, or the dominant and dominated (but cf. Feldman 2006, 59–63). When we speak of the Late Bronze Age eastern Mediterranean, on the other hand, we are speaking of multiple cultures—Levantine, Anatolian, Cypriot, Egyptian, and Aegean, and all of the variation and nuance within each—interacting at once, both directly and at various levels of remove. Because of this, we follow Hitchcock and Maeir (2013) in describing this exchange, and the resulting culture (both material and in terms of action and custom), as 'transcultural'.

While transculturation can be one result of direct communication, we envision these zones of transference in their purest sense as areas within which multidirectional transmission of ideas and innovations can and does take place without necessitating an immediate change on the part of either party involved in the transmission. Rather, once successfully transmitted, these innovations can be adapted to suit the purpose of their end user, or incorporated into a transculturated final product, which is then placed or employed in a context suitable to the adoptive culture or individual (Feldman 2006, 175, 194; 2014).<sup>2</sup> The key, though, is that this can be done at a level of remove from the initial transfer. In other words, such transference can have a 'trickle down' effect, whereby knowledge is transferred at one point, and diffused at several levels, and potentially over several years, from there. These zones are a component of, but not synonymous with, cultural *koines*, such as the east Aegean *koine* of the LH IIIB and IIIC, where the shapes and motifs found there represent the absorption of Mycenaean cultural

elements into the east Aegean material culture (Mountjoy 1998, 37), or the wider geographic area and stylistic repertoire covered by the ‘international style’ of art and luxury goods in the Late Bronze Age eastern Mediterranean (Caubet 1998; Feldman 2002; 2006).<sup>3</sup> Rather than representing the territory covered by a *koine*, though, these zones can make up the areas in which the transference takes place—of ideas, techniques, and individuals—that lays the groundwork for the construction of such a *koine*.

For these ‘zones of transference’ to function, ‘agents of transference’ are also required. This can be illustrated by the maritime ‘small worlds’ framework of interconnecting *cabotage* circuits (Earle 2008, 133 n.164), whereby the long haul portions of international trade routes—between, for example, Ugarit or Cyprus and Kommos or the Peloponnese—were supplemented by local transshippers, who distributed goods from their initial points of entry to their final destinations in the relatively close vicinity, while also participating in regional trade (Sherratt and Sherratt 1998, 339; Sauvage 2012, 290; Tartaron 2013; cf. Cherry and Davis 1982, 338–340). In this case, the agents of transference could be the long-haul shippers, be they Ugaritic, Cypriot, or unaffiliated entrepreneurs, and the zones of transference would be the point of exchange where the mariners of different cultures meet and interact. Cyprus is an example of such an agent: situated as it is in the heart of the eastern Mediterranean world and at the intersection between the Aegean and Near East, the people of this island have long played a key role in the transfer of ideas, innovations, and material culture, both through interaction with those arriving at the island, and through their own travels and trade (Janes 2010, 127).

Given its location, the Levant was also a zone of transculturation that was home to many agents of transference. A land bridge between Africa and Asia, providing access to Anatolia and serving as a gateway to the inland territories of Mesopotamia, the polities of the Levant have long stood at a crossroads between continents and between empires. Though dominated by Egypt (in the south) and Hatti (in the north) in the Late Bronze Age, Levantine communities were, like the rest of the eastern Mediterranean region, deeply engaged in the international trading network of this period. In the northern Levant, for example, Alalakh and Ugarit served as gateways for Late Helladic pottery, much of it likely transshipped from Cyprus (Hirschfeld 2004; Koehl 2005, 419; 2010, 83; Yasur-Landau 2010, 41–42), while the latter was heavily involved in direct trade around the eastern Mediterranean region, as evidenced by texts from the House of Urtenu and elsewhere that reference trading relationships and seafaring (Calvet 2000).

Outside of the direct palatial sphere were the entrepreneurial seafarers who primed the pump of maritime commerce, engaging in ‘sailor’s trade’ either on their own, or on a separate level from the wealthier, more official cargoes they carried (Sherratt and Sherratt 1998, 341; Sauvage 2012, 161, 208–210; Artzy 2013, 337). Among other places, this can perhaps be seen in the Uluburun wreckage, where *pithoi* filled with Cypriot pottery—almost certainly destined for non-elite recipients—were being carried on the same ship as eleven tons of copper and tin (Bachhuber 2006, 355). This can also be seen in the Cape Gelidonya shipwreck, with its primary cargo of primarily Cypriot copper, along with smaller amounts of Attic copper, bars of tin, and broken bronze tools which had likely been collected as scrap metal to be melted and recast, though they may also have been intended to be used as payment for goods or services (Sherratt 2000, 87; Singer 2006, 256; Bass 2010). These mariners would have carried with them not just goods, but information and potentially innovation (in approaches, technologies, or otherwise) that would have been transferred to willing partners in the zones of exchange into which they sailed—ports, waystations, etc. (Sauvage 2012, 208; Kramer-Hajos 2016, 144). Further, these vessels were likely crewed by a diverse collection of individuals, as suggested by the multicultural nature of the personal effects found in the Uluburun wreckage (Pulak 1998). This diversity would have intensified the ability of these

vessels to serve, in effect, as floating agents of transference, providing goods and ideas from far more cultures than the one responsible for the physical ship itself. It could also have lent itself to the development of a marauding ‘pirate culture’ once opportunities for legitimate business became more scarce (Hitchcock and Maier, this volume).

##### 5. FOREGROUND II: LEVANTINE AGENTS AND THE TRANSFERENCE OF MARITIME TECHNOLOGY

The use of private (or, perhaps more correctly, semi-private) merchants, sailors, and mercenaries may have begun as an effort by states to expand their economic influence. By the end of the Late Bronze Age, though, these middle-men seem to have become integral parts of the larger system, a position ultimately gained because, in Artzy’s words, “of their peculiar expertise: capital in the form of a boat and knowledge of navigation, the requirement for successful maritime commerce” (Artzy 2003, 445; also Sherratt and Sherratt 1998, 340–341).<sup>4</sup> Included among these mariners may have been some of the most important agents of transference of the period.

The end of the Late Bronze Age was a time of accelerated innovation in, and widespread adoption of, maritime tactics and technology (Emanuel 2014). The search for the first ‘domino’ in the process of maritime innovation is akin to considering the chicken and the egg. Were more efficient hull designs and sailing rigs developed by pirates and raiders, to better take advantage of raiding opportunities? Or were they developed in response to freebooting, as a means of better protecting the coast at home and merchant ships at sea? The best answer to these and related questions is probably a simple and inclusive ‘yes’, with few details beyond that likely to ever become accessible to us. However, two things are clear: the last years of the Late Bronze Age represent a period of revolutionary developments in maritime technology, and the seafarers of the Levant seem to have played a large role in their development, while also acting, along with Cypriot and Aegean sailors, as agents of transference in their diffusion around the wider eastern Mediterranean.

The key advancements at this time were the development of a new vessel type altogether, the long-hulled oared galley, and of a new rig, composed of a loose-footed sail and brailing lines for sail control, as well as the top-mounted crow’s nest, which is pictured in use at Medinet Habu along with the aforementioned innovations. Once they were set in combination in the last years of the Bronze Age, these elements of maritime technology provided sailors with an engine of raiding, warfare, and transportation the likes of which had never been seen, and allowed for more effective naval operations than it had been possible to conduct to that point.

Until the advent of the brailed rig, sailing vessels had been outfitted with the boom-footed squaresail, a rig in which the sail was set between two horizontal spars, referred to as the yard (upper) and boom (lower). The sail was furled by lowering the yard to the boom, at which time the former was held in place by topping lifts. The boom, on the other hand, was affixed to the mast and supported by lifts connected to the mast cap, an aspect of ancient vessels which, Wachsmann (1998, 248) has noted, “were one of the most conspicuous elements of [the boom-footed] rig and almost always appeared in iconographic depictions of ships carrying this type of rig”. This can be seen in representations of boom-footed vessels in media as diverse as the naval scene from Room 5 of the West House at Akrotiri (Marinatos 1974, pl. 112), the reliefs of the ‘Byblos ships’ (*kbn*) from Queen Hatshepsut’s Punt expedition on the walls of her mortuary temple at Deir el-Bahri (Wachsmann 1998, 17–28), a small 14th century cylinder seal from Tell Miqne-Ekron (Gittlen 2007), and the late 14th–early 13th century painted ship representations from Hall 64 of the southwestern building in the palace complex at Pylos (Shaw 1980, 177–178), among many other examples.

With the loose-footed sail, on the other hand, the boom and its many lifts were done away with, while the brailed rig allowed sails to be easily raised, lowered, and otherwise manipulated



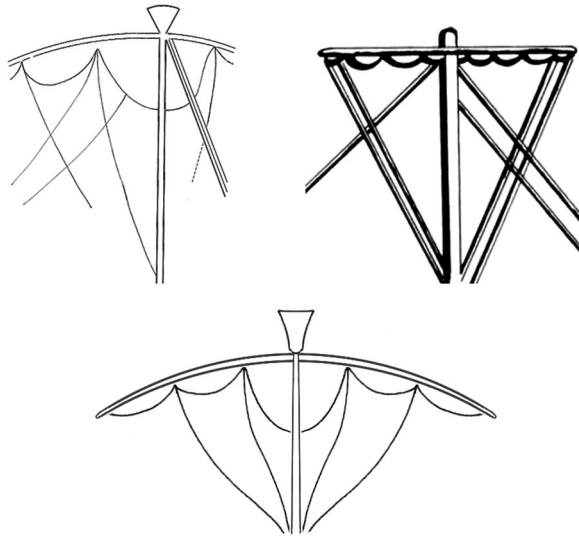


Fig. 1. Line drawing of the mast, rigging, and crow's nest from one of the late 14th-early 13th century vessels on Berlin 24025 (illustration by the author). Compare to the mast and rigging of a Phoenician bireme from a relief at the palace of Sennacherib, *c.* 700 BCE (after Casson 1971, fig. 78) and a Sea Peoples vessel from Medinet Habu (illustration by the author).

in a manner similar to a set of Venetian blinds (Roberts 1991 pls XVIIa, XIX–XX; Wachsmann 1998 251). In this system, lines were attached to the bottom of a sail and run vertically through rings called ‘brails’, which were sewn into the front of the sail. From there, they were run vertically over the yard and aft to the stern, where they were controlled, as noted above, by the steersman. The manipulation of the sail made possible by the addition of brails and removal of the boom allowed for much greater maneuverability than that provided by the boom-footed squaresail, while also allowing vessels to sail closer to the wind (Roberts 1991, 57–59). An additional benefit, noted by Monroe (1990, 87), was that, when it came to maritime warfare, the maneuverability of troops on deck would have been improved, as they no longer had to worry about the lower yard obstructing their movement.

Wachsmann's original suggestion that this landmark technological development originated from somewhere on the Levantine coast was largely based on its appearance—on vessels in Egypt and the Aegean—both at the same time and without clear local antecedents, as well as on the Syro-Canaanite precedent of downward-curving yards (Wachsmann 1981, 214). The latter can be seen in particular on vessels portrayed in the tomb of Nebamun at Thebes (Theban Tomb 17) and on a scaraboid seal from Ugarit (Wachsmann 1981, fig. 28b). This hypothesis is further supported by a relief that seems to show Syro-Canaanite ships being offloaded at an Egyptian port.<sup>5</sup> This relief, which comes from a secondary deposition at Saqqara, provides the earliest evidence for both the loose-footed sail and top-mounted crow's nest (Fig. 1). It has traditionally been dated to the end of the 18th dynasty (Capart 1931, 62; Schulman 1968, 33; Millet 1987; Vinson 1993, 136 n.12, 138–139). A date range between the late 18th and early 20th dynasties is supported by the ceramics visible in the sculpted scene, in particular the Canaanite amphorae being carried in the foreground, which are consistent with Family 11 Form 22 of this ceramic type, in use from the 14th into the 12th centuries BCE, or the late 18th to the 20th dynasties (Killebrew 2007, 167–173, figs 1.3, 4.6). The mast, furled sails, downward-curving yard, and top-mounted crow's nest of

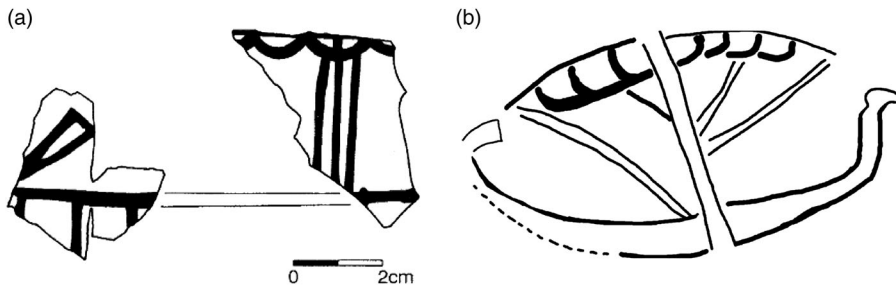


Fig. 2. (a) Philistine 1 sherd from Tel Miqne-Ekron depicting a vessel with a brailed sail (after Dothan and Zukerman 2004, fig. 35.10), (b) Ship graffito from Nahal Me'arot on the Carmel Coast, likely of 13th–11th century date (Artzy 2013 fig. 4.5).

the seagoing ship depicted in this relief are identical to those from Medinet Habu. Part of the yard, furled sail, and double backstay of a second, identically-rigged vessel is partially visible on the left edge of the relief. Unfortunately, the mast and rigging are all that is shown of these ships; no hints are provided as to the hull design and shape.

Further depictions of brailed sails turn up in the Levant, and possibly on Cyprus, at a slightly later date. These include one of the few nautically-oriented objects associated with the Philistines: sherds of a 12th century Philistine Monochrome (Philistine 1) krater from Tel Miqne-Ekron feature the characteristic semi-circles of a furled brailed sail, along with the horizontal line of the yard and three vertical lines, which likely represent a mast and halyards or brails, and vertical lines below the deck which may depict a rowers' gallery, suggesting that this vessel is a galley (Fig. 2a). Two ship graffiti are also noteworthy: one of the boats incised on the cliffs above the Me'arot river in northern Israel, sometime between the 13th and 11th centuries (Artzy 2013, 336), appears to display a brailed rig, furled sail, and downward-curving yard, along with forward-facing ornamentation on the stempost and inward-curving sternpost, similar in form to ships on painted pottery from Skyros and Kynos, discussed below (Fig. 2b), while a similar, though much cruder, LC IIIA graffito from Enkomi on Cyprus also seems to depict a ship outfitted with the brailed rig, pictured with its sail furled (Wachsmann 1998, 142–143, fig. 7.29).

The oared galley, which seems to have been developed and introduced in the late 13th century BCE, represented “the single most significant advance in the weaponry of the Bronze Age Eastern Mediterranean” (Wedde 1999, 465). The galley was a revolutionary development in naval architecture, which was altogether new in the eastern Mediterranean world. Depicted on vases from the end of the LH IIIB with particular concentration in the LH IIIC, galleys were long, narrow, light craft designed specifically for speed and maneuverability (Wedde 2005, 31–32). Galleys were primarily propelled by crews of rowers who could double as combatants (thus making a fifty-oared *pentekontor* a significant weapon), and images of these vessels frequently highlight the rower's gallery as a key feature, either in detail (as on the Bademgediği Tepe krater, discussed below), or in a schematic ‘horizontal ladder’ motif, as seen on a c. 12th century urn from Hama in Syria (Wachsmann 1998, 130–133, 175). Galleys were well suited for martial purposes, including raiding, piracy, and naval warfare. Some of these vessels featured keel extensions at the bow, which may have served as beaching aids, allowing raiders' ships to sail more easily up onto land for the purpose of facilitating a rapid disembarkation (Wedde 1999, 469; Wachsmann 2013, 70). This celerity would have been critical to the successful conduct of amphibious operations against lightly-defended coastal sites, as avoidance of contact with regular troops would have been a significant concern (Wachsmann 1998, 320; Emanuel 2014, 37). These extensions, which are a standard feature of the Iron Age *dieres*,

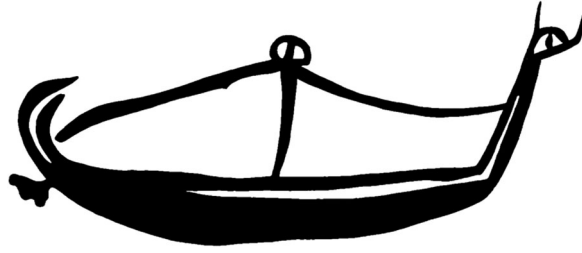


Fig. 3. Line drawing of a ship on a LH IIC stirrup jar from Skyros (after Wachsmann 1998, 139).

have been seen in concert with the shift of the stempost finial from outward-curving to inward as key delineating features in the development of the galley as a vessel type from the Late Bronze into the Geometric periods (Wedde 1999, 467; 2000, figs. 15–17; Wachsmann 2013, 82–83).<sup>6</sup>

Crow's nests, on the other hand, do not appear in Aegean art nor on Egyptian ships in the Late Bronze Age (Wachsmann 1998, 253). Instead, they are known only from representations of Levantine ships, and even those are almost exclusively side-mounted, being slung from the masthead or lashed to the forward face of the mast. The one exception is the Berlin relief, which shows the full package of loose-footed sail and top-mounted crow's nest on both ships. The combination of this relief and the absence of crow's nests on Aegean and Egyptian vessels suggests that the source of this innovation, like the brailed rig, should be found on the Syro-Canaanite littoral, while its appearance on both the Sea Peoples and Egyptian ships at Medinet Habu attests to the diffusion of this technology from the Levantine zone (Wachsmann 1981, 214; 1998, 51, 56).

Traveling via agents of transference, perhaps from the Levantine coast, the brailed rig (but not the crow's nest!) was adopted in the Aegean no later than the beginning of Late Helladic IIC, as can be seen from two representations in particular: one on a stirrup jar from Skyros (Fig. 3), and another on a krater sherd from East Lokris depicting vessel manned by soldiers wearing hedgehog (= feathered) helmets in the 'Sea Peoples' tradition, who are engaged in combat against each other (Mountjoy 2011, fig. 3). We cannot be certain whether these images are directly connected to an increase in raiding or war at sea, or to the collapse of the palatial systems of Mycenaean Greece and beyond. However, like the galley, this rig makes its appearance at a time when artists suddenly became interested in depicting both ships and naval combat on Helladic vases—a genre that had been almost nonexistent prior to this time.

When considering this visual evidence, of course, we should keep in mind that differences in artist (and artist's intention), media, and cultural source all impact what we see, and therefore how we should interpret an image. As Sauvage has noted:

*Les représentations iconographiques soulèvent la question de leur exactitude et de la possibilité de restituer un type d'objet à partir d'un dessin. À priori, un graffiti doit pouvoir nous livrer plus d'informations et être plus proche de la réalité qu'une représentation artistique, les artistes n'étant pas toujours complètement familiers avec le milieu marin. D'un autre côté, les marins qui ont dû graver ces navires n'étaient pas forcément dotés d'un immense talent artistique et certaines « œuvres » sont donc fort difficiles à comprendre et à interpréter du fait de leur caractère schématique et épuré (Sauvage 2012, 227).*

Bearing this in mind, we may now consider once again the krater from East Lokris (referred to by the Homeric name *Kynos*) and the analog it finds in a scene on a krater from a new settlement of late 13th or early 12th century date at Bademgediği Tepe in western Anatolia (Meric and Mountjoy 2002; Mountjoy 2011). Each appears to depict a naval battle between spear-wielding warriors who stand upon a (partial?) deck above a

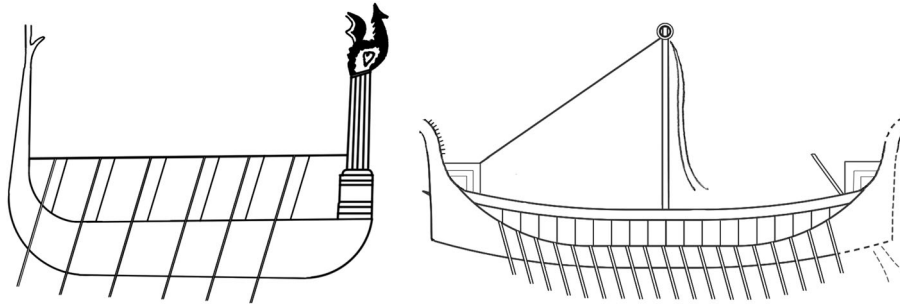


Fig. 4. Partially-reconstructed illustrations of vessels from the Bademgediği Tepe (left) and Kynos (right) kraters, as painted by their artists (illustration by the author).

bank of rowers.<sup>7</sup> Although they lack visible rigging, instead displaying only a forestay and two slack lines trailing to stern, the circular masthead with its two deadeyes demonstrates that the antithetic ships of the Kynos krater are equipped with the brailed rig. The principal remaining ship in the scene, called Kynos A, is similar in many respects to the Skyros vessel, which is similarly depicted without a raised sail, but with the two deadeyes characteristic of the loose-footed brailed sail, along with a forestay (and, unlike Kynos A, a backstay).

It is not possible to discern the rigging of the Bademgediği ships (indeed, the artist did not leave enough room on the vessel to include this detail), but the image's similarity to that on the Kynos krater suggests that hypothesizing that it was similar in form and rigging would not be unreasonable. As can be seen from a reconstruction of one of these vessels as it may have appeared on the krater, placed next to a partial reconstruction of Kynos A (Fig. 4), the Bademgediği illustration is highly schematic, emphasizing that which the artist seems to have thought was most important: the warriors, the rowers belowdecks, and the fearsome ornamentation atop the ships' stemposts. The lack of a crow's nest of any kind on the Kynos- and Skyros-type vessel is a key differentiator between it, the Saqqara relief, and the ships from the Medinet Habu naval battle.

Mountjoy (2011 484, 487) dated the Bademgediği krater to Transitional LH IIIB<sub>2</sub>–IIIC early or LH IIIC Early based on the appearance of the rowers, and has also suggested that sherds from the island of Kos that depict feather-hatted sailors and oared ships could be back-dated at least to LH IIIC Early (Mountjoy 2007, 226). The implications of such a shift are potentially significant, as it could place the earliest representations of feather (= hedgehog)-hatted warriors in southwestern Anatolia and the Dodecanese, less than a quarter century prior to their appearance at Medinet Habu, and well before their widest proliferation on the Greek mainland in the LH IIIC Middle. This, in turn, may support the possibility that at least some of these warriors originated in the area of southwestern Anatolia and the Dodecanese and spread from there westward to the Aegean and south- and eastward to Cyprus and the Levant.

Aside from potentially complicating our understanding of the direction of the feathered/hedgehog helmet's diffusion, this may reinforce the agglutinative nature of raiding parties, which are far less likely to have remained relatively intact from their initial points of origin than to have added to their size and diversity with each stop around the Aegean and Eastern Mediterranean (Yasur-Landau 2010, 192; Hitchcock and Maier, this volume). Aside from the 'nomads of the sea' (Artzy 1997) engaged in semi-private trade and other maritime activities, there were already mercenaries occupied abroad who may have been willing participants in these efforts (perhaps a version of Bryce's [2010, 50] "shiploads of freebooting Mycenaean trawling the Mediterranean in search of either plunder or military service in the hire of a foreign king"),

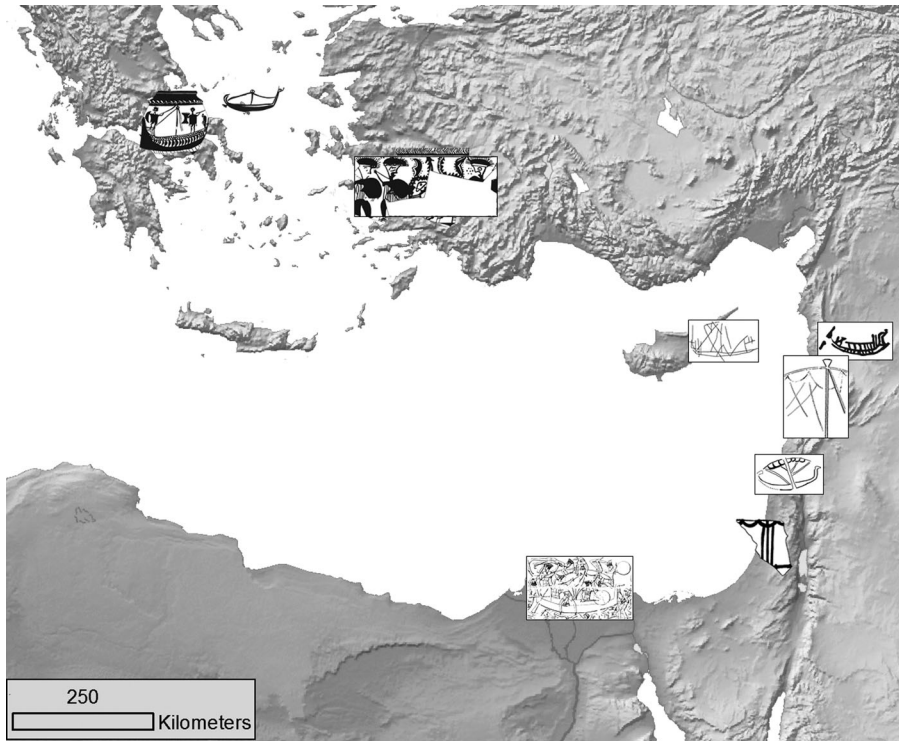


Fig. 5. Map showing representations of brailed sails, oared galleys, and naval combat scenes mentioned in the text.

particularly as those who may have previously employed them were now embroiled in their own struggles for survival. Add to this any number of displaced people from the Aegean, Anatolian, and Levantine regions, many of whom may have had significant naval experience, and the number of people involved in these assaults may have grown significantly in this period.

## 6. CONCLUSION

The ‘mixed multitude’ nature of those engaged in raiding coastal polities, representing a diverse collection of ethnicities and geographic points of origin, may also be reflected in the records of Merneptah and Ramesses III, which provide at least nine separate names for the Sea Peoples’ groups (Denyen, Ekwesh, Lukka, Peleset, Shekelesh, Sherden, Teresh, Tjekker,<sup>8</sup> and Weshesh). While compounded by the questionable historicity of pharaonic inscriptions,<sup>8</sup> this issue is further reinforced by the apparent internal confusion over who these Sea Peoples were that can be seen in Ramesses III’s own records (across the Medinet Habu inscriptions, the Great Harris Papyrus, and the Deir el-Medineh stele), which suggests that the identification and categorization of these people was more complex than it may initially seem.

While we can trace some of the movements of these innovations around the Eastern Mediterranean, the diverse and interactive nature of zones and agents of transference should caution us against drawing firm conclusions based only on the available data. In other words, because of the breadth and intensity of this technological transference, technical

aspects of ships that seem to come from a particular geographic area—such as the galley design from the Aegean, or the brailed rig and top-mounted crow’s nest from the Levantine coast—should not dictate our interpretation of those who utilised these vessels. The Aegean association of at least some Sea Peoples, for example, along with the importance of maritime technology to their lives and livelihoods, provides a logical basis for their use of the oared galley; however, this should not cause us to assume that every time we see an oared galley, or a variant of this vessel type, it is related to the Aegean or to people connected to that region (this is reinforced by the fact that the Phoenician bireme was one of the galley’s Iron Age descendants!). A specific example of this is the case of the Gurob ship–cart model, a wheeled model of a Mycenaean galley found in an early Iron Age tomb in Middle Egypt. While this model can be paired with evidence from the Wilbour Papyrus for *Sherden* living in the Fayum to suggest a tie between an Aegean-style sailing vessel and one of the Sea Peoples groups (Wachsmann 2013), these data points should not necessarily be seen as proof that this group was of Aegean origin, or even connected to the Aegean region in any way.<sup>9</sup> Instead, if the galley model and the *Sherden* are in fact connected, this should be seen as evidence that these people were beneficiaries of the intense contact between cultures within the eastern Mediterranean’s zones of transference.

The transference of maritime technology in particular was a critical component of the events of the Late Bronze and early Iron Ages. Zones of transference were key areas in which ideas and innovations could be passed between individuals, cultures, and regions, while the agents of this transference took with them the tools that would eventually become the ultimate naval weapon of the age, a transcultural amalgamation of the best innovations that the Aegean and the Levant had to offer. These vessels were likely crewed by those same mariners who had alternately served as traders (both on behalf of the Late Bronze Age palatial system and for their own gain) and raiders, sailing the wine-dark seas on voyages of exchange and of plunder. As Artzy (2013, 344) has so succinctly phrased it, “when the economic and geopolitical situations changed, they [...] reverted to marauding practices and the ‘Sea Peoples’ surfaced,” augmented by those who were on the move as a result of the crumbling Eastern Mediterranean system. Add to this the development and proliferation of a revolutionary weapon of war in the oared galley, and the stage was set for a blow from the sea that the established powers could no longer fend off.

## NOTES

<sup>1</sup> We note here that Singer (2011, 66–67) discounted this possibility, instead arguing that “Ugarit did not possess a separate military fleet...[r]ather, some of the commercial ships were used in times of war for the transportation of troops and for fighting the enemy”.

<sup>2</sup> Ivories are a prime example of this type of object, as they were highly portable, easy to recut, and could therefore be used (and reused) in multiple contexts (Hitchcock and Macir in press).

<sup>3</sup> The “international style”, which was driven by palatial elites and made up of, in Feldman’s words, “hybridized elements that cannot be associated with any one culture”, or, more directly, “suppression of obvious regional affiliation”, helped to create and foster a “hybridity of imagined community” among elites in the Late Bronze Age eastern Mediterranean (Feldman 2002, 17; 2006, 71, 89).

<sup>4</sup> Sauvage (2012, 156, 160–161), on the other hand, disagrees with the notion of private vessel ownership and purely private trade developing prior to the collapse of the palaces, though the elite-centric nature of our written records are a likely source of bias in that

direction. She writes: “Des commandants avaient la charge de navires qu’ils devaient mener à bon port. Ces personnages ont été trop souvent vus comme les propriétaires de leur embarcation, à cause de la désignation du navire commandé comme: «ton bateau». Or, nous avons vu que cette association entre personne et objet n’est pas obligatoirement un signe de propriété. Le métier d’armateur, quant à lui, serait une conception plus moderne, car aucune attestation de vente ou de location de bateaux entre particuliers n’existe dans le corpus de textes maritimes et économiques pourtant relativement important au Bronze récent. Cette simple constatation suggère que les commandants de navire n’étaient pas de simples particuliers, mais qu’ils travaillaient pour le pouvoir en place, comme c’est attesté en tout cas à Ougarit et en Égypte” (Sauvage 2012, 290).

<sup>5</sup> Because of the likely Levantine provenience of the vessels pictured here, we place this image in the Levant in the map of vessels mentioned in the text (Fig. 5).

<sup>6</sup> The shift in sternpost orientation from vertical or outward-curving to inward-curving can be seen as early

as LH IIIC on the Skyros vessel, as well as on the Helladic ship model graffiti from the Dakhla Oasis in central Egypt (Wachsmann 2013, fig. 2.12). We should also note a seal impression on an amphora handle from Tell Tweini (Bretschneider and Van Lerberghe 2010, ill. 30) of what seems to be a galley with visible oars and a mast with forestay and backstay (but, like the Kynos and Skyros vessels, no yard or sail visible). While the seal was dated to the Late Bronze II in the excavation's publication (Bretschneider and Van Lerberghe 2010, 33), the shape and size of the bow protrusion and the inward-turned stempost finial are much later features according to the current understanding of galley morphology. Further study of this representation is necessary to determine its proper place in the corpus of Late Bronze and Iron Age ship imagery.

<sup>7</sup> For the authoritative analysis of the "lunates" appearing belowdecks on Kynos A as a crew of rowers, see Wachsmann (1998, 131–134).

<sup>8</sup> As has been well-documented, Medinet Habu provides an excellent example of the dubious sourcing and historicity of pharaonic records. Some of the grandiose recountings of Ramesses III's deeds and accomplishments were likely plagiarised from his namesake, Ramesses the Great, and perhaps from Ramesses' successor Merneptah, while others—including battles in Nubia and against the Hittites, and perhaps one of his multiple Libyan campaigns—are unlikely to have taken place at all (Nims 1976; Lesko 1992; Manassa 2013, 250). It is thus problematic that so much of our knowledge of the Sea Peoples is derived from these inscriptions and reliefs, particularly if they are not approached with sufficient judiciousness.

<sup>9</sup> N.B. This is an example provided for consideration within the present analysis; Wachsmann (2013), in his analysis of the Gurob model, did not go so far as to suggest that it proved an Aegean origin for the Sherden.

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