

SEEING THE SEA

SHIPS' EYES IN CLASSICAL GREECE

ABSTRACT

Excavations in the Athenian Agora have brought to light fragments of three sculpted marble eyes, or *ophthalmoi*, from Classical levels in and around the Tholos precinct. The discovery of similar objects at the ancient harbor of Zea, and more recently in association with a Classical Greek ship wrecked off the Aegean coast of Turkey, makes clear that all are examples of the eyes that decorated the bows of ancient Greek ships. Three hypotheses are offered to explain the presence of nautical artifacts within the Agora: they may have served as honorific fixtures relating to the fleet; represented surplus naval equipment stored in the Strategion; or belonged to a wheeled ship used in the Anthesteria or the Greater Panathenaia festival.

SHIPS' EYES FROM THE ATHENIAN AGORA

Fragments of three sculpted marble eyes, or *ophthalmoi*, have been discovered in the course of excavations at the Athenian Agora.¹ The first was found during the spring of 1938, when archaeologists working along the western edge of the Agora explored one of two wells associated with Building F, a large Archaic structure that preceded the circular Tholos constructed after the Persian sack of Athens in 480 B.C. Unlike many of the wells in the Agora, which are carved into the natural bedrock, this one had been carefully walled with small fieldstones that continued to the very bottom of the well, to a depth of over 9 m.² The bottom third of the well contained ceramic vessels, lamps, and figurines that suggested that the well had been in use during the first decades of the 5th century B.C., while the

1. I extend my appreciation to John Camp, director of the Agora Excavations, American School of Classical Studies at Athens, for his permission and encouragement to present the three Agora fragments included here, as well as to George Bass, director of the

Tektaş Burnu shipwreck excavation. I am grateful to Camp, Kathleen Lynch, and Susan Rotroff, whose comments on earlier versions of this paper resulted in several key improvements. Sylvie Dumont, Marcie Handler, and Jan Jordan helped to facilitate my research

on the Agora fragments; Carrie Atkins and Alexis Catsambis assisted in countless other ways. I also thank the anonymous *Hesperia* referees for their detailed and very constructive remarks.

2. Well G 11:3. See Thompson 1940, p. 25; Camp 1977, pp. 175–182.



Figure 1. Marble eye 1 from the Athenian Agora. Scale 1:4. Photo courtesy American School of Classical Studies at Athens, Agora Excavations

upper two-thirds contained an earthen fill interspersed throughout with stones and fragments of ceramic pithoi, millstones, and querns. One of the marble objects retrieved from this fill is a large sculpted eye (1), broken at both ends but still about 60% complete, finished with a low raised border around the edges and a round hole through the center (Fig. 1). Black-figure potsherds and fragmentary roof tiles belonging to the Tholos and found near the mouth of the well indicate that it was closed at the same time the Tholos was nearing completion, ca. 475–465 B.C.³

A second fragmentary marble eye (2), comparable in size but less well preserved than the first, was excavated in another well to the southeast of the Tholos (Fig. 2). Opened about 50 years after the Tholos was completed, this well had been dug to a depth of 12 m.⁴ The mouth of this well was capped with two courses of poros blocks, but, unlike the well associated with Building F, the well shaft was left unlined, and before too long the walls collapsed and the well became unusable. The collapse of the well walls created a small pit at the surface that served in the short term as a dump for a large quantity of burned roof tiles, millstones, and broken pottery dating from the last decades of the 5th century. This deposit, characterized by the excavator, Homer Thompson, as a kitchen dump, appears to have been the result of a fire that damaged or destroyed the Tholos near the end of the 5th century.

Finally, in 2007, pieces of a third eye (3) were discovered in a 5th-century context approximately 20 m southwest of the Tholos (Fig. 3).

1 Marble eye fragment

Fig. 1

Agora A 3811. From well G 11:3 in the Tholos precinct.

P.L. 45, p.H. 19, Th. 3.5 cm. 60% complete; missing both ends and a large section under the central hole.

Unpublished (noted by Shear Jr. 1993, p. 451).

The central portion of a large, rather stylized right(?) eye of Pentelic(?) marble. Smooth surface of the eyeball is framed by angular eyelids rendered as a low broad border 3.0 cm wide. Central hole is much worn. Back is roughly worked; the edges appear to have been finished with a flat chisel.

Ca. 475–465 B.C.

3. *Agora* XII, pp. 390–391; Shear Jr. 1993, p. 414, n. 86.

4. Well H 12:6. See Thompson 1940, pp. 95–96.

Figure 2. Marble eye 2 from the Athenian Agora. Scale 1:4. Photo courtesy American School of Classical Studies at Athens, Agora Excavations



2 Marble eye fragment

Fig. 2

Agora A 4804. From the "kitchen dump" of well H 12:6 in the Tholos precinct.

P.L. 20.3, p.H. 28, Th. 4.7 cm. 30% complete; missing the center, outer eye, and innermost corner.

Unpublished.

Fragment of a left(?) eye of large-grained white marble, representing the section between the (missing) central hole and tear duct. The eyeball's surface is smooth and slightly domed; the eyelids are represented by thick raised borders 3.5–3.9 cm wide; the lower eyelid curves naturalistically as it approaches the (missing) corner. The back is flat and unpolished, but more finely finished than other examples.

425–400(?) B.C.

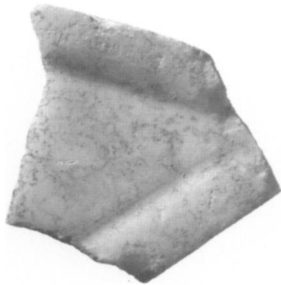


Figure 3. Marble eye 3 from the Athenian Agora. Scale 1:3. Photo courtesy American School of Classical Studies at Athens, Agora Excavations

3 Marble eye fragment

Fig. 3

Agora A 5161. From F 13, 20 m south of the Tholos.

P.L. 12.5, p.H. 11.5, Th. 2.5 cm. 10% complete; only the outer corner is preserved.

Unpublished.

Outermost corner of a left(?) eye of large-grained white marble. The eyelids consist of a low raised border and intersect at the corner in a sharp angular fashion. The back is roughly worked and carries traces of red stain.

5th(?) century B.C.

SHIPS' EYES AT ZEA HARBOR

The identification of the three Agora marbles as fragments of sculpted *ophthalmoi* was facilitated by the discovery, almost 60 years earlier, of numerous intact and incomplete examples from the Athenian harbor town of Piraeus (Fig. 4). News of the find was first reported in 1880 by H. G. Lolling, who examined 11 marble eyes in a private collection, unearthed during construction of a new road at the edge of the ancient harbor of



Figure 4. Marble eye 4 from Zea harbor. Scale ca. 1:5. Photo courtesy Piraeus Archaeological Museum

Zea.⁵ In the following year, the Greek Archaeological Service acquired nine of the *Zea ophthalmoi*,⁶ six of which are now housed in the Piraeus Archaeological Museum (4–9).⁷ A seventh fragment (10) resides in the Staatliche Museen of Berlin (Fig. 5).⁸

4 Intact marble eye

Fig. 4

Piraeus Archaeological Museum 3465–2674. From Zea harbor.

L. 53, H. 24.5, Th. 2.5–4.5 cm (at pupil). Complete; in excellent condition.

Saatsoglou-Paliadeli 1978, p. 120, no. A1, pl. 40:α, β.

Intact left eye with smooth domed eyeball; eyelids are expertly rendered as a thin curved edge and the tear duct is present. The iris consists of three concentric rings, some with color stains: the innermost (W. 2.5 cm) is yellowish; the middle (W. 2.7 cm) has no added paint; the outermost (W. 3.2 cm) is reddish. The central hole (Diam. 1.2–2.5 cm) widens as it nears the outer surface as if to allow the fastener head to sit flush against the eyeball. The back is flat and roughly worked; traces of red stain are evident across its entire surface. Saatsoglou-Paliadeli understood the back face to have been worked with a bush hammer, but Rockwell (1993, p. 54, n. 18) notes that “it is highly doubtful that the bush hammer existed in antiquity even for granite carving,” suggesting that the uneven reverse surface common to all of the *Zea ophthalmoi* (4–10) was more likely caused by a tooth chisel or point chisel.

5th(?) century B.C.

5 Marble eye fragment

Piraeus Archaeological Museum 3467–2676. From Zea harbor.

P.L. 40.5, p.H. 21.2, Th. 2.0–3.55 cm (at pupil). 50% complete; two fragments, preserved from the hole to the outer corner.

Saatsoglou-Paliadeli 1978, pp. 120–121, no. A2, pl. 40:γ, δ.

The outer half of a left eye of Parian(?) marble. The eyeball is smooth and domed; there is no indication of incision or added color. The central hole

5. Lolling 1880, p. 384. Milchhöfer (1881, p. 58) states that whole and broken eyes were discovered approximately one and a half to two years earlier (in 1879?) at the eastern edge of Zea harbor; as the reported measurements differ only slightly, it stands to reason

that these are the same eyes described by Lolling (1880).

6. *Prakt* 1881, p. 22.

7. Saatsoglou-Paliadeli 1978, pp. 119–123.

8. Blümel 1963, p. 19, fig. 23.

(p.Diam. 2.5 cm) is incomplete and widens as it nears the outer surface as if to allow the fastener head to sit flush against the eyeball. The back is flat and roughly worked with a tooth chisel; traces of red stain are evident across its entire surface.

5th(?) century B.C.

6 Marble eye fragment

Piraeus Archaeological Museum 3466-2677. From Zea harbor.

P.L. 47, p.H. 15.5, Th. 2.65–3.5 cm (at pupil). 90% complete; missing only innermost corner at tear duct.

Saatsoglou-Paliadeli 1978, pp. 121–122, no. Δ1, pl. 40:ε, στ.

A nearly complete right eye of Parian(?) marble with smaller overall dimensions; the eyeball's surface is worn and marred by a long gash above the central hole (Diam. 1.5 cm); there is no indication of incision or added color. The back is flat and roughly worked; traces of red stain are evident across its entire surface. Saatsoglou-Paliadeli describes the presence of "rust" around the hole and along the length of its interior.

5th(?) century B.C.

7 Marble eye fragment

Piraeus Archaeological Museum 3469-2678. From Zea harbor.

P.L. 35.5, p.H. 20, Th. 2.1–3.05 cm (at pupil). 60% complete; two fragments, missing innermost corner at tear duct and outer third to corner.

Saatsoglou-Paliadeli 1978, p. 122, no. Δ2, pl. 41:α, β.

The central part of a right eye of Pentelic(?) marble. The eyeball's surface is smooth and domed, except for a small broken section at the top of the central hole; the upper eyelid is chipped. The iris consists of three incised concentric rings of varying width and color: the innermost (W. 3.2 cm) is yellowish; the middle (W. 1.5 cm) has no added color; the outermost (1.8 cm) is a darker reddish(?) color. Traces of rust around the circumference of the central hole. The back side is roughly worked with a point chisel.

5th(?) century B.C.

8 Marble eye fragment

Piraeus Archaeological Museum 3470-2679. From Zea harbor.

P.L. 30.5, p.H. 20.5, Th. 2.2–3.0 cm (at pupil). 50% complete; broken at both ends, missing inner corner and outer third portion.

Saatsoglou-Paliadeli 1978, p. 122, no. Δ3, pl. 41:γ, δ.

Half of a right eye of Parian(?) marble. The eyeball's surface is smooth and domed, with traces of a yellowish or rust-colored stain. The central hole is well preserved and widens as it nears the outer surface as if to allow the fastener head to sit flush against the eyeball. Five incised concentric rings of varying widths radiate out from the central hole: 3.5, 0.3, 1.5, 1.8, and 0.3 cm; the second and fifth are presumably thin borders of the first and fourth rings. The first ring has traces of rust(?), the third has no added color, and the fourth has traces of a reddish stain. Parallel striations on the back are clear signs that the reverse was worked with a tooth chisel; deeper gouges suggest a point chisel.

5th(?) century B.C.

9 Marble eye fragment

Piraeus Archaeological Museum 3468-2675. From Zea harbor.

P.L. 37.5, p.H. 21.5, Th. 2.6–3.5 cm (at pupil). 50% complete; nearly entire outer half preserved in four fragments.

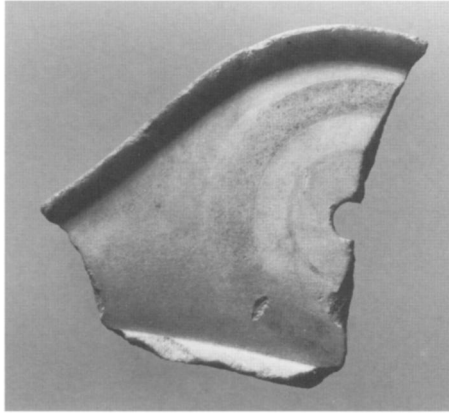


Figure 5. Painted marble eye 10 from Zea harbor. Scale ca. 1:4. Photo courtesy Bildarchiv Preussischer Kulturbesitz/Art Resource, New York



Figure 6. Hypothetical reconstruction of marble eye 10. Drawing L. Santoro

Saatsoglou-Paliadeli 1978, p. 123, no. Δ4, pl. 41:ε, στ.

The outer half of a right eye of Parian(?) marble. The edges of the eyelids are broken slightly; the central hole (Diam. 1.1–2.0 cm) is worn at the eyeball's surface. Five incised concentric rings of varying widths radiate out from the central hole: 2.5, 0.4, 2.6, 2.2, and 0.5 cm; there are no traces of added color. As with 8, the second and fifth are presumably thin borders of the first and fourth rings. The back appears to have been worked with a tooth chisel.

5th(?) century B.C.

10 Marble eye fragment

Figs. 5, 6

Berlin, Staatliche Museen SK 1039. From Zea harbor.

P.L. 17, p.H. 18.8, Th. 3.2 cm. 35% complete; missing innermost corner and outer half.

Blümel 1963, p. 19, no. 11, pl. 23.

The inner half of a left(?) eye of Parian(?) marble. The eyeball is smooth and framed by sharply angled eyelids. Extensive added color has survived to suggest five incised concentric rings of varying widths radiating out from the central hole (p.Diam. 2.0 cm): yellow at the center, followed by a narrow band of red, followed by a wider band of white (or possibly blue), an even wider red band, and finally a narrow yellow band. The back is roughly worked with a point chisel; there is no indication of red stain, but the presence of what Blümel describes as "rust" led him to conclude that it was once attached by means of an iron fastener. Hypothetical reconstruction (Fig. 6) based on Blümel's description.

5th(?) century B.C. (6th century B.C., according to Blümel).



Figure 7. Excavations by Dörpfeld and Dragatsis along the eastern edge of Zea harbor ca. 1890, showing the reconstruction of some of the columns from the shipsheds.

Photo courtesy Deutsches Archäologisches Institut, Athens, D-DAI-ATH-Piräus 6

In 1885, as excavation of the northeastern part of Zea harbor continued, archaeologists exposed the remains of 10 low sloping slipways with columnar partitions (Fig. 7) that suggested a series of roofed sheds, presumably designed to cover and protect the renowned Athenian war galleys.⁹ The Zea shipsheds thus provided some of the earliest direct evidence for this important naval feature,¹⁰ as well as indirect evidence for the actual dimensions of ancient warships. In 1898, Dragatsis unearthed a portion of yet another marble *ophthalmos*,¹¹ apparently now lost,¹² but by that time the maritime context of the Zea marble eyes seemed assured.

In various locations around Piraeus and Athens, a series of inscribed marble slabs have been found that document the provisioning and supervision of hundreds of ships and naval equipment. These stelai, published in the second and third quarters of the 4th century B.C., are often described collectively as the *tabulae curatorum navalium*, or the Piraeus Naval Inventories.¹³ Some of the inscriptions serve as an inventory of naval gear, divided broadly into two types: wooden (rowing oars, steering oars, masts, ladders, poles) and hanging (sails, ropes, screens, anchors, oarport covers).¹⁴ Other inventories provide detailed information about the ships themselves, including their class, name, location, and condition; in several cases, a ship's *ophthalmoi* are described as either broken¹⁵ or missing.¹⁶ The logical inference, then, is that the marble eyes uncovered at Zea in the late 19th century are pieces of naval equipment likely to have been stored with lines, rigging, and other gear in a nearby warehouse.

9. Dragatsis 1885, pp. 63–68.

10. For a comprehensive review of the archaeological evidence for Greek and Roman shipsheds, see Blackman 1995.

11. Dragatsis 1899, p. 39.

12. Saatsoglou-Paliadeli 1978, p. 119, n. 7.

13. *IG II²* 1604–1632. See also Böckh 1840.

14. Morrison and Williams 1968, pp. 289–307; Gabrielsen 1994, pp. 227–228; Casson 1995, pp. 224–267.

15. *IG II²* 1604, lines 41, 68, and 75.

16. *IG II²* 1607b, line 24.

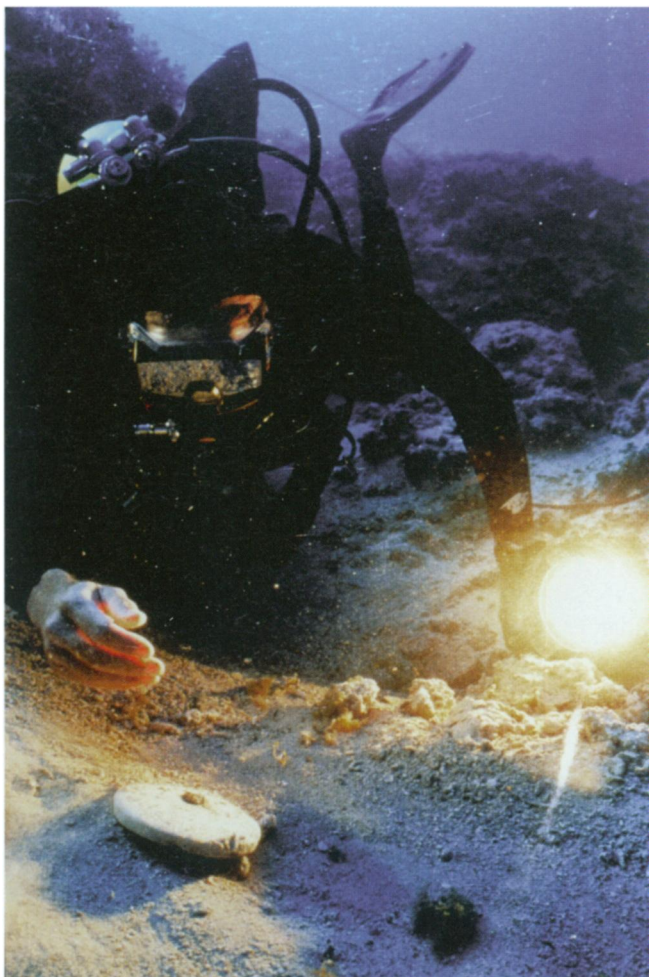


Figure 8. The excavation of the Tektaş Burnu wreck (marble eye 12 in foreground). Photo D. Frey, courtesy Institute of Nautical Archaeology

SHIPS' EYES FROM THE TEKTAŞ BURNU WRECK

The recent excavation of a Classical Greek merchant ship wrecked off the Aegean coast of Turkey at Tektaş Burnu provides the first clear evidence for *ophthalmoi* in association with an actual ancient ship (Fig. 8). The Tektaş Burnu vessel, which probably sank between 440 and 425 B.C., was a small and probably local trader carrying a mixed cargo of East Greek pottery, pine tar, and wine contained in amphoras produced at nearby Erythrai.¹⁷ During the first excavation season in 1999, archaeologists uncovered a white marble disk (11), about 14 cm in diameter, pierced through the center by a large lead spike (Fig. 9).¹⁸ As on the *Zea ophthalmoi*, the outer face is convex and incised with concentric lines, while the back—which would have rested against the ship's wooden hull—is flat and roughly worked. Within the incised lines are the faded remnants of a dark painted ring that indicates the outermost edge of the iris, while the flattened head of the lead fastener, at center, is reminiscent of the eye's pupil.

A second *ophthalmos* (12, Fig. 10) was found the following season, at a distance of little more than a meter from the first, suggesting that

17. Bass 2002; Carlson 2003. For the identification of a Classical Erythraian amphora type, see Carlson 2004; Carlson and Lawall 2007.

18. Nowak 2001.

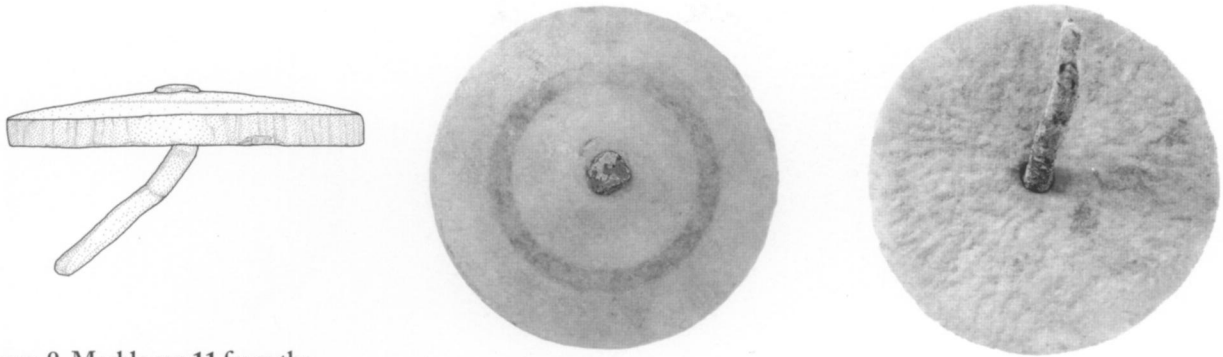


Figure 9. Marble eye 11 from the Tektaş Burnu shipwreck. Scale 1:3. Drawing S. Agar, photos K. May, courtesy Institute of Nautical Archaeology

after the ship had sunk, its wooden planks were quickly consumed by shipworms, leaving behind only the marble *ophthalmoi* and the fasteners that once held them in place. The near-total disappearance of the ship's hull over the course of two and a half millennia means that the two marble eyes provide some of the only direct evidence for the location of the bow and the vessel's orientation on the seabed. Furthermore, the intact lead spike penetrating the center of 11 was encrusted with marine growth along the length of its shaft; the only portion relatively free of marine concretion was an area 2.5 cm long directly behind the marble eye, which should correspond to the thickness of the ship's vanished hull planking.

11 Intact marble eye

Fig. 9

TK 007. From the shipwreck at Tektaş Burnu, Turkey.

Diam. 13.8, Th. 1.5–2.1 cm (at pupil); 770 g. Complete; in excellent condition, with lead spike.

Nowak 2001; Carlson 2003, pp. 594–595.

Intact circular eye of white marble. The eyeball's surface is domed; the central hole (Diam. 1.35 cm) accommodates a bent lead spike, 8.6 cm long and rectangular in section, with head protruding 0.2 cm above the polished surface. At the center of this surface are the remains of a circular patch of dark pigment, 2.4 cm wide; an outer ring, 0.8 cm wide and bordered by faint incised lines, sits 3.7–4.5 cm from the central hole. The back is flat and roughly worked. Results of stable isotope ratio analysis carried out by Norman Herz (Department of Geology, University of Georgia) generated the following values: $\delta^{13}\text{C} = 3.87$; $\delta^{18}\text{O} = -4.19$. Comparison of the results with the Classical Marble Database (Herz 1987) using a least-squares statistical program (Pentia 1995) indicates a 12% match with Dokimeion and only a 5% match with Cycladic Paros.

440–425 B.C.

12 Intact marble eye

Figs. 8, 10

TK 222. From the shipwreck at Tektaş Burnu, Turkey.

Diam. 13.2, Th. 1.2–2.3 cm (at pupil); 690 g. Complete except for small chip on back; broken lead spike.

Nowak 2001; Carlson 2003, pp. 594–595.

Intact circular eye of white marble. The eyeball's surface is domed; the central hole (Diam. 1.5 cm) accommodates the head of a lead fastener (Diam. 2.3 cm), which protrudes approximately 0.2 cm above the surface. The remainder of the



Figure 10. Marble eye 12 from the Tektaş Burnu shipwreck. Scale 1:3. Drawing B. Güneşdoğdu, photos D. Frey, courtesy Institute of Nautical Archaeology

lead spike is missing. Faint incisions and traces of pigment on the surface suggest a painted outer ring similar to that of 11, 3.7–4.5 cm from the central hole. The back is flat and smooth. Results of stable isotope ratio analysis carried out by Norman Herz (Department of Geology, University of Georgia) generated the following values: $\delta^{13}\text{C} = 2.22$; $\delta^{18}\text{O} = -7.05$. Comparison of the results with the Classical Marble Database (Herz 1987) using a least-squares statistical program (Pentia 1995) provides a 97% match with Cycladic Naxos and a 41% match with Mt. Penteli; in light of the marble's fine grain size, however, Mt. Penteli appears to be the more likely candidate.

440–425 B.C.

SHIPS' EYES FROM THE COAST OF ISRAEL

Two other circular marble *ophthalmoi* like those from the Tektaş Burnu shipwreck are known to have been found off the coast of Israel. Although unpublished, they are included here in an effort to provide readers with the most comprehensive catalogue of known examples of ships' eyes.

13 Intact marble eye

Found in the sea off Yavneh Yam, Israel.

Diam. 20, Th. ca. 4.0 cm. Complete; missing fastener.

Unpublished.¹⁹

Intact circular eye of white marble. The eyeball's surface is convex and perforated by a central hole (Diam. 1.2 cm); traces of added color on the surface suggest two painted concentric rings. The back is flat.

5th–4th(?) century B.C.

14 Intact marble eye

Found in the sea off Megadim, Israel, at a depth of 3 m.

Diam. 23.5, Th. 2.3 (at edge) to 4.3 cm (at pupil); 4,050 g. Complete; missing fastener.

Unpublished.

Intact circular eye of white marble. The eyeball's surface is domed and perforated by a central hole (Diam. 1.0 cm) that widens to a diameter of 2.0 cm at the outer surface; no traces of incision or added color. The back is flat.

Date unknown, but perhaps associated with a nearby assemblage of Hellenistic coins and ship's equipment believed to represent a shipwreck.²⁰

19. <http://www.israelnationnews.com/News/News.aspx/126823> (accessed July 2008).

20. E. Galili (pers. comm.); Galili, Rosen, and Zviely 2009, pp. 359–360. For the underwater finds at Megadim, see Galili and Rosen 2008. I am extremely grateful to Ehud Galili of the Israel Antiquities Authority for sharing with me news of this important find.

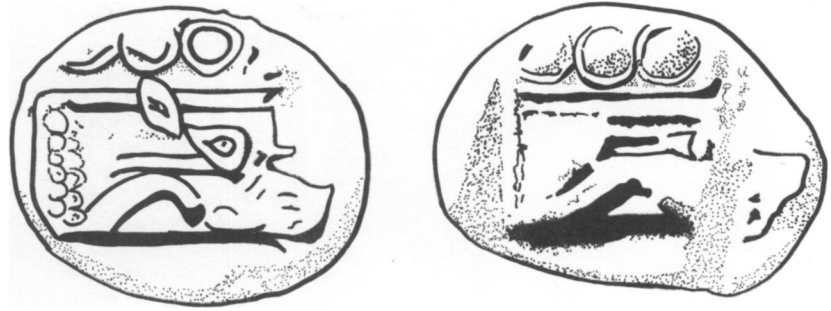


Figure 11. Archaic Phaselite coins with charging-boar prow. Drawings C. Atkins, after Heipp-Tamer 1993, pl. 1:10, 11

EVOLUTION AND FUNCTION OF SHIPS' EYES

The ancient Greek tradition of endowing a ship with eyes dates back at least to the Late Bronze Age, as indicated by a painted terracotta boat model, 12 cm in length, excavated in the settlement at Phylakopi on the island of Melos.²¹ Far more plentiful are the depictions of eyed warships featured on Attic black-figure vases of the 6th century B.C.²² In these examples, the ram—the primary offensive weapon of an ancient galley—takes on the menacing appearance of a wild boar, suggesting that the resemblance between an attacking warship and a charging animal was not lost on the ancient Greeks. This association between boar and ship's ram is also a central feature of Archaic silver coins from Phaselis, which show the forepart of a boar, complete with front legs pulled in close to the head as if in pursuit, in the guise of what is clearly intended to be a ship's prow (Fig. 11).²³ While the evidence suggests that the eyes associated with a ship's ram were feral in nature, other Archaic vase paintings indicate that some ships were also decorated with larger, more prominent *ophthalmoi* on either side of the partition where the forward lookout (*prorates*) was stationed (Fig. 12); the Zea marble eyes are likely to be examples of these adornments.

Despite numerous technical similarities in the surface treatment of the ships' eyes from Tektaş Burnu and Zea, the differences in their shape and size are both obvious and important. Circular *ophthalmoi* like the pair excavated at Tektaş Burnu appear on a handful of Archaic Greek vases (Fig. 13).²⁴ The present corpus of depictions is too small to permit definitive conclusions, but it seems to imply that merchant ships routinely carried circular eyes, while oared galleys were equipped with larger, more naturalistically rendered *ophthalmoi*. The discrepancy in size between the modest *ophthalmoi* of the Tektaş Burnu ship and the larger, more robust eyes from Athens may simply be a matter of proportion: the Tektaş Burnu ship was probably not more than about 12 m long, whereas a trireme—the Classical Greek ship of the line—must have measured about three times that length.²⁵

The iconographic and archaeological evidence seems sufficient to conclude that Archaic and Classical ships, especially oared galleys, were routinely portrayed with eyes at the bow. The tradition, however, was not uniquely Greek; Aeschylus describes the Persian ships that gathered off the

21. Bosanquet and Welch 1904, p. 206.

22. See Basch 1987, pp. 206–228; Steinhart 1995, pp. 88–103.

23. Heipp-Tamer 1993, pp. 25–39, pls. 1, 2.

24. E.g., the Aristonothos krater from Cerveteri (Basch 1987, p. 233, no. 482); kylix B 436 in the British Museum (Basch 1987, p. 222, nos. 462–464).

25. Morrison, Coates, and Rankov 2000, pp. 132–133.



Figure 12. Black-figure kylix signed by Nikosthenes as potter, showing warships with naturalistic *ophthalmoi*, ca. 520–510 B.C. Paris, Musée du Louvre F123. Photo courtesy E. Lessing, Art Resource, New York

coast of Salamis in 480 B.C. as linen-winged and dark-eyed.²⁶ And Danaos recognizes the fleet of vessels approaching Argos as Egyptian owing in part to the eyes painted on the prow.²⁷ To be sure, in some cases, *ophthalmoi* were painted on a ship's wooden hull using either an admixture of wax and pitch or tinted wax in an encaustic technique.²⁸ Pliny the Elder reports that many of the Hellenistic world's most accomplished painters, such as Protogenes of Kaunos and Heraklides of Macedon, began their careers as ship-painters.²⁹ It is conspicuous, however, that the only marble specimens of ships' eyes to have survived from the ancient world all hail from Greek contexts. Even within the modest corpus of a dozen examples presented here, it is possible to discern a stylistic evolution from the rigid Archaic angularity of Agora eye 1 toward the more naturalistic and supple Classical curves of Zea eye 4.³⁰ The remnants of five concentric painted rings, colored red, yellow, and possibly blue on the Berlin eye 10, are particularly interesting in light of the recent discovery of red and blue pigments in the Classical shipsheds of Sicilian Naxos.³¹

As a motif, eyes appear on everything in ancient Greece from coins to cups to shields to amphora stamps; while it is not within the scope of this article to account for these many manifestations,³² it is appropriate

26. Aesch. *Pers.* 559. Bacchylides (13.157) employs the same imagery in describing the Greek ships at Troy.

27. Aesch. *Supp.* 716.

28. Pliny (*HN* 35.41.149) describes the application of the encaustic technique as it relates to ships; Pollux (*Onom.* 1.86) may imply painting when he states that "above the akrostolion is the ptychis, and the eye,

where they inscribe the ship's name" (my translation).

29. Pliny *HN* 35.36.101 (Protogenes); 35.40.135 (Heraklides).

30. Pliny (*HN* 35.31.49) suggests that the practice of eye-painting originated on warships and was subsequently applied to merchant vessels; perhaps we should imagine a similar evolution among the ancient Greeks?

31. For the discovery of red ochre (hematite) in the Naxian shipsheds, see Blackman and Lentini 2006, p. 197; in a more recent report, the excavators describe the presence of red and blue pigments at the site: see Blackman and Lentini 2008.

32. As Steinhart 1995. For eye-cups specifically, see Jordan 1988; Lissarague 1990; Hedreen 2007.



Figure 13. Black-figure oinochoe showing a merchant ship with circular *ophthalmos*, ca. 510 B.C. The Hague, Museum Meermanno-Westreenianum 619/836. Photo courtesy Museum Meermanno-Westreenianum

to question the symbolic motivation for endowing a ship with eyes. Conventional explanations typically conclude that ships' eyes were either apotropaic or anthropomorphic in nature, as there is evidence to support both interpretations.³³ Apotropaic eyes, like the Gorgoneion, served a protective function by warding off the ill effects of the evil eye.³⁴ In this capacity, it is noteworthy that the marble *ophthalmoi* under discussion stare directly outward, not ahead in the direction of a traveling ship, and their pupils are often painted with concentric circles reminiscent of a mask.³⁵ An anthropomorphic function endows the ship with a spirit capable of seeing the sea, and the accounts of Aeschylus and Philostratos suggest that the ancient Greeks did indeed believe that ships' eyes behaved in this way.³⁶

THE CONTEXT OF THE AGORA EYES

The two marble *ophthalmoi* from Tektaş Burnu and the 11 examples from Zea harbor come from decidedly nautical contexts, but the same cannot be said of the three fragments from the Athenian Agora. Two of these were retrieved from wells adjacent to the Tholos, a circular building where the 50 *prytaneis*, the executive officers of the Boule, convened and dined, and where a smaller number slept in the event that they were needed to respond to a state emergency.³⁷ But inasmuch as the earlier of the two fragments

33. For a more thorough discussion of the evidence, see Nowak 2006.

34. Levi 1941; Moss and Cappanari 1976.

35. For the correlation between masks and the prophylactic eyes on painted Greek pottery, see, e.g.,

Frontisi-Ducroux 1989.

36. Aesch. *Supp.* 716; Philostr. *Imag.* 1.19. For various modern parallels, see Hornell 1946, pp. 285–289.

37. *Agora* III, pp. 179–184; Camp 2001, pp. 69–70.

was associated with debris deposited during the initial construction of the Tholos ca. 470 B.C., it must have belonged to a different, earlier structure. An obvious but problematic prospect is Building F, an Archaic structure of irregular plan that may have served as the private residence of the Peisistratid tyrants.³⁸

Another candidate in the immediate vicinity is the (Old) Bouleuterion, or council house, probably constructed at the very end of the 6th century B.C.³⁹ It was the council (Boule) that presided over state naval matters, including the construction and maintenance of warships, their equipment, and the shipsheds, as well as the supervision of hundreds of trierarchs.⁴⁰ Bouleutic decrees concerning naval affairs were enforced by the dockyard officers (*epimeletai neorion*), who published the naval inventories discovered in the Piraeus.⁴¹ Fragments of similar stelai, representing at least three additional mid-4th-century inscriptions, have been found in the Agora. Some of these appear to duplicate the Piraeus inventories, while at least one fragment actually joins them, though none makes mention of ships' eyes.⁴² All of the fragments were either reused in modern construction or come from unstratified or otherwise disturbed contexts; two, however, were retrieved from fill west of the Metroon, a sanctuary dedicated to the Mother of the Gods. With the construction of a New Bouleuterion in the late 5th century came the conversion of the Old Bouleuterion to the Metroon, which functioned primarily as an archive for state documents of which these naval inventories may have formed a part.⁴³

Regrettably, we will probably never know exactly where or how (or even if) the Agora *ophthalmoi* were displayed. Were they intended to serve as a visual reminder of one of the Boule's many civic responsibilities, or did they commemorate a specific historical event, as did the bronze shields taken from the Spartans at Pylos in 425 B.C. and exhibited for centuries in the Stoa Poikile?⁴⁴ Chrysoula Saatsoglou-Paliadeli conjectured that the marble eyes from Zea may have been inlaid into flat wooden frames painted to mimic a ship's hull, which were then erected as dedications by the trierarchs.⁴⁵ In this vein, it is worth noting that the votive dedication of naval equipment is a conspicuous and persistent phenomenon in the ancient world, represented by everything from anchor stocks to naming

38. Thompson 1940; Shear 1978; Camp 1986, pp. 44–45. Papadopoulos (2003), on the other hand, interprets Building F as a potter's workshop and part of the Archaic Kerameikos that preceded the Classical Agora.

39. Thompson 1937, pp. 127–140. For a recent reinterpretation of the building, see Miller 1995 and the response in Shear Jr. 1995.

40. Arist. *Ath. Pol.* 46.1; Rhodes 1972, pp. 113–122, 153–158.

41. Garland 1987, pp. 78–79, 95–100.

42. Schweigert (1939, pp. 17–25)

understood the five fragments to be a slightly altered copy of *IG II² 1611*; Laing (1968) showed that one Agora fragment (*I 5419*) clearly joins two of the Piraeus inscriptions (*IG II² 1628* and *1630*). Shear (1995, p. 180) rightly asserts that “the discovery of naval-inventory fragments in the Agora does not require that the fragments be copies of those in Piraeus,” but she fails to concede that a single join among those fragments does not rule out the possibility of duplicate inscriptions; for the moment, the issue is best left open for discussion.

43. Camp 1986, pp. 91–94.

44. The Athenians also displayed, in the Stoa of Zeus Eleutherios, shields used by citizens who died defending Athens (Camp 1986, pp. 105–107).

45. Saatsoglou-Paliadeli 1978, pp. 134–135. The reddish stain on some of the Zea eyes could have come just as easily from the red ochre (*miltos/minium*) used for painting ships, as described in Hom. *Il.* 2.637; *Od.* 9.125; Hdt. 3.58.2. Direct evidence for the presence of red ochre in ancient shipsheds has now been uncovered at Naxos, Sicily (see n. 31, above).

devices to warship rams.⁴⁶ In exceptional cases, entire ships were dedicated as offerings, set up on stone supports for permanent display in a sanctuary.⁴⁷ While a large percentage of the votive naval equipment dedicated by the ancient Greeks was probably stripped from captured enemy vessels,⁴⁸ some of this material, including *ophthalmoi*, certainly could have come from ships in the Greeks' own fleet.⁴⁹

Agora eye fragment 3 was discovered only recently, southwest of the Tholos precinct, and it is associated with the remains of a 5th-century B.C. structure tentatively identified as the *Strategoion*, headquarters of the army generals. Because little of the actual building has survived, its identification is based on the descriptive testimonia of ancient authors, as well as several Hellenistic inscriptions found nearby, which were intended to be set up in front of the *Strategoion*.⁵⁰ A late-4th-century B.C. inscription found on the Acropolis records the transfer to the *strategoï* of certain hanging gear (ropes, screens, sails) for deposition in the *Strategoion*.⁵¹ Although *ophthalmoi* are not included in this or other lists of similar equipment, the inscription does provide a possible justification for interpreting the eye fragments as remnants of naval gear stored in the Agora. This interpretation, however, ultimately hinges upon the identity of the structure long referred to as the *Strategoion*. Renewed excavation of this area suggests that the character of the building was more commercial than civic; recent finds include transport amphoras and a hoard of almost 400 silver tetradrachms that appear to be virtually contemporaneous with the aforementioned Acropolis inscription.⁵²

Yet another interpretation of the *Zea ophthalmoi* comes from Matthias Steinhart, who has proposed that the eyes may have belonged to a ship of a different kind—the ship-chariot of Dionysos. The ship-chariot is traditionally associated with the *Anthesteria*, a three-day spring festival in which the Greeks honored Dionysos by opening and sampling the season's newest vintage.⁵³ Although we have no written accounts of the god's annual return to Athens,⁵⁴ several late-6th- or early-5th-century Attic black-figure vase paintings show him being conveyed in a wheeled ship.⁵⁵ The obvious implication of the ship-chariot is that the procession to the god's sanctuary in the marshes originated in a seaport, which was doubly significant as the festival is likely to have coincided with the opening of the sailing season.

While a cache of 11 marble eyes seems excessive for a single ship-chariot, Steinhart's hypothesis gives us good reason to evaluate the Agora *ophthalmoi* against the evidence for a similar ritual vehicle, the Panathenaic

46. Pritchett 1979, pp. 281–285. For anchors, see Gianfrota 1977. For the Actian warship-ram memorial, see Murray 1989.

47. Blackman 2001; Wescoat 2005, with further bibliography.

48. For the 5th century B.C., see Hdt. 8.121.1; Thuc. 2.84.4.

49. Agora eye 1 appears to be of Pentelic marble, but the marble of 2 and 3 is less distinctive. Future isotopic or spectroscopic analysis could help pin-

point the source of the marble, which might shape speculation about whether these eyes belonged to Greek vessels.

50. Dinsmoor 1954, pp. 294–296; *Agora* III, pp. 174–177.

51. *IG* II² 1479b, lines 66–67.

52. Camp 2007, pp. 657–660.

53. Pickard-Cambridge 1968, pp. 1–25; Parke 1977, pp. 107–120; Burkert 1983, pp. 213–226.

54. See Philostr. *VS* 1.25.1 for an account of the *Anthesteria* procession

at Ionian Smyrna: “a trireme under full sail is brought in procession to the agora, and the priest of Dionysos, like a helmsman, guides it as it comes from the sea, loosening its cables” (trans. W. C. Wright, Cambridge, Mass., 1921).

55. Pickard-Cambridge 1968, figs. 11–13; Göttlicher (1992, pp. 104–105, figs. 59–61) includes a disputed lead sheet from Montagna di Marzo, Sicily.

ship. Like its Dionysian counterpart at the Anthesteria, this wheeled ship was a main attraction at the Greater Panathenaia festival held in late summer every four years, when the Athenians presented their patron goddess Athena Polias with a newly woven woolen peplos carried on the mast like a hoisted sail.⁵⁶ While scholars do not agree on the antiquity of the ship-cart as a feature of the festival,⁵⁷ there is general consensus that the processional route originated in the Kerameikos and continued along the Panathenaic Way through the Agora and ultimately up to the Acropolis. The wheeled ship, however, was undoubtedly not well suited for the final steep ascent through the Propylaia and onward to the sacrificial altar, and as such was apparently moored elsewhere.⁵⁸ Comparable vehicles are depicted on two fragmentary sculptural reliefs from Athens, though neither is sufficiently well preserved to indicate the presence of an *ophthalmos*.⁵⁹ Nevertheless, the fact that the ship-cart passed through the Agora along the Panathenaic Way is assured, and provides yet another possible explanation for the discovery of the three fragmentary marble *ophthalmoi* found there.

CONCLUSIONS

The excavation of two circular marble *ophthalmoi* from the 5th-century B.C. shipwreck at Tektaş Burnu provides undeniable proof that the ships' eyes depicted on many Archaic and Classical Greek vases were in some cases three-dimensional sculpted objects and not superficial paintings. Furthermore, the discovery confirms the accuracy of several illustrations that suggest that merchant ships (such as the wreck at Tektaş Burnu) were equipped with circular eyes, while more anthropomorphic, almond-shaped eyes were reserved for warships. More than a dozen examples of the latter type have been found in the port and marketplace of ancient Athens and are thus certainly to be regarded as ships' eyes,⁶⁰ which prompts the question: What was naval material doing in the center of Athens?

Taking into consideration the provenience and date of the three marble eye fragments from the Athenian Agora, I have proposed three hypotheses

56. *IG II²* 3198; Philostr. *VS* 2.1.5. Modern bibliography on the topic is vast, but see especially Davison 1958; Simon 1983, pp. 55–72; Mansfield 1985; Neils 1992; Shear 2001; Parker 2005, pp. 253–269.

57. E.g., Robertson (1985, p. 294) argues that the Panathenaic ship predated and “supplied the pattern” for the ship-cart of Dionysos. Barber (1992, p. 114) suggests that the processional phenomenon was a direct and logical development (and celebration) of the Greek victory over the Persians at Salamis. Norman (1983, p. 44) sees the Panathenaic ship as a Hellenistic innovation, judging it “extremely unlikely that the ship could have

existed and been part of the procession from the inception of the festival ritual, sometime in the sixth century B.C., and have escaped all notice in literature, art and other documents until the third century B.C.”

58. According to Pausanias (1.29.1), the ship was moored near the Areopagos, while Philostratos (*VS* 2.1.7) recounts that the ship, equipped with 1,000 rowers, circled the Eleusinion, passed the Pelasgikon and the Pythion, and was displayed nearby. For discussion and interpretation of the Philostratos account, see Gardner 1914; Wycherley 1963; Tobin 1993; Welch 1998, pp. 138–145. A terminus in either locale would explain why the

ship does not appear on the Parthenon frieze depicting the final procession to the Acropolis (Rotroff 1977; Norman 1983).

59. In the 2nd- or 3rd-century sculpted relief built into the Byzantine church of Ayios Eleutherios, a cross was carved over the ship, obliterating any potentially diagnostic details. For an earlier fragment from the area of the Eleusinion showing what appears to be the stern of a ship-cart, see Spetsieri-Choremi 2000.

60. Contra Assmann (1888, p. 1613), who judged the Zea marble *ophthalmoi* to be too small, too thin, and of unsuitable material to have served as ships' eyes.

for the function of the *ophthalmoi*. The eyes may have been honorific, affixed either to a commemorative monument possibly erected by one or more trierarchs, or to a structure (the Bouleuterion?) that highlighted the Boule's civic duty as custodians of the fleet, Athens' most illustrious and awesome asset. Like the marble *ophthalmoi*, fragments of inscribed stelai documenting the naval activities of the Boule have been found in both the Piraeus and the Agora, which appear to constitute two major spheres of bouleutic activity as far as the fleet was concerned.

An equally plausible theory is that the eyes represent the remains of surplus naval equipment surrendered to the *strategoî* and stored in the Strategeion. There is little in the existing naval lists, however, to suggest that *ophthalmoi* were routinely classified with other pieces of a ship's gear; rather they appear to have been treated as permanent fixtures of the ship itself. Equally ambiguous is the true character of the supposed Strategeion; inscriptions and other more recent finds suggest that the building's real identity may continue to elude us for some time.

Finally, a third and more remote possibility is that the Agora eyes once belonged to a ritual wheeled ship of the type featured in the Anthesteria and the Greater Panathenaia festivals. Although the origin, destination, and antiquity of each festival's procession were distinctive, both followed a route along the Panathenaic Way through the Agora. As a result, neither can be ruled out as a possible source of the three fragmentary marble *ophthalmoi* found there over the course of 75 years of excavation.

REFERENCES

- Agora = The Athenian Agora: Results of Excavations Conducted by the American School of Classical Studies at Athens*, Princeton
- III = R. E. Wycherley, *Literary and Epigraphical Testimonia*, 1957.
- XII = B. A. Sparkes and L. Talcott, *Black and Plain Pottery of the 6th, 5th, and 4th Centuries B.C.*, 1970.
- Assmann, E. 1888. "Seewesen," in *Denkmäler des klassischen Altertums zur Erläuterung des Lebens der Griechen und Römer in Religion, Kunst, und Sitte* 3, ed. A. Baumeister, Munich, pp. 1593–1639.
- Barber, E. J. W. 1992. "The Peplos of Athena," in *Goddess and Polis: The Panathenaic Festival in Ancient Athens*, ed. J. Neils, Princeton, pp. 103–117.
- Basch, L. 1987. *Le musée imaginaire de la marine antique*, Athens.
- Bass, G. F. 2002. "Golden Age Treasures," *National Geographic* 201:1, pp. 102–117.
- Blackman, D. 1995. "Naval Installations," in *The Age of the Galley: Mediterranean Oared Vessels since Pre-Classical Times*, ed. R. Gardiner, London, pp. 224–233.
- . 2001. "Ship Dedications in Sanctuaries," in *Ithake: Festschrift für Jörg Schäfer zum 75. Geburtstag am 25. April 2001*, ed. S. Böhm and K.-V. von Eickstedt, Würzburg, pp. 207–212.
- Blackman, D., and M. C. Lentini. 2006. "An Ancient Greek Dockyard in Sicily," in *Die neue Sicht: Unterwasserarchäologie und Geschichtsbild. Akten des 2. Internationalen Kongresses für Unterwasserarchäologie, Rüschlikon bei Zürich, 21.–24. Oktober 2004 (Antiqua 40)*, ed. A. Hafner, U. Niffeler, and U. Ruoff, Basel, pp. 193–197.
- . 2008. "Further Investigation of an Ancient Greek Dockyard in Sicily," in *IKUWA 3: Beyond Boundaries. The Third International Congress on Underwater Archaeology*,

- University College, London, 7–14 July 2008: Abstracts, http://www.ikuwa3.com/documents/IKUWA3_programme.pdf, p. 49 (accessed July 2008).
- Blümel, C. 1963. *Die archaisch griechischen Skulpturen der Staatlichen Museen zu Berlin*, Berlin.
- Böckh, A. 1840. *Urkunden über die Seewesen des attischen Staates*, Berlin.
- Bosanquet, R. C., and F. B. Welch. 1904. "The Minor Antiquities," in T. D. Atkinson et al., *Excavations at Phylakopi in Melos, Conducted by the British School at Athens*, London, pp. 190–215.
- Burkert, W. 1983. *Homo Necans: The Anthropology of Ancient Greek Sacrificial Ritual and Myth*, trans. P. Bing, Berkeley.
- Camp, J. McK., II. 1977. "The Water Supply of Ancient Athens from 3000 to 86 B.C." (diss. Princeton Univ.).
- . 1986. *The Athenian Agora: Excavations in the Heart of Classical Athens*, London.
- . 2001. *The Archaeology of Athens*, New Haven.
- . 2007. "Excavations in the Athenian Agora, 2002–2007," *Hesperia* 76, pp. 627–663.
- Carlson, D. N. 2003. "The Classical Greek Shipwreck at Tektaş Burnu, Turkey," *AJA* 107, pp. 581–600.
- . 2004. "Cargo in Context: The Morphology, Stamping, and Origins of the Amphora Cargo from a Fifth-Century B.C. Ionian Shipwreck" (diss. Univ. of Texas, Austin).
- Carlson, D. N., and M. L. Lawall. 2007. "Towards a Typology of Erythraian Amphoras," *Skyllis: Zeitschrift für Unterwasserarchäologie* 7 (2005/2006), pp. 33–40.
- Casson, L. 1995. *Ships and Seaman-ship in the Ancient World*, 2nd ed., Baltimore.
- Davison, J. A. 1958. "Notes on the Panathenaea," *JHS* 78, pp. 23–42.
- Dinsmoor, W. B. 1954. "The Archonship of Pytharatos (271/0 B.C.)," *Hesperia* 23, pp. 284–316.
- Dragatsis, I. C. 1885. "Ἐκθεσις περὶ τῶν ἐν Πειραιεὶ ἀνασκαφῶν," *Prakt* 1885, pp. 63–71.
- . 1899. "Περὶ τῶν ἐν Πειραιεὶ ἀνασκαφῶν," *Prakt* 1899, pp. 37–41.
- Frontisi-Ducroux, F. 1989. "In the Mirror of the Mask," in *A City of Images: Iconography and Society in Ancient Greece*, ed. C. Bérard, trans. D. Lyons, Princeton, pp. 151–165.
- Gabrielsen, V. 1994. *Financing the Athenian Fleet: Public Taxation and Social Relations*, Baltimore.
- Galili, E., and B. Rosen. 2008. "Ancient Remotely-Operated Instruments Recovered under Water off the Israeli Coast," *IJNA* 37, pp. 283–294.
- Galili, E., B. Rosen, and D. Zviely. 2009. "Ancient Sounding-Weights and Navigation along the Mediterranean Coast of Israel," *IJNA* 38, pp. 343–368.
- Gardner, E. A. 1914. "The Panathenaic Ship of Herodes Atticus (Philostratus, *Vitae Sophistarum*, II.v.)," *CR* 28:7, pp. 225–226.
- Garland, R. 1987. *The Piraeus: From the Fifth to the First Century B.C.*, Ithaca.
- Gianfrotta, P. A. 1977. "First Elements for the Dating of Stone Anchor Stocks," *IJNA* 6, pp. 285–292.
- Göttlicher, A. 1992. *Kultschiffe und Schiffskulte in Altertum*, Berlin.
- Hedreen, G. 2007. "Involved Spectatorship in Archaic Greek Art," *Art History* 30, pp. 217–246.
- Heipp-Tamer, C. 1993. *Die Münzprägung der lykischen Stadt Phaselis in griechischer Zeit* (Saarbrücker Studien zur Archäologie und alten Geschichte 6), Saarbrücken.
- Herz, N. 1987. "Carbon and Oxygen Isotopic Ratios: A Database for Classical Greek and Roman Marble," *Archaeometry* 29, pp. 35–43.
- Hornell, J. 1946. *Water Transport: Origins and Early Evolution*, Cambridge.
- Jordan, J. A. 1988. "Attic Black-Figured Eye Cups" (diss. New York Univ.).
- Laing, D. R., Jr. 1968. "A Reconstruction of I.G., II², 1628," *Hesperia* 37, pp. 244–254.
- Levi, D. 1941. "The Evil Eye and the Lucky Hunchback," in *Antioch-on-the-Orontes III: The Excavations, 1937–1939*, ed. R. Stillwell, Princeton, pp. 220–232.
- Lissarrague, F. 1990. *The Aesthetics of the Greek Banquet: Images of Wine and Ritual*, trans. A. Szegedy-Maszak, Princeton.
- Lolling, H. G. 1880. "Schiffsaugen," *MdI* 5, pp. 384–387.

- Mansfield, J. M. 1985. "The Robe of Athena and the Panathenaic Peplos" (diss. Univ. of California, Berkeley).
- Milchhöfer, A. 1881. "Der Peiraieus," in *Karten von Attika: Erläuternder Text* 1, ed. E. Curtius and J. A. Kaupert, Berlin, pp. 23–71.
- Miller, S. G. 1995. "Old Metroon and Old Bouleuterion in the Classical Agora of Athens," in *Studies in the Ancient Greek Polis* (Papers from the Copenhagen Polis Centre 2 = *Historia Einzelschr.* 95), ed. M. H. Hansen and K. A. Raaf-laub, Stuttgart, pp. 133–156.
- Morrison, J. S., J. F. Coates, and N. B. Rankov. 2000. *The Athenian Trireme: The History and Reconstruction of an Ancient Greek Warship*, 2nd ed., Cambridge.
- Morrison, J. S., and R. T. Williams. 1968. *Greek Oared Ships: 900–322 B.C.*, London.
- Moss, L. W., and S. C. Cappannari. 1976. "Mal'occhio, Ayin ha ra, Oculus Fascinus, Judenblick: The Evil Eye Hovers Above," in *The Evil Eye*, ed. C. Maloney, New York, pp. 1–15.
- Murray, W. M. 1989. *Octavian's Camp-site Memorial for the Actian War* (*TAPS* 79:4), Philadelphia.
- Neils, J. 1992. *Goddess and Polis: The Panathenaic Festival in Ancient Athens*, Princeton.
- Norman, N. J. 1983. "The Panathenaic Ship," *ArchNews* 12, pp. 41–46.
- Nowak, T. J. 2001. "A Preliminary Report on *Ophthalmoi* from the Tektaş Burnu Shipwreck," *IJNA* 30, pp. 86–94.
- . 2006. "Archaeological Evidence for Ship Eyes: An Analysis of Their Form and Function" (M.A. thesis, Texas A & M Univ.).
- Papadopoulos, J. K. 2003. *Ceramicus Redivivus: The Early Iron Age Potters' Field in the Area of the Classical Athenian Agora* (*Hesperia* Suppl. 31), Princeton.
- Parke, H. W. 1977. *Festivals of the Athenians*, London.
- Parker, R. 2005. *Polytheism and Society at Athens*, Oxford.
- Pentia, M. 1995. "Carbon and Oxygen Isotopic Ratio Bivariate Distribution for Marble Artifact Quarry Assignment," *Romanian Journal of Physics* 40, pp. 369–379.
- Pickard-Cambridge, A. W. 1968. *The Dramatic Festivals of Athens*, 2nd ed., rev. J. Gould and D. M. Lewis, Oxford.
- Pritchett, W. K. 1979. *The Greek State at War 3: Religion* (California University Publications Classical Studies 7), Berkeley.
- Rhodes, P. J. 1972. *The Athenian Boule*, Oxford.
- Robertson, N. 1985. "The Origin of the Panathenaea," *RhM* 128, pp. 231–295.
- Rockwell, P. 1993. *The Art of Stoneworking: A Reference Guide*, Cambridge.
- Rotroff, S. I. 1977. "The Parthenon Frieze and the Sacrifice to Athena," *AJA* 81, pp. 379–382.
- Saatsoglou-Paliadeli, C. 1978. "Μαρμαρίνοι ὀφθαλμοὶ ἀπὸ τὸν Πειραιά," *ArchEph* 1978, pp. 119–135.
- Schweigert, E. 1939. "Greek Inscriptions (1–13)," *Hesperia* 8, pp. 1–47.
- Shear, J. L. 1995. "Fragments of Naval Inventories from the Athenian Agora," *Hesperia* 64, pp. 179–224.
- . 2001. "Polis and Panathenaia: The History and Development of Athena's Festival" (diss. Univ. of Pennsylvania).
- Shear, T. L., Jr. 1978. "Tyrants and Buildings in Archaic Athens," in *Athens Comes of Age: From Solon to Salamis*, ed. W. A. P. Childs, Princeton, pp. 1–19.
- . 1993. "The Persian Destruction of Athens: Evidence from Agora Deposits," *Hesperia* 62, pp. 383–482.
- . 1995. "Bouleuterion, Metroon, and the Archives at Athens," in *Studies in the Ancient Greek Polis* (Papers from the Copenhagen Polis Centre 2 = *Historia Einzelschr.* 95), ed. M. H. Hansen and K. A. Raaf-laub, Stuttgart, pp. 157–190.
- Simon, E. 1983. *Festivals of Attica: An Archaeological Commentary*, Madison.
- Spetsieri-Choremi, A. 2000. "Θραύσμα αναθηματικού αναγλύφου από την περιοχή του Αθηναϊκού Ελευσινίου," *ArchEph* 139, pp. 1–18.
- Steinhart, M. 1995. *Das Motiv des Auges in der griechischen Bildkunst*, Mainz.
- Thompson, H. A. 1937. "Buildings on the West Side of the Agora," *Hesperia* 6, pp. 1–226.
- . 1940. *The Tholos of Athens and Its Predecessors* (*Hesperia* Suppl. 4), Princeton.
- Tobin, J. 1993. "Some New Thoughts on Herodes Atticus's Tomb, His Stadium of 143/4, and Philostratus *VS* 2.550," *AJA* 97, pp. 81–89.
- Welch, K. 1998. "Greek Stadia and Roman Spectacles: Asia, Athens, and the Tomb of Herodes Atticus," *JRA* 11, pp. 117–145.
- Wescoat, B. D. 2005. "Buildings for Votive Ships on Delos and Samothrace," in *Architecture and Archaeology in the Cyclades: Papers in Honour of J. J. Coulton* (*BAR-IS* 1455), ed. M. Yeroulanou and M. Stamatopoulou, Oxford, pp. 153–172.
- Wycheley, R. E. 1963. "The Python at Athens: Thucydides 2.15.4; Philostratos, *Lives of the Sophists* 2.1.7," *AJA* 67, pp. 75–79.

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