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The papers are posted as submitted by the authors after the conclusion of the Conference. The authors are responsible for the content of their work, both in terms of their views and the accuracy and correctness of the data they present.



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BIG AND SMALL: THE CONSTRUCTION OF THE *PANATHENAIC* SHIP AND THE DIONYSIAN SHIP CART IN ANCIENT ATHENS

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Abstract. Ships played an important role in ancient Athenian cult. Two of the most important of these are the Panathenaic ship and the ship cart of Dionysos. The *Panathenaia* was the most important festival in the Athenian religious calendar as it celebrated Athena's birthday. During much of antiquity a ship on wheels transported the *peplos* of Athena to the Acropolis in a great procession once every four years. This Panathenaic ship was a massive 'land' vessel that never saw water beneath its hull. The most detailed depictions of the Panathenaic ship are the Calendar Frieze on the Church of Ayios Eleutherios (Little Metropolis) in Athens and a bronze lamp in the shape of an Archaic-period galley uncovered in the excavations of the Erechtheion and now exhibited in the Acropolis Museum. These representations demonstrate clearly that the Panathenaic ship is patterned after an Archaic galley. The ship cart of the Greek deity Dionysos, on the other hand, was a flimsy affair. This deity had a particular affinity for war galleys, a relationship perhaps explained by the Homeric Hymn to Dionysos in which Tyrsenian pirates kidnap him. This hymn may explain the diminutive replicas of seagoing oared ships that played a pivotal role in ancient Dionysian cult. Dionysian ship carts moved overland in parades, either on wheels or carried upon the shoulders of celebrants. Although appearing already in the Late Bronze Age, these ship carts are best known from a series of three late Archaic-period representations on black-figure *skyphoi*, now in museums in Athens, Bologna and London. No two Archaic-period Dionysian ship-cart representations are similar in all details. While perhaps due to the whims of their creators, a more probable explanation is that these differences in appearance may reflect annual changes to these festive ship carts, like the situation with present-day parade floats. This paper examines the contemporaneous, mainly iconographic, evidence that allows us to better understand these cultic land-based watercraft, which played pivotal roles in ancient Athenian religion.

Keywords: 3D modeling, cult, Dionysos, nautical archaeology, *Panathenaia*, virtual heritage.

1 Introduction

Sacred ships played an integral role in ancient Athenian cult (Jordan 1972, 153–184). For example, during the Classical period, each spring Athens sent representatives to Delos for the festival of Apollo Athens in a ship so venerable that it was thought to be the ship used by Theseus to sail to Crete (Casson 1975, 7 n. 11). Two of the most important ‘land ships’ in Athenian cult were the Brobdingnagian *Panathenaic* ship and the diminutive Dionysian ship cart. This contribution exams the evidence for these vessels, which never saw water beneath their hulls; although it focuses largely on iconographic sources of these vessels, I approach this subject as a nautical archaeologist rather than as an art historian.

2 On the Interpretation of Ancient Ship Iconography

Much of the existing information about the *Panathenaic* ship and the Dionysian ship cart comes from contemporaneous iconography. Therefore, it is crucial to consider several basic principles when interpreting ancient ship imagery (Wachsmann 2019).

The Belgian Surrealist painter René Magritte created a series of works entitled *La trahison des images*, *Les deux mystères*, *L’air et le chanson*, and so on, in which under a smoker’s pipe he wrote, “Ceci n’est pas une pipe” (Hammacher 1985, 25, 27, 28 figs. 33–34, 29–30; Sylvester 1992, 168–170; Wachsmann 2019, 6, 7 fig. 6). In this way, Magritte expresses the obvious consideration that is often ignored; we are not seeing a smoker’s pipe but rather a representation of a one. Stated more clearly, *a representation is not the object itself*. Similarly, when studying ship iconography it must be kept in mind that we are not looking at the actual ships but rather at representations of them.

In iconography, ancient watercraft are depicted through the lenses of their creators’ perspectives, mental frameworks, and artistic techniques. These representations reflect not only the cultural context and artistic training—or lack thereof—of the creators but also their mental attitudes and skill levels. Additionally, the choice of medium and artistic style, whether it be stone, metal, paint, or graffito, significantly influences the depiction. Constraints of space and other practical limitations can also lead to notable differences between the actual vessels and their artistic representations.

3 The *Panathenaic* Ship

3.1 Introduction

The *Panathenaia* celebrated the birthday of the goddess Athena, the patron deity of Athens and, thus, was the city’s single most important cultic festival (Wachsmann 2012; 2013, 132–155). The celebration, probably the best known of all Athenian cult festivals, took place during the summer in the Athenian month of *Hekatombaion*, which was the first month in the Athenian calendar (Mikalson 1975, 34; Norman 1983, 41; Simon 1983, 55; Neils 1992; Hurwit 1999, 44–47; Shear 2001). A special garment, a *peplos*, was brought to the goddess on the last day of the festival (28 *Hekatombaion*) in an impressive procession, glimpses of which appear on the Parthenon Frieze (Davison 1958, 24–26, 31; Brommer 1979, 33; Simon 1983, 58–72; Mansfield 1985, 51–68, 77–78; Barber 1992; Robertson 1996, 58; Neils 1996; 2001, 21–24, 49–71, 125–201; 2005, 201–

223; Neils and Tracy 2003, 16–17, 27–29). Every four years in antiquity, the *peplos* was carried to the Acropolis on a ‘land ship’ transported on wheels (Göttlicher 1992, 108–110). The use of a ship continued until the last celebration of the *Panathenaia* in AD 410, while the weaving of the *peplos* presumably ceased earlier, perhaps during the time of Constantine or Constans (Mansfield 1985, 51, 58, 69; Hurwit 1999, 45, 286).

Although the *peplos* may appear in the Parthenon Frieze, the *Panathenaic* ship is nowhere to be seen there. This is possibly due to the consideration that the ship was not brought up to the Parthenon itself or because the vessel would have been too large proportionally to depict together with the human figures (Deubner 1956, 33; Parke 1977, 40; Norman 1983, 43; Mansfield 1985, 18; Hurwit 1999, 226).¹

The *Panathenaia* probably had its origins in the Bronze Age (Robertson 1996, 57–58; Simon 1996, 23); Erechtheus or Theseus were traditionally credited with its founding (Parke 1977, 33; Robertson 1985; 1996, 61–65; Neils 1992, 21; Boegehold 1996, 5–96; Hurwit 1999, 44, n. 53). It certainly had been established by the 7th century BC. By the mid-6th century BC, under the Peisistratids, athletic games, which may have included ship races, were being held every four years (Davies 1967, 36–37; Jordan 1972, 154; Parke 1977, 37; Simon 1983, 55; Neils 1992, 13, 15, 16, fig. 1: lines 78–81, 97; Robertson 1992, 91–93; Boegehold 1996, 96–97; Kyle 1996; Parker 1996, 75–76, 89–92; 2005, 262; Shapiro 1996, 216–217; Hurwit 1999, 44–46; Palagia and Spetsieri-Choremi 2007; Hale 2009, 136). This quadrennial event was termed the “Great *Panathenaia*” to distinguish it from the “Lesser *Panathenaia*,” which took place in the three intervening years (Parke 1977, 33; Norman 1983, 41; Neils 2007).

The *Panathenaic* ship followed a route that began at the Dipylon Gate and ended at the base of the Acropolis (Gardner 1914; Mansfield 1985, 76–77; Robertson 1992, 93–119; Martin 1999, 143–145, figs. 11–12; Neils 2001, 49, 51, fig. 38). Herodes Atticus had built an innovative mechanical version of the ship, which relied on a subterranean transport system that sounds much like the modern-day San Francisco trolley system (Mansfield 1985, 75, n. 90). Philostratus (VS 2.550; trans. Wright 1921, 147) notes: “...the ship, as it took its course, was not hauled by animals, but slid forward by means of underground machinery.” Jennifer Tobin (1991; 1993) proposes that the long and narrow (42 by 9.5m) structure termed the “Tomb of Herodes Atticus” was intended for the storage of this mechanical version of the vessel. Convincing arguments, however, have been advanced against this proposal (Welch 1998, 136–145; Rife 2008, 109–111).

When the *Panathenaic* ship itself was introduced into the festival is debated (Mansfield 1985, 46–50, and there additional bibliography). L. Deubner (1956, 33–34) and H.W. Parke (1977, 39) believe that the *Panathenaic* ship came into being with the inception of the festival while J.M. Mansfeld (1985, 52–53, 68, n. 62) propose that the ship was introduced into the *Panathenaia* to memorialize Athenian success at the Battle of Salamis in 480 BC and that one of the triremes that took part in the conflict had been adopted into the festival (see also Barber 1992, 114; Shapiro 1996, 217; Hurwit 1999, 45).

Naomi Norman (1983) connects the introduction of the *Panathenaic* ship to the festival with the custom of Hellenistic-period rulers dedicating watercraft. She notes that texts and representations

¹ On the problems of lacunae in the iconographic record of the *Panathenaia*, see Pinney 1988, 465; Hurwit 2004, 232–234.

of the craft are both late in date and few in number and proposes that during the Great *Panathanaia* of 302 BC Demetrios Poliorketes gave the first *Panathanaiac* ship to Athena and to the people of Athens (45).²

3.2 The *Panathenaic* Ship on the Calendar Frieze

As opposed to the textual evidence available on the *Panathenaic* ship and its intrinsic importance to the Great *Panathanaia*, there are surprisingly few representations of the vessel (on related texts, see Mansfield 1985, 70–78; Göttlicher 1992, 108–110; Martin 1999, 142).

The best-known depiction of a *Panathenaic* ship is located in central Athens on the Calendar Frieze, which now graces the Small Metropolitan Church of Ayios Eleutherios, also known as the Little Metropolis (Fig. 1; Svoronos 1899; Basch 1987, 346, 347, fig. 732). Dates ranging from the Late Hellenistic period to the 2nd century AD have been proposed for the frieze (Deubner 1956, 248; Norman 1983, 43 n. 19, 44; Simon 1983, 6; Basch 1987, 346, 347 fig. 732; Palagia 2008, 233–234, 237).

Originally the frieze showcased symbols representing the main festivals that took place in each of the 12 months of the Athenian calendar (Deubner 1956, 248–254, pls. 34–40; Pickard-Cambridge, Gould and Lewis 1968, 51; Norman 1983, 43–44; Simon 1983, 6–8, 16, 18, 21, 25, 54, 59, 76–77, 81, 83, 90, 100–102, pls. 1–3; Palagia 2008, 33–234). The frieze consists of two long, narrow blocks incorporated in secondary use into the Little Metropolis. Unfortunately, the length of the two blocks exceeded that of the building's façade and portions of each block were removed (Deubner 1956, 248; Simon 1983, 6; Palagia 2008, 217, 224). As a result, the representation of a Dionysian ship cart, which should have represented the month of *Anthesteria*, was probably lost from the left block. Similarly, the month of *Gamelion* is missing from the right block. These losses are particularly regrettable because the inner sides of the two blocks were left undecorated, meaning that removal could have occurred without affecting any of the frieze's decorative elements (Deubner 1956, pls. 34, 35, 40; Simon 1983, 6, pls. 1, 2).

The depiction of the *Panathenaic* ship, representing the month of *Hekatombaion*, has been severely damaged. Byzantine artisans had carved three crosses inside roundels over the left side of the frieze; one of these was carved directly over the vessel (Fig. 2). This element nearly obliterated the ship. The outer edge and the spaces inside the roundel were chiseled out (A) so that in these areas all detail is lost. The areas of the cross and most of roundel (B) seem to have been smoothed, removing any plastic relief but leaving deeply-carved details of the ship and its conveyance. Plastic relief has survived on the lower left side of the raised part of the roundel. A horizontal crack (C) begins to the right of the cross, above the vessel's bow, and continues across the entire area that would have contained the ship. This caused the degradation of the right arm of the cross, damaging the original surface and destroying a section of the ship's forecastle screen. The stempost is also likely lost in the break. Finally, a white substance covers part of the cross and the ship (Fig. 2: B).

Although little remains of the ship itself, enough survives to clearly identify the vessel as representing an Archaic-period galley based on style and form (compare Morrison and Williams

² On the late appearance of the *Panathanaiac* ship, see also Mansfield 1985, 69; Parker 2005, 262, nn. 38–39.

1968, 81–117 pls. 8–21; Basch 1987, 202–264; Spathari 1995, 74 fig. 79, 78–102). The ship faces right, the bow appearing outside the roundel (Fig. 3). The bow lacks the boar-head ram



A



B

Figure 1. The Calendar Frieze Panathenaic ship: A) The Little Metropolis, or Church of Ayios Eleutherios in central Athens. The Calendar Frieze is embedded just beneath the roof. The representation of the *Panathenaic* ship is located just to the left of the entrance. B) Detail of the month of *Hekatombaion*. Photos: S. Wachsmann.

that is so common to Archaic galleys; instead it ends in a chisel-shaped ram.³ A massive starboard wale, which in an actual war galley would have strengthened the ram to prevent the

³ For images of Archaic ships with boar-head rams, see Morrison and Williams 1968, pls. 9: a, c, 10: a, c, 11: b, d, 12: b, d, f, 13, 14: a-g, 15: a-b, 16: a-d, 17: a-e, 18: a-b, 19, 20: a-d; Basch 1987, 206 fig. 427,

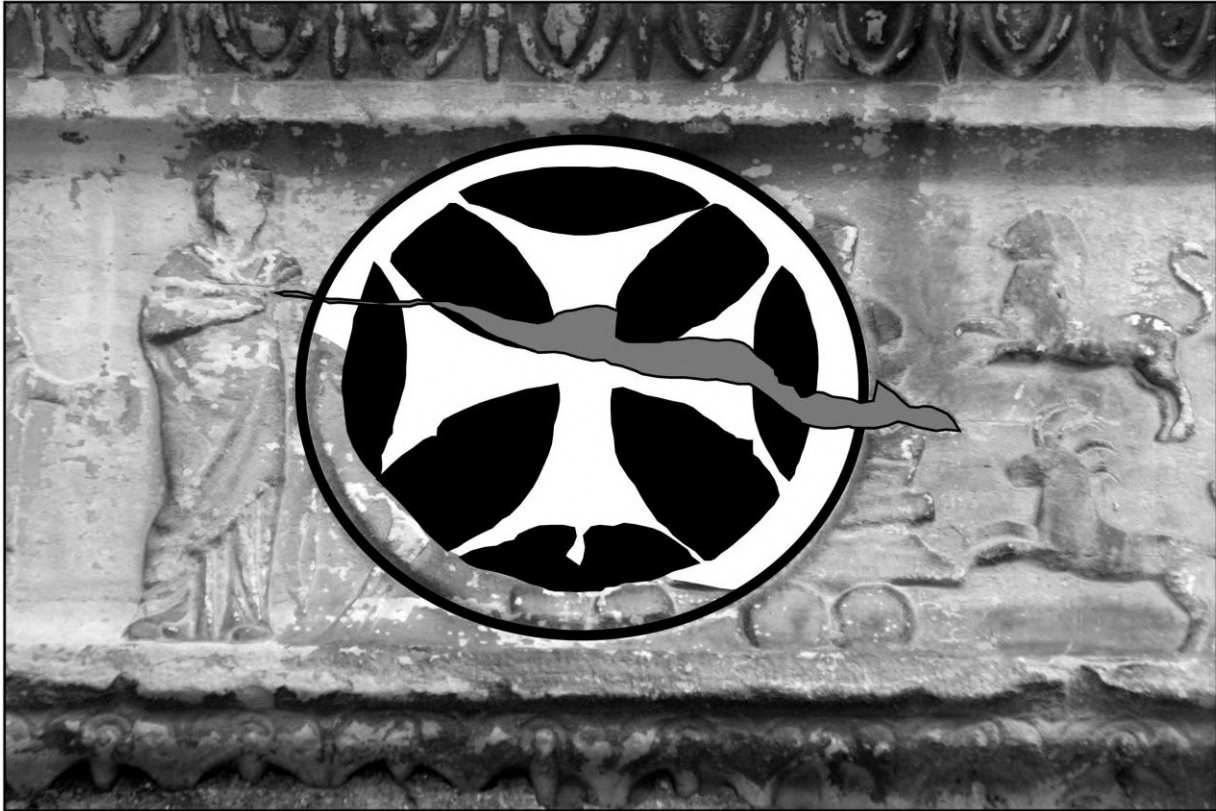


Figure 2. The month of *Hekatombaion* indicating later additions and damage: A) chiseling around the roundel and spaces between arms of the and the inner edge of roundel; B) smoothed area of the cross and part of the roundel; C) deep horizontal crack across the upper parts of the vessel and its rig. Photo and drawing: S. Wachsmann.

hull from buckling at the moment of ramming impact, is probably represented by the down-curving line ending at the tip of the ram (B; Steffy 1994, 17–25; Casson 1995, 85). Above the ram is a thick line that rises at a slight angle (C). This represents the *proembolion*, or “fore ram,” a secondary projection which capped another pair of smaller wales that met there (Casson 1995, 85, fig. 107; Basch 1987, 241 figs. 506–507, 274 fig. 582, 275 figs. 583–585, 299 figs. 632–634, 300 fig. 636, 301 fig. 640; Spathari 1995, 113 fig. 131, 115 figs. 134–135, 118 fig. 137, 125 fig. 142, 127 fig. 147, 128 fig. 148, 129 figs. 152–155). The forecastle, surrounded by a screen, is situated above the *proembolion*; the upper rail of the forecastle is highest at the stem, arcing do-

207 fig. 428, 208 fig. 430, 209 figs. 431–432, 434: A-B, 210 figs. 434: C-E, 435, 436: A, C; 211 fig. 438, 212 fig. 440: A-C, 213 figs. 441–444, 214 figs. 445, 447, 215 fig. 448, 217 figs. 452: A-B, 453, 218 fig. 454, 219 figs. 456–457, 220 fig. 459: A-B, 221 figs. 460, 460bis, 222 figs. 462–463, 224 fig. 468, 225 fig. 469, 226 figs. 470: B, 471, 227 figs. 472–473, 233 fig. 482, 234 fig. 485, 235 fig. 486: 2–3, 238 figs. 497–499, 242 fig. 510: A, 243 fig. 511; Spathari 1995, 74 fig. 79, 82 fig. 91, 84–85 fig. 94, 87 figs. 95, 97, 88 figs. 98–99, 89 fig. 100, 90 figs. 101–102, 91 fig. 104, 93 fig. 106, 95 fig. 107, 97 fig. 109, 99 figs. 113–114. On chisel-shaped rams, see below, 3.3 The Erechtheion Ship/Lamp Model.



Figure 3. The Panathenaic ship's bow: A) chisel-shaped ram; B) starboard wale; C) *proembolion* or "fore ram;" D) horizontal line bisecting the forecastle screen; E) upper rail of the forecastle screen. Photo and details: S. Wachsmann.

wnwards and then rising somewhat as it nears the roundel (E). A horizontal line bisects the forecastle; this is a common feature on representations of Archaic galleys (Basch 1987, 208, 210, 215, 217, 219, 224, figs. 430, 435, 436, 450, 453, 456, 468; Spathari 1995, 88–89, 93, figs. 98, 100, 107).

Note that the Calendar Frieze originally would have been painted and, thus, some of the *Panathenaic* ship's details might have been highlighted solely in color, which is now lost (Neils

2001, 88–93; Brinkmann 2008; Østergaard 2008; Brinkmann et al. 2007). There is no evidence of an *ophthalmos*, or ship’s eye, but this may have appeared only in paint and is now lost.⁴

The line of the keel extends across the roundel’s bottom, to the left of the ship’s bow (Fig. 4).

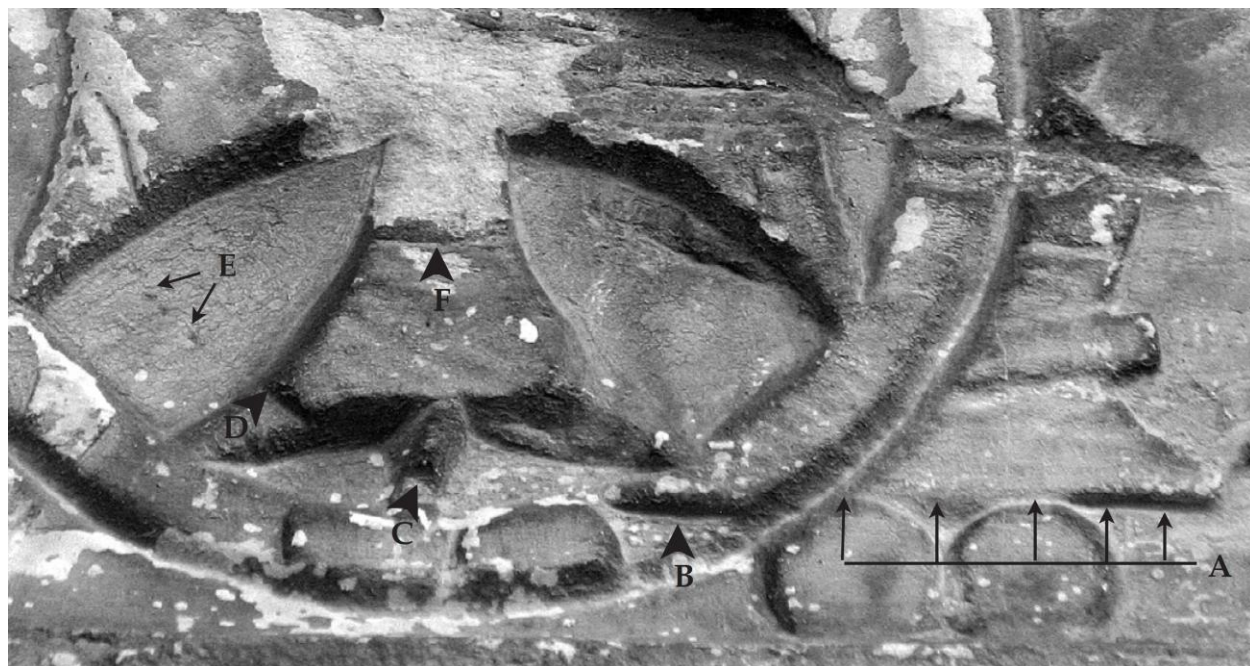


Figure 4. Details of the ship’s hull: A-D) line of the keel; E) possible continuation of the line of the keel; F) caprail or foot of *peplos*/sail. Photo and details: S. Wachsmann.

A few additional marks permit the reconstruction of the keel in general terms: a raised element (C) continuing below the bottom of the cross’s lower appendage together with an additional slanting line (D) that passes over the left corner of the cross’s lower arm. A series of pock-marks (E) to the left of the cross’s lower appendage may represent the continuation of the line, although these may be fortuitous. A horizontal line on the upper part of the lower appendage of the cross (F) may be the caprail or, alternately, the foot of the *peplos*/sail.

At the stern a deep slanting sinuous line survives on the lower flank of the cross’s left arm (Fig. 5: A). Beneath this, remnants of the quarter rudder appear outside, and on the surface of, the roundel itself (B1-B2). These remnants permit the reconstruction of the quarter rudder’s loom. Above the quarter rudder the hand of a female figure, identified by some scholars as Pompe, the anthropomorphic personification of the *Panathenaic* procession, appears on the left side of the roundel (Figs. 1: B; 5: C; Simon 1983, 6, n. 14; Mansfield 1985, 70, n. 70; Parker 1996, 91).

Athena’s *peplos* served as the ship’s sail (Mansfield 1985, 58–59, nn. 26, 30). Only a few details of the mast, rigging and *peplos*/sail survive (Mansfield 1985, 70; Werner 1997, 110, fig. 18). These include a short, molded protrusion at the top of the roundel, right of center (Figs. 1: B, 6: square, 7: A: A). When this protrusion is extended it slants towards the bow. This is best understood as the ship’s forward raking mast, which would have been stepped aft of amidships.

⁴ On ships “eyes” (*ophthalmoi/oculi*), see Hornel 1970, 51, 88, 249, 272–273, 285–289; Wachsmann 1998, 14, 52, 1491–1495; 2013, 132 n.185; Nowak 1999; 2001; 2006; Carlson 2009; Israel Antiquities Authority 2008.

Another slanting line visible on the upper arm of the cross may also be part of the rigging (Fig. 7: A: B). Above the ship's bow, adjacent to the outer edge of the roundel's upper-right quadrant are three bulges (C), which apparently are all that remains of the *peplos*/sail. These indicate the leading edge of the *peplos*, appearing here as a billowing brailed sail, which commonly appears in contemporaneous iconography (Fig. 7: B; Basch 1987, 207 fig. 428, 208 fig. 430, 209 figs).

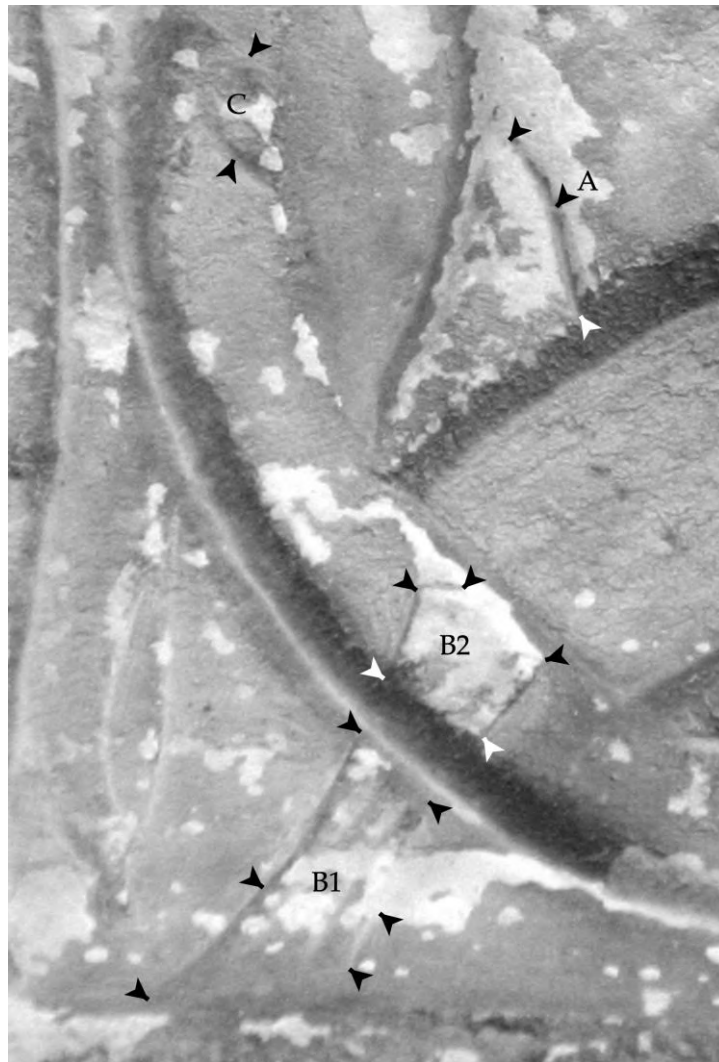


Figure 5. The lower left quadrant of the roundel includes the following details: A) a sinuous, roughly vertical line above the quarter rudder, B1-B2) quarter rudder blade, C) hand of a figure, presumably Pompe. Photo and details: S. Wachsmann.

431–432, 434, 210 figs. 435–436, 214 fig. 446, 215 figs. 449–450, 217 figs. 452–453, 219 figs. 456–457, 220 fig. 458, 226 fig. 471, 227 fig. 472; Spathari 1995, 88 figs. 98–99, 90 fig. 102, 92 fig. 105, 94–95 fig. 107, 97 fig. 109).⁵ It would seem that this is exactly what Philostratus (VS 2.550; trans. Wright 1921, 147) had in mind when he wrote the following:

⁵ On the brailed sail, see Vinson 1993; Casson 1995, 37, 47–48, 70; Cariolou 1997; Wachsmann 1998, 251–254.



Figure 6. The location of the surviving masthead fragment (inside red square). Photo and details: S. Wachsmann.



Figure 7. A. Detail of the Panathenaic ship's surviving elements of mast, rigging and sail: A. fragment of molded masthead on and above the roundel. B. remnants of a line, perhaps part of the rigging crossing the upper arm of the cross. C. three protuberances representing the billowing lead edge of the *peplos*/sail. B) Detail of Attic black-figure kylix by Exekias, Munich, Antikensammlung 2044 showing the lead edge of a brailed sail billowing. Photo A: S. Wachsmann. Photo B after Spathari 1995, 97 fig. 109 (note that the image has been reversed for clarity).

“Moreover, I have been told the following facts concerning this *Panathenaic* festival. The robe of Athene that was hung on the ship was more charming than any painting, with folds that swelled before the breeze”.

The *Panathenaic* ship moved on four pairs of wheels (Fig. 8; Mansfield 1985, 70, n. 69). We see no evidence of a wagon or chassis but something must have fulfilled this function. The wheels lack spokes, indicating that they are massive blocks of wood. Of course, the spokes could have been indicated by now-lost paint but the appearance of four sets of wheels negates this scenario. I know of only one other iconographic parallel from Mediterranean antiquity to a four-axle configuration for transporting a ship on wheels: the funerary ‘ship’ of Ptolemaic-period Apis bulls (Fig. 9; Vigneau and Drioton 1949, 49 no. 192, pl. 192; Göttlicher 1992, 73, 74 fig. 41; Vos 1993, 40 [Papyrus Vindob. 3873]). The four sets of wheels of the *Panathenaic* ship emphasize its massive size and substantial weight. This is dramatically different from the flimsy Dionysian ship cart, discussed below, which moved on two sets of spoked wheels or was at times carried by porters.⁶



Figure 8. Detail of the four wheels visible on the Panathenaic’s ship’s starboard side. Photo: S. Wachsmann.

By studying the various clues discussed above it is possible—in broad brush strokes—to describe the appearance of the *Panathenaic* ship and its rigging (Fig. 10). The Calendar Frieze ship is clearly patterned after an Archaic-period galley, although squashed longitudinally due to a lack of horizontal space on the block. It has been the only representation for which there is general agreement regarding its *Panathenaic* identification. Thus, despite its many limitations, it is against this image which all other potential *Panathenaic* ship representations must be measured. Scholars have tentatively identified additional images of watercraft as depictions of the *Panathenaic* but one stands out in particular: the Erechtheion ship/lamp model.

3.3 The Erechtheion Ship/Lamp Model

An actual 3D model of the *Panathenaic* ship exists in the famous bronze ship model/lamp found during the 19th-century excavations of the Erechtheion (Figs. 11–12; Athens, Acropolis Museum EAM X 7038: Pittakis 1862; Saglio, Pottier, and Lafaye 1877, 1325, n. 14, fig. 4587; de Ridder 1896, 139–141, fig. 95 (425); Staïs 1910, 276 (with photograph), 277 (no. 7083); Paton et al. 1927, 571–572, fig. 229; Moll 1929, no. B VII:1; Morrison and Williams 1968, 179, pl. 27: B (Clas. 20); Basch 1969, 442–444, fig. 5: A; 1987, 228–231, figs. 477, 478; Lloyd 1975, 48, n. 25; Göttlicher 1978, p. 68, pl. 27 (no. 362); Johnston 1985, 79–81 (Clas. 2); Spathari 1995, 110–

⁶ See below, 4.2 Archaic-Period Dionysian Ship Carts.



Figure 9. A Ptolemaic-period funerary ship of the Apis Bull moves on four sets of heavy wheels. Paris, Musée du Louvre E3887. Photo: S. Wachsmann.

111, fig. 128; Martin 1999, 146–148, fig. 15; Wachsmann 2012, 248–255). K.S. Pittakis suggested this identification already in 1862 (94) and it has been put forward more recently by H.G Martin (1999, 146, 147 Abb. 15).

Although the lamp/ship model was originally considered an *ex-voto* dedicated to Poseidon, subsequent conservation revealed a stippled dedicatory inscription reading $\text{IEPON TH\S A\theta\text{HNA\S}}$ (“sacred to Athena”) (Figs. 11: B, 12: A; Boetticher 1863, 194; Paton et al. 1927, 571–572, fig. 128).⁷ The forms of the letters indicate that the inscription dates to the 4th century BC (Morrison and Williams 1968, 179 [Clas. 20], citing R.P. Austin). D. Blackman believes that the letter forms can be dated from the late 5th to the 4th centuries BC (pers. com.). Furthermore, the discovery of the model in 1862 inside the Erechtheion suggests that the lamp had been a contribution rather than an accidental artifact left over from an earlier period on the site (Paton et

⁷ I thank H. Kritzas for this translation and his comments on the inscription. The Archaic-period wooden ship models donated to the Heraion on Samos are good parallels for *ex-votos* in the shape of a ship (Ohly 1953, 111–118, Beil. 34–35; Kopcke 1967, 145–148, Beil. 82–83; Kyrieleis 1980, 89–94, pls. 18–20; Basch 1987, 243, 244 figs. 513–517, 245 figs. 518–518bis, 246; Johnston 1985, 46–47, 50–51, 54–64 [Arch. 3–24]).

al. 1927, 571–572 fig. 229; Morrison and Williams 1968, 179 [Clas. 20]). The deposition of the model, therefore, must post-date the construction of the Erechtheion in 406 BC.

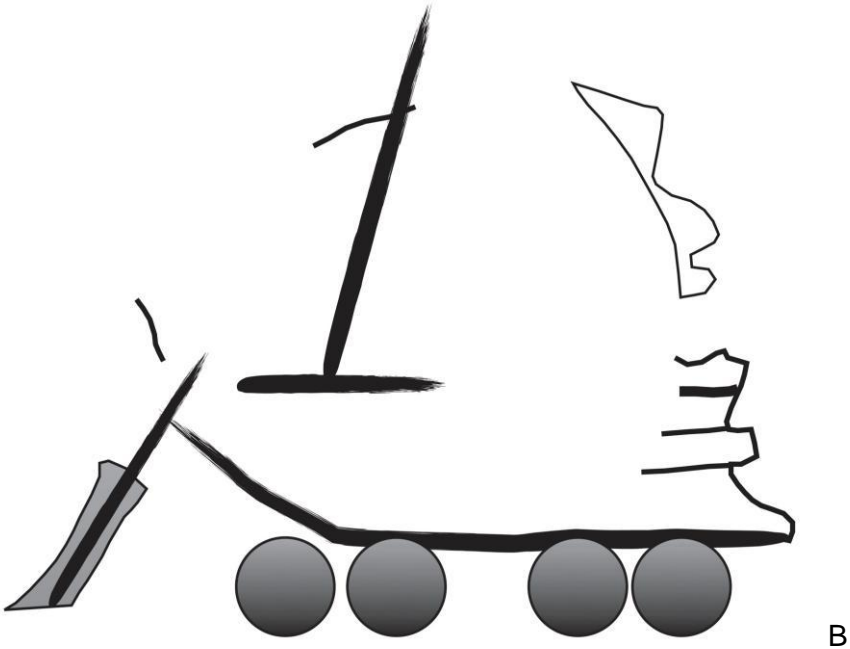
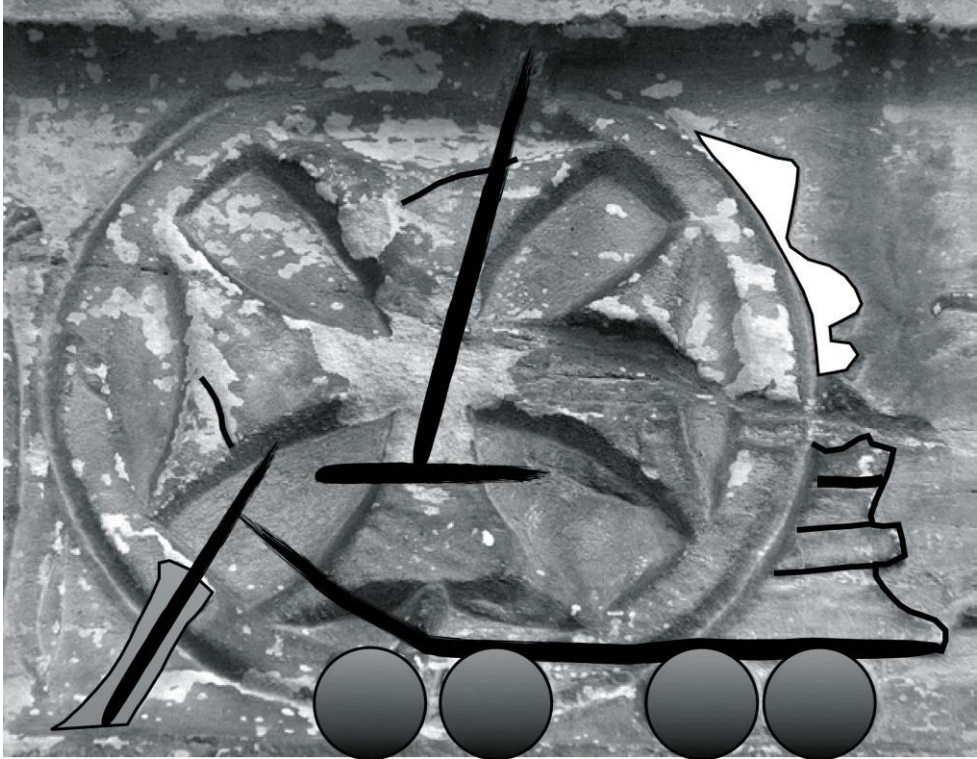


Figure 10. The surviving details of the Panathenaic ship on the Calendar Frieze. Photo and reconstruction: S. Wachsmann.



A



B

Figure 11. Bronze ship model/lamp discovered in the Erechtheion, Athens. Acropolis Museum EAM X 7038. A) Starboard side of model. B) detail of inscription: IEPON THΣ AΘHNAΣ on port side. Photos courtesy Acropolis Museum, Athens.

This is particularly curious because the Erechtheion model clearly copies a much earlier Archaic-period galley (Basch 1987, 228). Other scholars have suggested that the model could have been old when engraved (Morrison and Williams 1968, 179 [Clas. 20]).⁸ I have proposed a simpler solution: the model could have been both created and dedicated in the 4th century BC but that it represents a *Panathenaic* ship which, as we have seen from the Calendar Frieze, was modeled after an Archaic-period galley (Wachsmann, 2012, 249).

Before comparing the two representations, it is important to remember that the creators of the Calendar Frieze were 'horizontally challenged' due to the limited space allotted to each month (Martin 1999, 146). The ship's length clearly has been shortened resulting in a ship depicted as

⁸ Note, however, that Morrison includes the model in his Classical-period ship representations, apparently due to the date of the inscription. See also Basch 1972, 44.

dramatically squatter than its prototype. This is clear when the Calendar Frieze vessel is compared to most other known representations of Archaic galleys (Basch 1987, 202–227). Also, consideration must be given to the addition of the oil lamp in the bows of the Erechtheion model, which led to the displacement of its forecastle screen. When considering these two modifications, overlaying the outline of the Erechtheion model onto the Calendar Frieze’s *Panathenaic* ship results in an almost perfect fit, demonstrating a remarkable similarity between the two depictions, despite them existing in different mediums (Fig. 13; Wachsmann, 2012, 252–255).

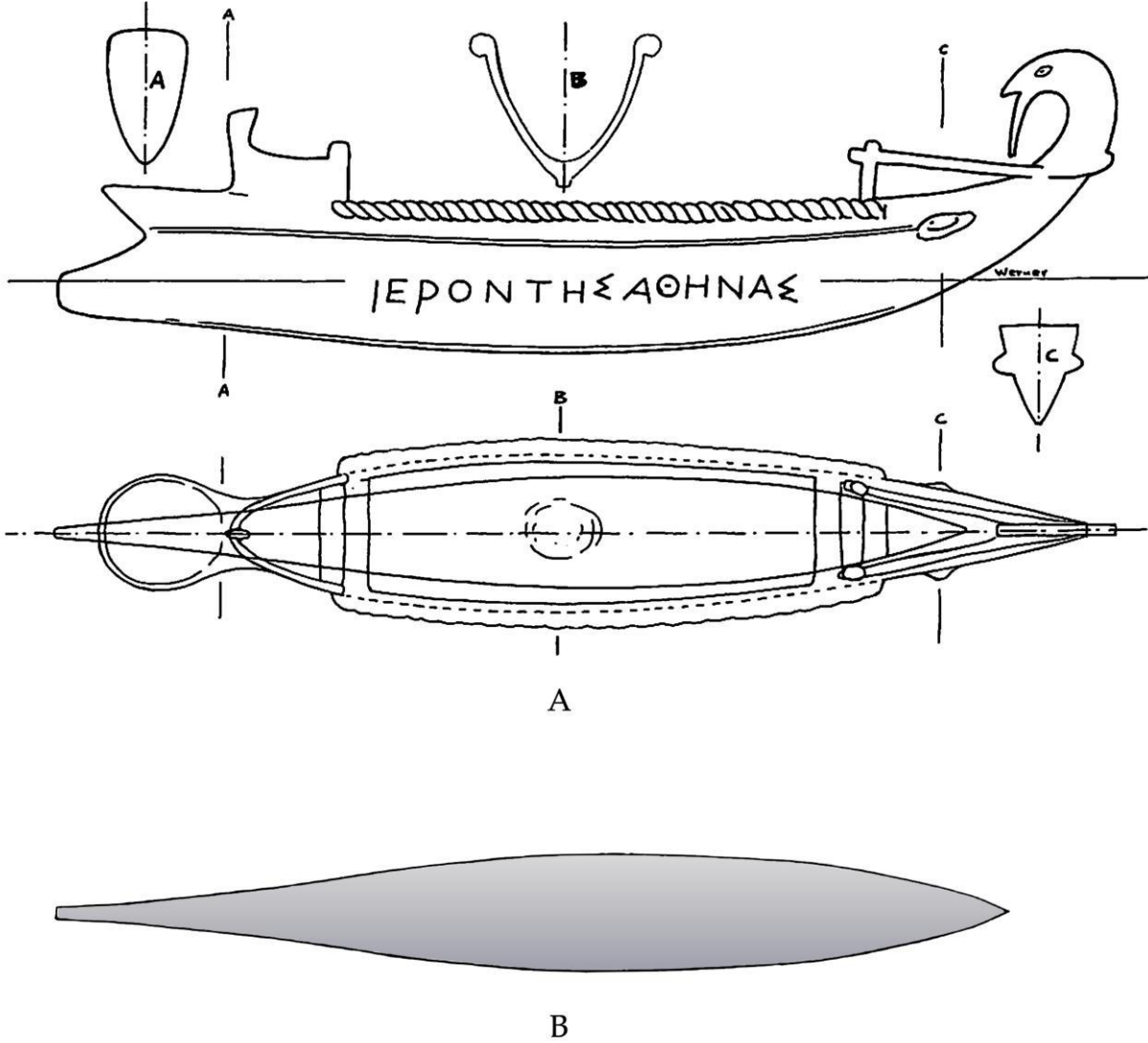
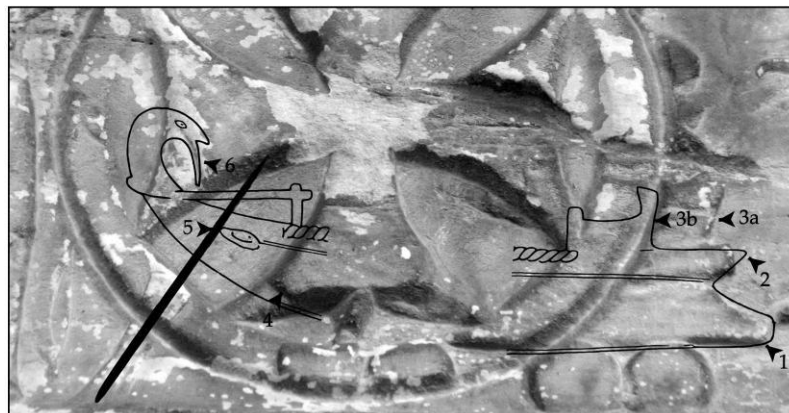


Figure 12. The Erechtheion ship/lamp model: A) port side and top view. B) waterline section. After Göttlicher 1978, pl. 27: 362.

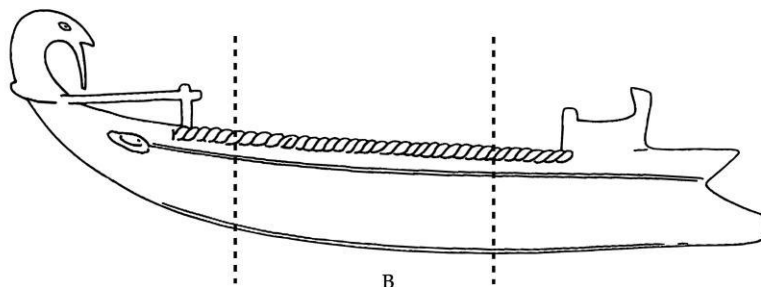
Nevertheless, there are, two important differences between the Calendar frieze and the Erechtheion model that require comment:

- The Calendar Frieze *Panathenaic* ship has a prominent *proembolion*, that is, a subsidiary ram above the waterline ram, which is missing on the Erechtheion model (Figs. 3: C, 11: A, 12: A).

There are two possible explanations for this disparity: A) perhaps the model's lamp was meant to stand in for the *proembolion*, for when viewed in profile, the lamp does have a somewhat similar shape (Fig. 13: A: 2). In my view, a more plausible explanation is that the Calendar Frieze and the Erechtheion lamp ship model are each styled after different iterations of the *Panathenaic* ship. Over its long career the vessel was repeatedly repaired, and at times replaced as, for example, under Herodes Atticus. This is paralleled in the famous case of the renovations to the ship of Theseus, which confounded Athenian philosophers (Plut. *Thes.* 23.1):⁹



A



B

Figure 13. Alignment of the bow and stern sections of the Erechtheion model when placed over the Calendar Frieze Panathenaic ship. 1) Ram, 2) oil lamp/*proembolion*, 3A) forecastle, 3B) forecastle of Erechtheion model positioned farther back than on the Calendar Frieze ship due to the placement of the model's oil lamp, 4) curve of the hull, 5) juxtaposition of the Calendar Friezes' reconstructed quarter-rudder loom against the Erechtheion model's through-beam, 6) the sinuous line at the Calendar Frieze ship's stern matches the beak of the Erechtheion model's bird-head stern device(Fig. 5: A). Photo and drawing: S. Wachsmann. B after Göttlicher 1978, pl. 27: 362.

“The ship on which Theseus sailed with the youths and returned in safety, the thirty-oared galley, was preserved by the Athenians down to the time of Demetrius Phalereus. They took away the old timbers from time to time, and put new and sound ones in their places, so that the vessel

⁹ Translation by Benadotte Perrin from Plutarch 1914, 49. I thank W.M Murray for this reference.

became a standing illustration for the philosophers in the mooted question of growth, some declaring that it remained the same, others that it was not the same vessel”.

J.M. Mansfield (1985, 68, 74–75) identifies four iterations of the Panathenaic ship. It remains impossible, however, to determine the exact number of replacements, as there may have been undocumented instances.

The ancient Egyptian cult barque of the god Amun, the *Amunuserhet*, serves as an excellent example of the replacement of cultic ships when they aged. This vessel, perhaps the most fabulous of any vessel constructed in ancient Egypt and was rebuilt at great expense whenever necessary (Foucart 1921–1922; Landström 1970, 120–121 fig. 370). The best-known example of this replacement process comes to us from the tale of Wenamun, in which the venerable priest is sent by Herihor, the High Priest of Amun at Karnak, to bring back Lebanese cedar for the construction of a new *Amunuserhet* (Pritchard 1969, 25–29). Herihor included a scene of an *Amunuserhet* in an inner room of his Khonsu temple at Karnak but the scene was created before Wenamun could have returned with the timber for a new vessel (Kitchen 1973, 252 n. 45; Epigraphic Survey 1979, xiv, pls. 19, 21; Egberts 1991; Wachsmann 1998, 251, 252 fig. 11.7).

Thus, it is quite possible that the Erechtheion model and the Calendar Frieze depict different iterations of the *Panathenaic* ship, separated possibly by centuries, with the former representing the earlier version. Although not a common element on Archaic ships, the *proembolion* begins to appear on galleys in the 5th century BC when ramming warfare became the norm in nautical combat.

- The second apparent difference is that the Erechtheion model when discovered had a stump amidships, which survived to about the level of the caprail (Fig. 14). This element has been identified as a *histopode*, or tabernacle, for a mast (Morrison and Williams 1968, 179 [Clas. 20]). The Calendar Frieze ship shows a mast stepped well astern of amidships canted forward (Figs. 6, 7: A, 10). I suspect that this element does not represent a mast, but rather functioned as a stalk from which to hang the lamp/ship model at its center of gravity (Wachsmann 2012, 254, 255 n. 71).

3.4 Other Possible Representations of the *Panathenaic* Ship

Scholars have proposed two other ship representations as representing *Panathenaic* ships:

- One is a Pentelic marble ship model from the Kerameikos (Fig. 15; Martin 1999); this identification is possible but much less secure than in the case of the Erechtheion model (Wachsmann 2012, 255–257). The model has the name MINOKIA engraved on it; J. Hurwit (pers. com.) suggests that this may hint that the model represents the sacred ship of Theseus.
- A second ship appears in a fragment of a relief, also made of Pentelic marble, from the region of the City Eleusinion (Fig. 16; Spetsieri-Choremi 2000). The limited evidence regarding this scene suggests that, if it does indeed represent the *Panathenaic* ship, it is depicted in storage, lacking its wheeled transport system (Wachsmann 2012, 258–261). Since the city Eleusinion appears to have been the customary stopping place of the *Panathenaic* ship while the parade continued up to the Acropolis, this may indicate that the actual ship was on occasion quartered there (Mansfield 1985, 76 n. 98). However, Pausanias (1:29:1), writing in the 2nd century AD, records that the *Panathenaic* ship was stored around the *Areopagus*, where it was available for viewing. Note, however, the

extremely fragmentary nature of this relief together with the consideration that, as noted above, Athens had other sacred ships.

4. The Dionysian ship cart

4.1 Introduction

Dionysos had a specific connection with war galleys relating, presumably, to his kidnapping by Tyrsenian pirates (*Hymn. Hom. Bacch.*). Upon realizing their error, the pirates jump into the sea where they become dolphins as grape vines climb up the rigging. This episode became a motif in pagan art (Fig. 17; Arias and Hirmer, 1962, 301–302, pl. XVI; *LIMC*, s.v. Dionysos; Beazley, 1986, pl. 67; Basch, 1987, 226, fig. 471; Spathari, 1995, 97, fig. 109; Isler-Kerényi, 2007, 180–187, fig. 104; Yacoub, 2007, 172, 173, figs. 86, 174). Facsimiles of these vessels played an important role in the Dionysian cult from at least the end of Bronze Age (Wachsmann, 2013, 120–121, 203–204). The ship carts were transported either on wheels or carried on the shoulders of celebrants. The Dionysian cult also had a connection with galley races as well as terracotta ship models found in the sea (Gardner, 1881A; 1881B; Harrison, 1885; Wachsmann, 2013, 128, fig. 3.48, pp. 131–132).

In the spring, at the time of the first wine, the Athenians celebrated the return of Dionysos on his ship (Robertson, 1985, 292–293). Most scholars connect this to the *Anthesteria* festival, which took place in the month of *Anthesterion* (Robertson, 1985, 292, n. 119). The festival included an actor role playing Dionysos who arrived in Athens for a *hieros gamos* with the *basilinna* aboard a highly decorate mock galley on wheels accompanied by two additional actors dressed as satyrs and playing *auloi* (Pickard-Cambridge et al. 1968, 11, n. 8, 12; Parke, 1977, 110–113).

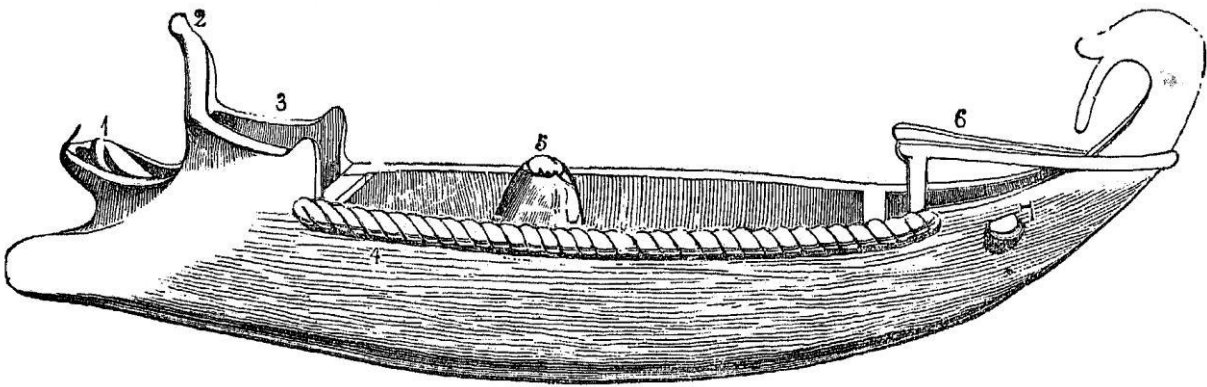
Dionysian ship carts took part in religious processions termed *katagogia* in Ionian cities. One also participated at Smyrna in the *Anthesteria*. Philostratus (circa AD 230–238) notes (Philostr. *VS* 1.25.531; trans. Wright, 1921, 107): “...for they bestowed on him and his descendants the right to preside over the Olympic games founded by Hadrian, and to go on board the sacred trireme. For in the month *Anthesterion* a trireme in full sail is brought in procession to the agora, and the priest of Dionysus, like a pilot, steers it as it comes from the sea, loosing its cables.”¹⁰

4.2 Archaic-Period Dionysian Ship Carts

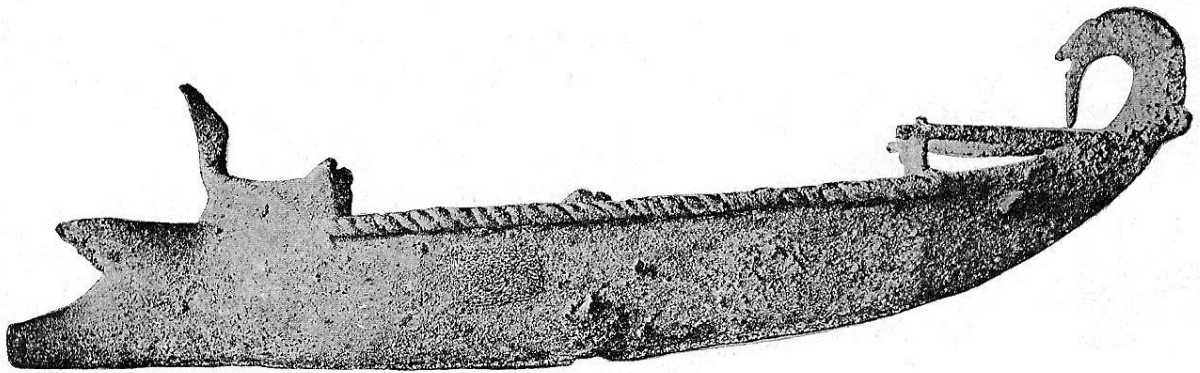
Doubtless, a series of three Dionysian ship carts painted on Late Attic black-figure skyphoi, dating circa 500 BC, are the best known exemplars of this type of land ship (Fig. 18; Simon, 1983, 94, fig. 12; Robertson, 1985, 291; Basch, 1987, 227, 228, fig. 475 [Athens Acropolis 281, Bologna Museum no. DL 109 and British Museum B 79]).

The bows of all three of these vessels, with their boar-head waterline rams, face right presenting a starboard view. As noted, the boar-head ram was popular during the Archaic period (see note 3, above). What appears to be a panel with closely aligned vertical lines descend from near the shear strake; this device clearly is meant to represent a row of oars. I understand this element to represent a panel of some light material, such wood or a framework covered with plaster with the

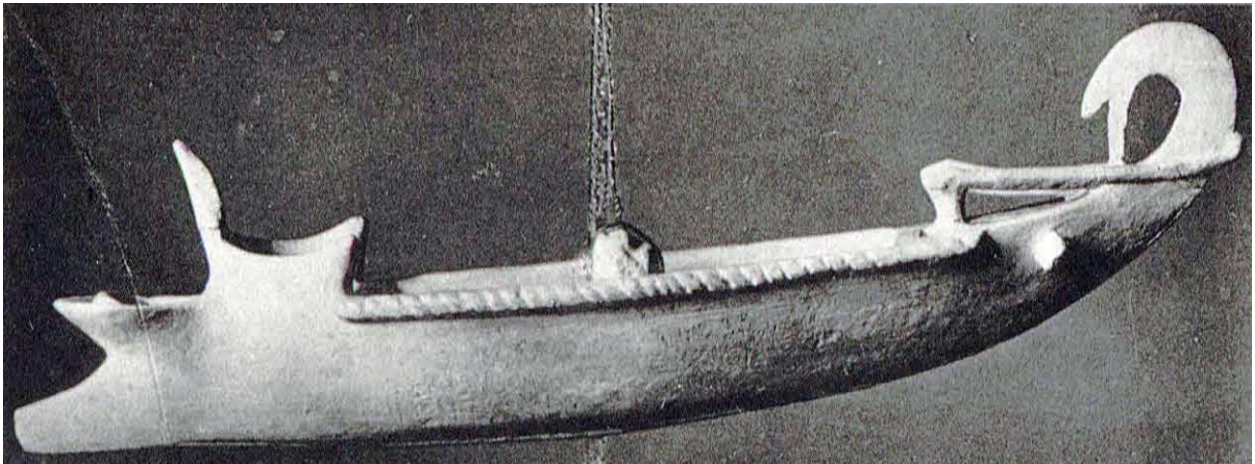
¹⁰ The appearance of the term “trireme” in the 3rd century AD is unusual. This description continues into the 4th century AD; it simply could refer to a watercraft, or a facsimile of one, that resembled an antiquated warship (W. Murray, pers. com.).



A

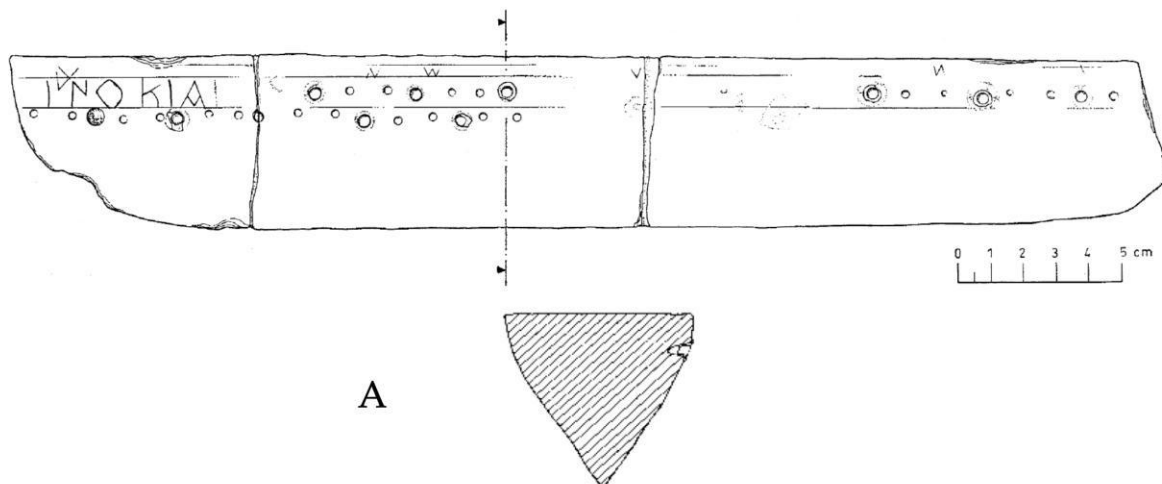


B



C

Figure 14. The appearance of the Erechtheion model as first discovered. Note the central stock. A from Pittakis 1862, cols. 91–92; B from de Ridder 1896, p. 140, fig. 95 (425); C from Moll 1929, no. B VII:1



B

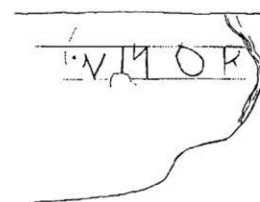


Figure 15. Side views of the Kerameikos marble ship model. Athens, Kerameikos P950. From Martin 1999, 138 Abb. 1–3, 139 Abb. 4–5.



Figure 16. Fragment of a marble relief portraying a ship's stern from the City Eleusinion. (ΠΛ 863). From Spetsieri-Choremi 2000, 2 fig. 1.

'oars' carved and/or painted on to give the appearance of an oar bank. As opposed to the *Panathenaic* ships described above, these Dionysian craft are clearly small, relatively light and

modest affairs as they are consistently depicted with only three actors riding in the narrow 'vessel'. The ship carts' appearance suggests something more akin to a parade float than an actual watercraft.

The ship carts' wheels, except for the lower third of their circumference, are hidden behind their oar panels. There are two types of wheels: four-spoked (Bologna) and wheels with a crossbar spoke with two secondary spokes that bisect it (Athens and London). The latter type appears in 6th century BC iconography as well as in the archaeological record in both Greece and Italy (Von Bothmer, 1985, 64, 182 [Cat. 47]: right and front, 184, fig. 100: A; Crowel, 2012, 81–83, pls. 94–96, 98, 101–103, 107–109, 114–115).



Figure 17. A 3rd-century AD mosaic from Dougga, Tunisia depicts the Homeric Hymn. Photo: S. Wachsmann.

The ships on the *skyphoi* appear to be carrying some form of a heavy drapery at their sterns. The Athens and London examples carry this item hanging over their stern castles (Fig. 18: A, C). On the Bologna ship cart, however, it appears to hang from a yard behind the stern (Fig. 18: B). These items have a lattice decoration and they seem to be a hallmark of the Dionysian cult on ships. This device appears at the stern of a galley transporting Dionysos and his companions (Fig. 19; Museum of Tarquinia, no. 678; Basch, 1987, 225–226, fig. 470: A). The same device appears on two scenes not related to Dionysos depicting Odysseus lashed to the mast during his encoun-



A



B



C

Figure 18. Attic Dionysian ship carts on Athenian skyphoi, dating circa 500 BC. A) Athens, B) Bologna, and C) London. A and C from Kerényi, 1976, ill. 57, 59; B, B from CVA Bologna 2 (Italy 7) Tav. 43: 88.4.

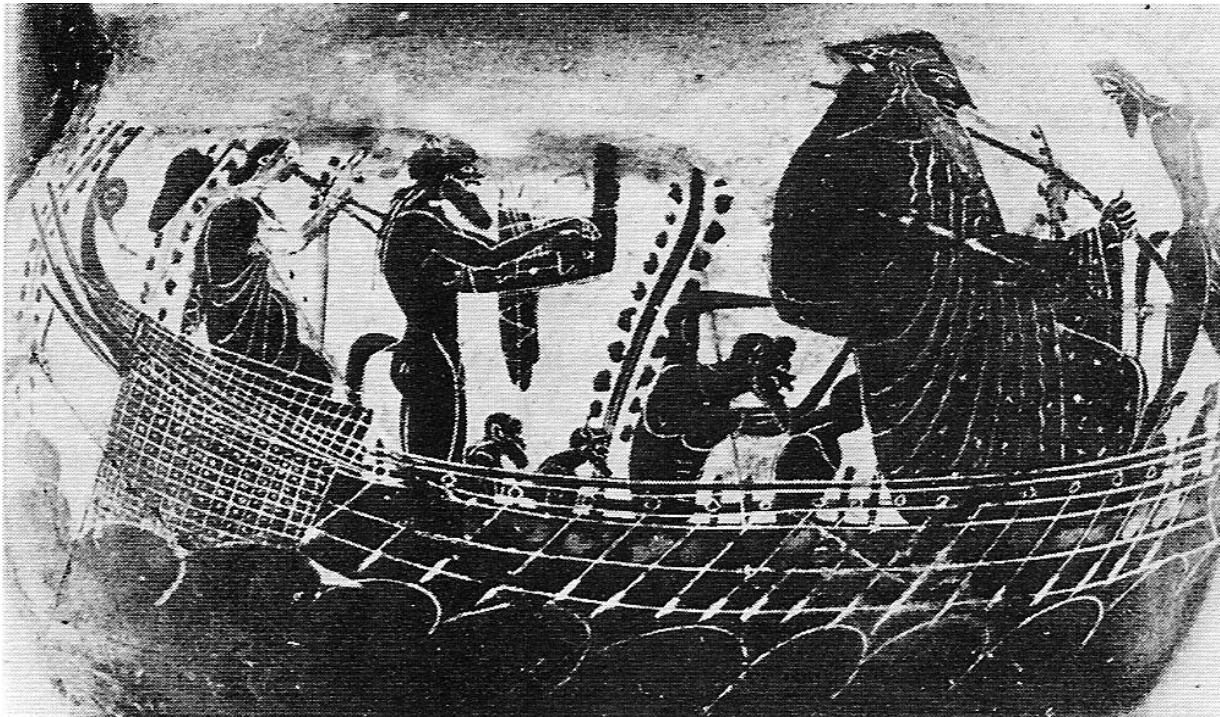


Figure 19. A black-figure vase depicts Dionysos and his entourage on a galley bearing stern “drapery.” From Basch, 1987, 226, fig. 470: A.



20) Terracotta galley model bearing Dionysian “stern drapery” found in the the sea at Gytheion, the port of Sparta. Photo: S. Wachsmann.



Figure 21. Black-figure sherd bearing the bow section of a Dionysian ship cart with the most detailed representation of the “drapery” element. In this example it, rather than an oar panel, stretches the entire length of the hull appearing on the sherd. Tübingen Institute for Classical Archaeology (Inv. S./10 1497)

ter with the harpies (Basch, 1987, 237–238, fig. 497, 270, fig. 574; Spathari, 1995, 105, fig. 121).

This detail also appears on terracotta galley models found in the sea; this seems indicative of the models reaching the seabed as an element of Dionysian cult practice. Perhaps the most notable example of this is a galley model found in the sea at Gytheion, the port of Sparta (Fig. 20; Basch, 1987, 428, 432, figs. 936–938, 433 figs. 939–943, 434, figs. 940–941, 435; Spathari, 1995, 136–137, fig. 165; Göttlicher, 2004; 2008). A ship appearing on an Archaic-period tomb painting from Emali, Turkey carries a somewhat similar device at the stern as do Phoenician galleys on 5th–4th century BC coins from Sidon and Arados (Toby 1979, 8 fig. 3; Basch, 1987, 321, figs. 675–676, 678, 322, fig. 681, 323, fig. 682, 324, fig. 685, 325, figs. 687, 692–693, 329, figs. 703–704, 330, figs. 712–715).¹¹

Basch (1987, 227–228, fig. 475) identifies these stern devices as fabrics or draperies. Galleys that appear on black-figure ceramics frequently carry forecastles decorated with crosshatching

¹¹ I thank O. Höckman for bringing this to my attention.

but sometime including motifs such as circles, dots or stars (Basch, 1987, 207–220; Spathari, 1995, 84–88, 93, 97, figs. 94–100, 106, 109).

The most detailed depiction of this element is found on a single sherd housed in the Tübingen Institute for Classical Archaeology (Fig. 21; Watzinger, 1924, 31, no. 53, Taf. 15: D53; Göttlicher, 1992, 105, Abb. 60; Wachsmann, 2013, 121, 124, 127, fig. 3.47: B). The sherd bears the forward starboard section of a Dionysian ship cart; at right the ear and part of the eye of a boar-headed ram survive. A lower half of a four-spoked wheel appears below the ship cart. Running the entire extant length of the ship cart, in place of the typical oar panel, is a section of this “drapery.” It is decorated in a diagonal wavy-line grid creating a pattern of alternating black and gray rectangles, each with a central motif (a flower?) and seems, to represent a richly embroidered, or woven, fabric. This does not appear to be the case, however.

Elizabeth J.W. Barber (2023) points out that, although the pattern appears to copy a heavy hanging fabric, this explanation is difficult. She notes that the wave-like pattern seen here is difficult to create with normal repetitive weaving techniques, whether in plain-weave-based fabrics or in tapestries. Barber concludes that the pattern had been painted on planking or canvas with the intention of it replicating the appearance of a textile or, alternately, that the pattern was entirely an artistic convention.

Given that the normal lattice decoration is repeatedly depicted on other representations of Dionysian ship carts, I prefer the explanation that the Tübingen sherd depicts a textile design painted on a different medium: canvas, stucco or wood. If correct, then this interpretation suggests that this copying of ‘drapery’ in a different medium must have developed from a time pre-dating the Archaic period when a type of textile was used for this purpose but that it was eventually into a decorated panel mimicking the fabric.

4.3 Pre-Archaic Period Dionysian Ship Carts

This fits with the understanding that Dionysian ship carts represented a venerable cultic concept already in the Archaic period. Although in Classical times Dionysos was considered a ‘new’ or ‘young’ deity (Hdt. II, 2.49), we now know that Dionysos had entered the pantheon of Greek gods at least by the Late Bronze Age because he appears in Linear B tablets from Pylos and Khania (PY EA102 [previously Xa 102], and Xa 1419; KH Gq 5; Ventris and Chadwick 1973, 127, 411; Chadwick 1976, 85, 87, 99–100; Baumbach 1979, 146–147; Ruipérez 1983; Hallager et al. 1992, 76–80, 86, pl. 6A; Duev 2017, 226–230).

I have proposed that the Gurob ship-cart model is a copy of a Late Bronze Age or Early Iron Age Dionysian ship cart (Fig. 22; Wachsmann 2013, 203–204).¹² The model, along with its loose components, were the only items discovered in Gurob’s Tomb 611 (Brunton and Engelbach, 1927, 17, pl. LII). This suggests that this ‘tomb’ may have been intended solely for the burial of the model itself.¹³ A small woven material was among the loose items found in the tomb; this may have been intended to represent the drapery-like decorations on the Archaic-period Dionysian ship-cart depictions (Wachsmann, 2013, 29, fig. 1.28: D, 30; Wachsmann and Sanders 2023, 144–145).

¹² On the date of the Gurob ship-cart model, see Wachsmann 2013, 28; Prior 2013.

¹³ Regarding ship burials in ancient Egypt, see Creasman and Doyle 2015; Inglis 2020; Vanhulle 2024.



Figure 22. The Gurob ship-cart model. Courtesy Petrie Museum of Egyptian Archaeology, University College, London.

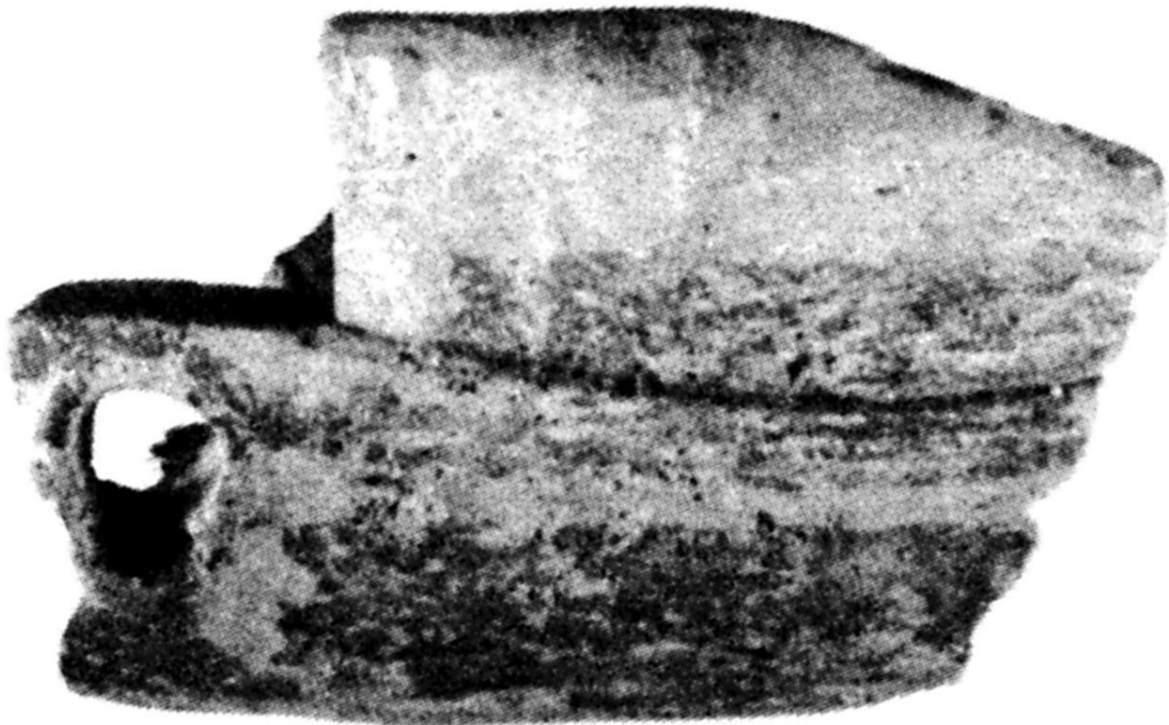


Figure 23. A terracotta ship model fragment bearing an axle hole for wheels from Pygos Livanaton (Kynos). From Dakoronia, 2002, 289, fig. 2. Courtesy Hellenic Institute for the Preservation of Nautical Tradition.

A Late Helladic III fragment of a terracotta ship model from Pyros Livanaton—Homeric Kynos—is roughly contemporaneous with the Gurob ship-cart model (Fig. 23; Dakoronia 2002, 283–284, 289, figs. 1–4; Wachsmann 2013, 120 fig. 3.41, 121 fig. 3.42). It has a perforation intended for an axle for a pair of wheels; this is the earliest known representation in the Aegean region of a ship on wheels. A terracotta wheel was also uncovered nearby (Dakoronia 2002, 283–284). The model's excavator considers the Kynos ship model a toy although noting that such toys-on-wheels are not known from this period. I suspect that the Kynos model served a cultic purpose also, most likely as a representation of a Dionysian ship cart. Following the Kynos model, the next depictions of ship carts are the Archaic-period Dionysian ship carts.

These land vessels were not solely transported on wheels. J. Boardman (1958) published sherds purchased in Luxor but purported to have been uncovered at Karnak that when reconstructed depicts a Dionysian cult ship being transported on the shoulders of celebrants.

The *chous* is a one-handed jug linked to the Attic Dionysian festival of *Anthesteria* (Richard 1992). The Anavysos Chous bears a scene that has been identified by R. Hamilton (1978)

as a Dionysian ship cart but the tableau is better understood as depicting a purpose-built stage for a dramatic performance constructed in the form of a ship (Pickard-Cambridge et al. 1968, 1–25; Wachsmann, 2013, 125, 131, fig. 3.51).

Evidence for cultic ships moving on wheels, or transported by porters, is extremely rare in both the Minoan and Mycenaean cultures. One exception, if it can even be considered as such, is a mourner carrying a ship model that appears on the Late Minoan IIIA Hagia Triada Sarcophagus (Long, 1974, 46, 48–49, pl. 19, fig. 52).

The three-wheeled bull-head chariot model from Karphi on Crete may suggest a potential source for the use of cultic wheeled conveyances in Iron Age Greece (Pendlebury et al. 1937–1938 [1940], 81, Cat. no. 24: D, pl. XXXV: 4; Seiradaki 1960, 28, n. 3, pl. 13; Hutchinson 1962, pl. 21; Gesell 1985, 210, pl. 159: a–b; Sakellarakis 2006, 95, 97, no. 11046; Mohen and Eluère 2000, 128). The Karphi model implies the introduction of a foreign element into Crete at that time. Its unusual tripart wheel system points to a European source. Similar three-wheeled cult objects are found in the better-preserved of the Dupljaja bird chariots of the Dubovac-Žuto Brdo culture (circa 1600–1300 BC) from Serbia, as well as artifacts from the later Urnfield culture, which often include three-wheeled cultic conveyances (Kossack 1954, 10–12, 28, 53, 59, 79, Taf. 1, 3: 1b; Schauer 1987, 17, Abb. 13; Pare 1989, 85, fig. 4; Mohen and Eluère 2000, 96; Vasić 2004; Bouzek 2005, 27–28). Thus, the Karphi chariot indicates a syncretic blend of bulls, which were sacred to Crete, with a northern-style three-wheeled cultic conveyance. Parasols are an additional possible link between the Dupljaja chariot to some representations of Mycenaean chariots (Wardle 1973, 328, 331, fig. 19; Crouwel 1973; French 1973).

4.4 Reconstructing a Generic Early Archaic-Period Dionysian Ship Cart

Donald H. Sanders (Institute for the Visualization of History) and I recently collaborated on a paper in which we endeavored to recreate in 3D a generic early Archaic-period ship cart based on contemporaneous iconographic and archaeological evidence (Wachsmann and Sanders 2023). Two rotatable models of this reconstruction, one as an actual boat, and one as a parade float, embedded in a 3D Adobe Acrobat PDF are available for download at the following open-

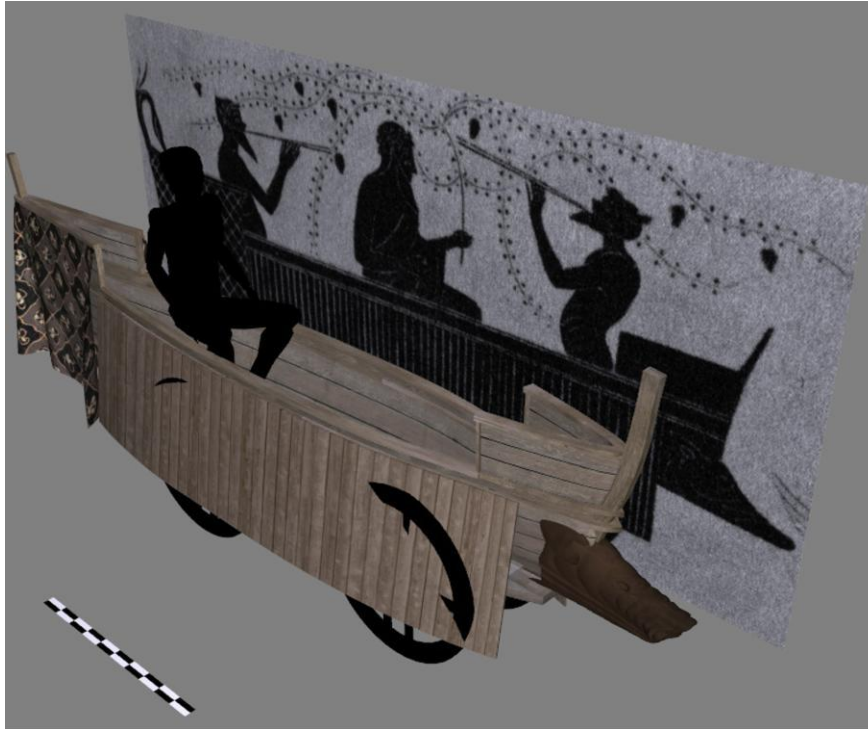


A



B

Figure 24. Two possible reconstructions of a Late-Archaic period Attic Dionysian ship cart reconstructed as A) a boat, and B) a parade float. © Institute for the Visualization of History, Inc.



A



B

Figure 25. A) Renderings were particularly useful in identifying errors in our reconstruction. Here the rendering indicated that the manner we had attached the oar panel directly to the hull was incorrect and that there must have been a spacer separating the two otherwise the wheels would intersect the oar panel. © Institute for the Visualization of History, Inc. B) The Abdul Sharif family boat being placed on a wheeled wagon in preparation for the festival parade (*dura*) during the 1998 Abu Haggag festival in Luxor, Egypt. Photo: S. Wachsmann.

access URL (Fig. 24):¹⁴ <http://www.vizin.org/DSC/pdf-download.html>. It is possible to remove from, and add elements to, the model to better evaluate our reconstruction.

Assumptions should be avoided in archaeological research, but in this experiment some inference was unavoidable (Wachsmann, 2019, 11–12, n. 12). Renderings were particularly useful in demonstrating errors in our understanding and modeling of the ship cart (Fig. 25a).

Due to the variation in detail among the exemplars of Archaic-period Dionysian ship carts, we consistently selected the most common representation of each detail, and the most detailed example of that detail. For example, we chose to depict the reconstruction with oar panels (Athens London, Bologna) rather than pseudo-drapery (Tübingen). On the other hand, we selected the most detailed representation of each given feature. Thus, we used the pattern of the Tübingen sherd's pseudo-drapery rather than the more common lattice decoration. It is important to emphasize, therefore, that our specific *generic* reconstruction, on all its details, probably never existed in antiquity. The measurements of the model are based on the average height (170 cm) of an Archaic male in Greece (Glowacki 2023), three of whom appear in each of the ship carts roleplaying Dionysos and his two companion satyrs on each of the three *skyphoi* representations. They demonstrate the diminutive size of these ship carts.

No two ship carts depictions are identical in all their details. This is probably the result of either A) the whims of the artists who created them or, more likely, B) it might reflect a reality in which each year the ship cart was changed somewhat in the same manner that modern parade floats are updated. In the latter possibility, the 'ship' could have consisted as little more than a basic framework that was hidden behind the oar panels and/or the pseudo-drapery and other accoutrements. To a contemporaneous observer such a float would have been indistinguishable from a boat (Fig. 24: B).

The available iconographic evidence is insufficient to determine which of these two options was in use: an actual miniaturized boat, like those used in the *dura* (festive parade) in modern annual *moulid* (birthday festival) of Abu Haggag in Luxor, Egypt, or a parade float (Fig. 25b; Wachsmann 2002A; 2002B). Indeed, both options may have existed in different times and places. During the creation of the model we assumed an actual hull but present both possibilities in the 3D PDF (Fig. 24: A-B).

Indeed, a major aspect of the evolution of our 3D model was determining how to differentiate what evidence was available and what required inference. The process was not linear, both in the sense of my understanding of the model and how Sanders and his team created the 3D reconstruction. The modeling and programming took about 70 hours and developed over 23 major iterations.

5 Conclusions

Despite the severe limitations caused by preservation issues, the ship representing the month of *Hekatombaion* on the Calendar Frieze is crucial for our understanding of the *Panathenaic* ship's appearance and massive proportions. It indicates that the *Panathenaic* ship was modeled after an Archaic-period galley. Through a direct comparison with the vessel depicted in the Calendar Relief, it is also clear that the Erechtheion model represents a version of the *Panathenaic* ship, providing us with a more detailed 3D understanding of the vessel.

¹⁴ For instructions on how to navigate the 3D pdf, see Sanders 2023.

The details of the Kerameikos ship align with our understanding of the *Panathenaic* ship; however, the presence of the name 'MINOKIA' suggests the possibility that it may replicate the sacred ship of Theseus. Similarly, while the ship depicted on the marble relief fragment from the City Eleusinion can be interpreted as a *Panathenaic* ship on stocks, we must consider the incomplete nature of the depiction and the distinct possibility that it might represent one of Athens' other sacred ships.

The distinctly Archaic-period galley form of the *Panathenaic* ship seems to support a 6th-century BC date for its introduction into the *Panathenaia*. Unlike the Dionysian ship cart, which appears in imagery from that period, there are no specific references to the *Panathenaic* ship in art or text from such an early date. It is possible that the ship was introduced later but was deliberately modeled after an earlier vessel to evoke an air of venerability at the time of its introduction.

The Athenian Dionysian ship cart appears during the Late Archaic period, also modeled after an Archaic war galley, indeed suggesting its introduction in Athens around that time. However, there is no reason to believe that this type of cult vessel originated there. Dionysos is mentioned in Linear B tablets, indicating that his cult dates back at least to the Late Bronze Age. Although it is difficult to establish a clear connection between the ship model fragment from Kynos and the Dionysian cult, the model suggests that the concept of a ship cart in Greece extends back to at least the Late Helladic IIIC period. The Gurob ship-cart model may indicate that the cult of Dionysos, which was identified with that of Osiris, reached Egypt during the mass migrations at the transition between the Late Bronze and Iron Ages. The reemergence of the Dionysian cult in Greece during the Archaic period could be attributed to renewed contact with Egypt. Herodotus, in fact, notes the striking similarities between the cults of Dionysos and Osiris, leaving him uncertain as to whether the Dionysian cult originated in Greece or Egypt (Hdt. II, 48–49; Wachsmann 2013, 204).

Big and small. When discussing the *Panathenaic* ship and Dionysian ship carts together, the stark contrast in their sizes is striking. The former vessel features a massive hull, while the latter is comparatively tiny, barely accommodating the three actors seated within it. Computerized 3D modeling substantiates the flimsy and parade-float like nature of Late Archaic period Dionysian ship carts. Despite their differences in size, however, both vessel types played significant roles in ancient Athenian cult festivals."

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ΧΟΡΗΓΟΙ



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ΕΛΛΑΔΑΣ



ΟΜΙΛΟΣ ΤΕΕ ΤΕΡΝΑ

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