

The Piraeus and the Athenian Navy: *recent archaeological and historical advances**

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I. Introduction: a venerable tradition

Ancient Athens was endowed with two magnificent urban centres: an inland one, the renowned *asty*, where the city-state's main political institutions were to be found; and the Piraeus, Athens' famed port town and the heart of her naval might. While the *asty* has received much scholarly attention, the Piraeus is rather sparsely treated in modern research. Robert Garland's monograph on the subject remains a fundamental study.¹ Yet significant new insights have been provided by subsequent archaeological and epigraphical work, and several facets of Piraeus' rich history still await full consideration. Fortunately, however, an important part of that history has now become illuminated by the excellent publication of the finds of the Zea Harbour Project: *The Ancient Harbours of the Piraeus* (here abbreviated to *AHP*). With scientific precision and thoroughness, Bjørn Lovén and his team of collaborators present the first comprehensive archaeological study of the Zea harbour, Athens' main naval base in the Piraeus. One of the work's most significant achievements is the documentation of the existence of double shipsheds, a matter to which we shall return shortly.

With this new publication the Zea Harbour Project team continues a venerable scholarly tradition. This tradition includes a number of eminent archaeologists, beginning with Curtius, von Alten, Dörpfeldt, and Dragatsis; the most prominent in current times is Dr Steinhauer.² Bjørn Lovén also continues a time-honoured Danish tradition of research in Greek architecture, one part of which is closely linked to the Piraeus. I am referring to the Danish architect Vilhelm Marstrand, whose 1922 doctoral dissertation *Arsenalet i Piraeus og Oldtidens Byggeregler* offered a detailed reconstruction of Philon's Arsenal and of the architectural principles underlying its construction (Fig. 1).³ Philon's Arsenal, or properly Philon's *Skeuothêkê* ("Storehouse"), was built in or shortly after 347 BC. Replacing a number of older and less grandiose structures, this new building was henceforward to house all the "hanging equipment" (*kremasta skeuê*) of the Athenian warships, i.e. ropes, sails, etc.⁴ Having no archaeological remains to go by, Marstrand based his reconstruction on the surviving inscription that contains the written specifications (*syngraphê*) for the construction of the building.⁵ However, as is known, the actual building, or parts thereof, was discovered a few years ago by Dr Steinhauer

* This paper is a slightly revised version of a lecture delivered at the Danish Institute at Athens on the occasion of the book launch of the *AHP*. Thanks are due to the two anonymous peer reviewers, who made a number of useful suggestions about my text.

1 Garland 1985.

2 Curtius 1841; von Alten 1881; Dörpfeldt 1885; Dragatsis 1885; Blackman 1968; Steinhauer 1995; Steinhauer 1996; Steinhauer, Malikouti & Tsokopoulos 2000.

3 Marstrand 1922. Cf. Foucart 1882.

4 IG II² 505 and add. 661; IG II² 1627, ll. 288, 292, 301-2, 407, 420; IG II² 1627 (of 330/29), l. 352 (reference to "the old *skeuothêkê*"); *FGrHist* 328 Philochoros F 56a; Plut. *Mor.* 841D; Xen. *Vect.* 6.1; Din. 1.96; Aesch. 3.25. See also next note.

5 IG II² 1668. See Coulton 1977, 25, 54, 57-8 and fig. 14.

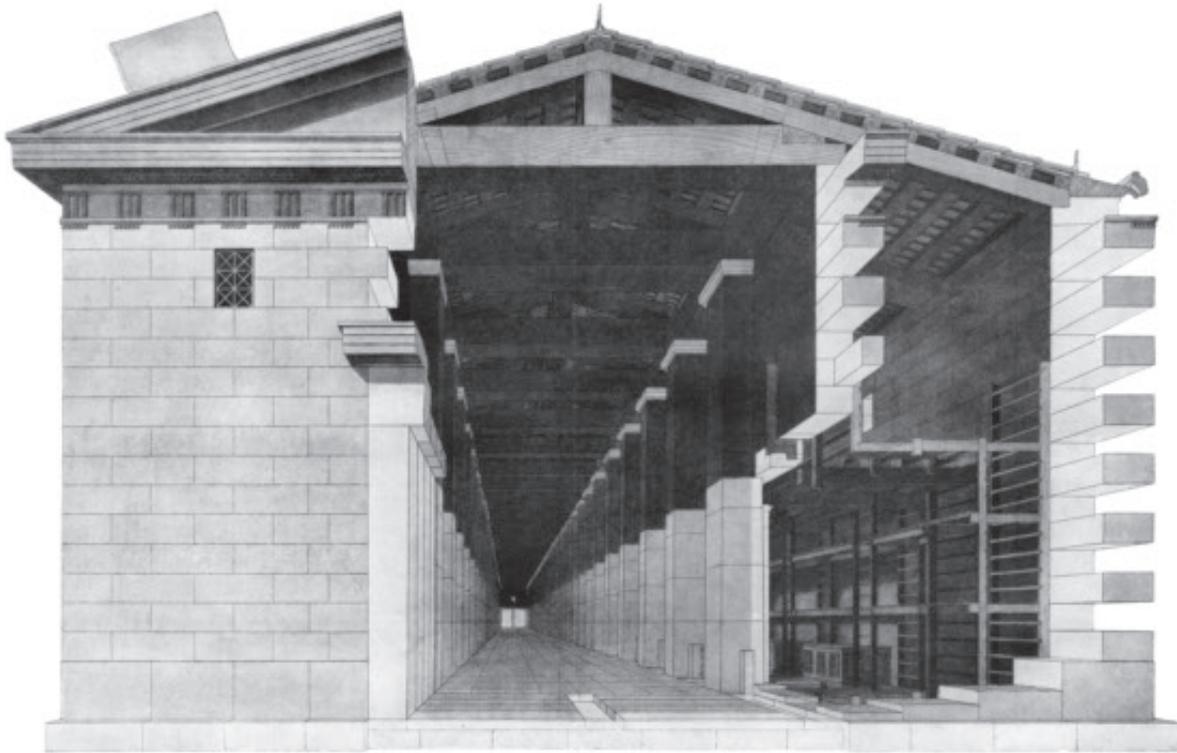


Fig. 1. *Philon's Skeuothêkê as reconstructed by V. Marstrand (from Marstrand 1922, Plan IV).*

in the north-western part of Zea.⁶ When the excavation results have been properly published, we will be able to judge how accurately Marstrand reconstructed the building.⁷ Additionally, this will be one of those rare instances in which a complex monument is documented both by physical remains and by detailed inscriptional evidence – a perfect marriage of epigraphy and archaeology.

There is also another, less direct link between Danish scholarship and the Piraeus. In the early 1830s Ludwig Ross (1806-1859), later to be appointed professor at the University of Athens, was exploring the antiquities of Attica. Originating from Schleswig-Holstein, Ross financed his archaeological exploration abroad partly with a grant from the Danish king Frederik VI (r. 1808-1839).⁸ In 1834,

during the excavations of a late Roman or Byzantine portico on the south side of the Kantharos Harbour, Ross discovered a number of inscribed *stelai* that had been re-used as water channels connecting several basins inside the portico. These *stelai*, it turned out, contained the yearly accounts of the Dockyard Superintendents (*epimelêtai tôn neôriôn*, henceforward referred to as *epimelêtai*), the annually serving board of ten Athenian officials responsible for the administration of the three harbours of the Piraeus: Mounichia, Zea, and Kantharos. In 1836, Ross entrusted the publication of these inscriptions to one of his colleagues in Berlin with instructions to publish them with a commentary. The colleague in question was the great philologist and historian August Böckh, widely known for his 1817 book on Athenian state finances, *Die*

⁶ Steinhauer 1996, cf. the thorough reconstruction of the *Skeuothêkê* in Steinhauer 1994.

⁷ A preliminary analysis of the foot unit based on both archaeological and textual material is published in Pakkanen 2002. I thank one of the peer reviewers for drawing my attention to this work.

⁸ See several of the contributions in Goette & Palagia 2005.

Year	Triereis			Tetrereis			Pentereis	Overall total	Source: IG II ²
	Dock-yards	At sea	Total	Dock.	At sea	Total			
378/7	-	-	103+	-	-	-	-	103+	1604
357/6	-	-	283	-	-	-	-	283	1611.3-9
356/5	-	-	?231+	-	-	-	-	?231+	1612.49-51
353/2	-	-	349	-	-	-	-	349	1613.284-92
330/29	340	52	392	8	10	18	-	410	1627.266-78
326/5	328	32	360	[40+]	[5+]	[50]	-	[410]	1628.481-500
325/4	328	32	360	43	7	50	7	417	1629.783-812
323/2	[221]	[94]	315	1	[49]	[50]	-	[365]	16.167-74

Fig. 2. The total number of ships in individual years as given by the Naval Records.

Staatshaushaltung der Athener.⁹ In 1840, Böckh published the new Piraeus inscriptions in a book titled *Urkunden über das Seewesen des attischen Staates*.¹⁰

The *stelai* originally discovered by Ludwig Ross, plus a number of further fragments that have been found subsequently, form the series of documents that are now known as the Athenian Navy-Lists, or the Naval Records.¹¹ Most of them are now kept at the Epigraphical Museum, Athens. With the exception of a few small fragments from the 5th century BC,¹² most of the *stelai* date from the 4th century BC: the first of the series is

from 378/7 (IG II² 1604), and the last from 323/2 BC (IG II² 1632). Thus the documents cover most of the 4th century BC. In the 1960s, Donald Laing Jr. discovered that the *stelai* were opisthographic (i.e. that the back surfaces were inscribed too).¹³

The Naval Records record all the matters (e.g. financial transactions, the delivery and receipt of ships and naval materials, etc.) that the *epimelêtai* of the previous year had handed over (formally a *paradosis* statement) to their successors of the next year (formally a *paralabê* statement). These texts therefore provide a wealth of information

⁹ Böckh 1817/1886.

¹⁰ Böckh 1840, vii–xii, for Ross' letter to Böckh.

¹¹ After Böckh, work on the Naval Records was continued by U. Köhler, on whose texts (in IG II) J. Kirschner based his re-publication of the inscriptions as *Inscriptiones Graecae II² 1604–32*, all from the 4th century BC. Additional fragments found in the Athenian Agora: Agora Inventory nos. I 2012a–c, I 2542 and I 3277, in Schweigert 1939; Agora Inventory no. I 5419, in Laing Jr. 1968, and the two recently discovered fragments, Agora I 7316 and I 7450, in Shear 1995. These Agora fragments probably belong to *stelai* originally standing in the Piraeus. The inscriptions are discussed in Clark 1993.

¹² IG I³ 498, 499, 500.

¹³ Laing Jr. 1968.



Fig. 3. Reconstruction of the Zea Harbour (from AHP I.2, fig. 3).

about Athenian naval administration and finance. After about 357/6 BC, their contents become better organised and much more detailed, providing a unique insight into the workings of the naval harbours and the running of the Athenian fleet at large. Inevitably, the published findings of the Zea Harbour Project invite one to revisit the Naval Records with a view to solving several unsolved issues. One of the most important of these is that relating to the *capacity* of the harbours and, above all, the way ships were *arranged* in each harbour. Although the description that follows generally applies to all three harbours, the focus will be on Zea.

2. The capacity of the dockyards

The Naval Records document, among other things, two significant features. The first is the gradual but marked increase in the number of ships, especially from 357/6

BC onwards (Fig. 2). The second feature is that from the year 330 new types of ships – the *tetrereis* (“fours”) and *pentereis* (“fives”) – are being introduced. We are thus able to observe that in 357/6 BC the Athenians had a total of 283 ships, all of which were triremes. About thirty years later, however (in 325/4 BC), the total had climbed up to 417 ships, distributed into 360 triremes, 50 *tetrereis* and 7 *pentereis*. So in terms of size, the Athenian fleet was quickly reaching its 5th-century, imperial level, a fact that underscores the naval power that the Athenians wielded in the 4th century, even though they did not formally possess an empire during that period. It was only natural, therefore, that this considerable increase in the number of ships should create the need for a corresponding expansion of the naval bases in the Piraeus; not only by building such storing facilities as Philon’s *Skeuothêkê*, but also, and especially, by enlarging the capacity of the three harbours with the construction of new shipsheds.

Though the expansion of the naval bases looked spectacular at its completion in the 320s, it was implemented gradually over a number of years. In 353/2 BC, the *epimelêtai* reported that Athens' total force consisted of 349 ships.¹⁴ These they divided into three groups: (a) "those that are in the *neôria*" ([τῶν ἐν τοῖς νεωρίοις ὄντων), (b) "those that are in the charge of trierarchs", i.e. in commission (καὶ ὧν οἱ τριήραρχοι ἔχουσιν) and (c) "those that are *hypaiθrioi*" (καὶ τῶν ὑπαιθρίων) i.e. are lying in the open. The same distinction is made in the record of a previous year, 358/7 BC: (a) "those [*triereis*] that are hauled up in the *neôsoikoi*" ([ἐ]ν τοῖς νεωσοίκοις ἀν[ε]λ[κ]υσμένων), (b) "those that are *hypaiθrioi*" (καὶ τῶν ὑπαιθρίων), and (c) "those that have sailed out" (καὶ τῶν ἐκπεπλευσμένων).¹⁵ This evidence suggests that in the late 350s there were still not enough shipsheds to accommodate all of the 349 ships, as a result of which an unknown number of ships had to lie in the open.

By 330/29 BC, the project to expand the dockyards with the construction of new shipsheds had progressed considerably. In the Naval Record of that year, the *epimelêtai* stated the following: "Total number of *neôsoikoi* that have been built and repaired: 372. Of these 82 are in Mounichia, 196 in Zea and 94 in Kantharos."¹⁶ Yet, despite the considerable increase in the number of shipsheds, there are indications to the effect that there were still not enough units to accommodate all of the 410 ships that Athens possessed in 330/29 BC.

A good part of the *neôsoikoi* described as newly built in 330 were the result of construction work done in the period 347-330 BC. It is in these years, too, that Philon's *Skeuothêkê* was built; it is described as a "stone *skeuothêkê*" which was intended to replace the existing "wooden" *skeuothêkai*.¹⁷ Information about the new storehouse and dockyards is also provided by a set of inscriptions that concern the taxes that the Athenians had to levy in order

to finance these projects. The total cost to be covered in this connection (including the repair of dockyards) amounted to no less than 240 talents, or 1,440,000 drachmas.¹⁸ This indicates the huge financial demands posed by the navy. Additionally, it serves as a reminder that no modern calculation of the costs of the fleet can be complete without taking into account the expenses relating to the land-based infrastructural facilities.¹⁹ Zea, which in 330 BC boasted 196 shipsheds, was the largest of all three naval bases, its capacity exceeding the capacity of both the other harbours taken together. No-one has yet determined, however, the exact location within the Zea harbour of the shipsheds built in the years after 347 BC.

According to the findings of the Zea Harbour Project, no traces of shipsheds have been found in the northern part of the harbour basin, that is, in the area between shipshed Groups 4 and 5, which is the one directly opposite the harbour entrance (see Fig. 3). That this area was free of any facilities seems almost certain.²⁰ A number of practical reasons for this can be suggested. For one, as is correctly noted (*AHP* I.1: 157), this area would have been exposed to the undesirable effects of high swells during rough weather. For another, the Naval Records make it clear that ship repair work was going on *within* the *neôria*.²¹ The free space in the northern part of Zea may well have functioned as a shipyard for such repair work.

More problematic is, however, the presumed absence of shipsheds on the north-western shore of the Zea basin, broadly in the area just north of shipshed Group 4 (Fig. 3). This requires some explanation. The written specification (*syngraphê*) for Philon's *Skeuothêkê* contains the following instructions:

To construct the stone *skeuothêkê* for storing the hanging equipment in Zea so that it begins at the Propylaion of the Ago-

14 IG II² 1613, ll. 284-302.

15 IG II² 1611, ll. 3-9.

16 IG II² 1627, ll. 398-405.

17 IG II² 1668, l. 4 ("stone"); 1627, ll. 320-21, 396 ("wooden").

18 That is, a tax of 10 talents annually levied for a period of 24 years (347/6-323/2 BC): IG II² 505 (302/1 BC), ll. 13-17 with add. 60. See also IG II² 244 (337/6 BC).

19 Gabrielsen 2008.

20 *AHP* I.1, 43, 157.

21 IG II² 1612, ll. 145-246.

ra and runs behind the *neôsoikoi* which have a common roof (ὄμοτεγῶν), and so that it has a length of four *plēthra* and a width of 55 feet, including the walls.²²

This piece of evidence suggests two things. First of all, that in 347/6 BC (i.e. before Philon's Storehouse was built) there already existed a cluster of *neôsoikoi* whose landward end later was to run almost parallel to the *skeuothékē* of Philon. Secondly, the reason why "the *neôsoikoi* which have a common roof" are used as an easily and clearly recognisable marker in the building specification must be that there were other *neôsoikoi* nearby which did not possess that feature; that is, they did not have a common roof. On the basis of this evidence I would propose that, when a new version of figure 3 of *AHP* I.2 is drawn,²³ the possibility that a cluster of shipsheds existed in the northwestern part of the Zea basin, which stood out for their having a common roof, should be indicated.

3. Dockyard administration and organization

The results of the Zea Harbour Project so far have substantially increased our knowledge about the architectural and topographical features of the harbour. The time has perhaps come, therefore, to try to figure out how things worked in practice. How did the whole machinery function when ships were returning from expeditions as others were being made ready for departure? What was the daily routine at the dockyards – the *epimelētai tōn neōriōn* managing the give and take of ships and equipment, specialists inspecting the vessels, crews assembling for embarkation, and so on? An especially intricate question we need to clarify is this: did the naval administration use a specific system for storing the ships in the three harbours (particularly in the harbour of Zea), and, if so, how did that system work? The mobilisation and dispatch of fleets would take radically different forms, and pose different

challenges, if ships were stored haphazardly rather than in accordance with a fixed system.

Indeed, there is evidence that suggests the existence of a fairly complex organisation. From about 357/6 BC onwards, for one, all triremes – each of which had its own name –²⁴ were divided into four classes according to their individual qualities. They thus formed groups of "thirds" (τρίται), "seconds" (δεύτεραι), "firsts" (πρώται), and "select" (ἐξάιρετοι). To express our concept of "class", the Athenians used the Greek word *arithmos*: e.g. *tou prōtou arithmou*, said of ships belonging to the "first" class.²⁵ The "thirds", besides being the least seaworthy triremes, were also very few in number. Much more numerous were the robust "seconds" – the work-horse of the Athenian navy – and the fast "firsts". Finally, the "select" triremes were both relatively new and exceptionally fast vessels, i.e. the crack ships of the fleet, often also referred to as "fast-sailing" (ταχυναυτοῦσαι).²⁶ Recurrent evaluation of the hulls would have decided the issue of whether a given ship should be re-classified from "select" to "first", or from "first" to "second" and so on. One naval record of the 350s possibly provides evidence for such a re-classification.²⁷

Besides being divided into classes, the ships were distributed among the three naval harbours in such a way that a harbour contained ships from all four classes. The Naval Record of 357/6 BC offers a clear illustration of this. In that year, the Zea harbour had 8 "thirds", 46 "seconds" between 20 and 30 "firsts" and about 31 "select" – i.e. a total of c. 120 ships, which comes close to half the total force (283 ships) in that year.²⁸ Moreover, through a different procedure, carried out annually, the Athenians distributed the existing number of ships among 20 groups of warship captains, the trierarchs. Periandros' law (of 358/7 BC) ordained that from that year on 1,200 Athenians should be appointed every year to perform trierarchies, and that these 1,200 should be distributed

22 IG II² 1668, ll. 4-7.

23 *AHP* I.2, 157.

24 Schmidt 1931.

25 IG II² 1618, ll. 137-38.

26 See, e.g., IG II² 1611, l. 73 ("seconds"), l. 96 ("thirds"), 215 ("firsts") and 106 ("select"). *Tachynautousai*: IG II² 1623, l. 284.

27 1517, ll. 151-53: ἀπὸ τῆς ἐπιθροῦς/ εἰς τὰς τριῖρας τοῦ/ πρώτου ἀριθμοῦ?

28 The figures derive from a count of the ships in columns b, c and d of IG II² 1611 (357/6). The total for that year is in line 9.

into 20 *symmories* of 60 members each.²⁹ According to this arrangement, a trierarchic *symmory* was assigned a specific number of ships, probably from each of the three harbours. The *symmory*-ship-harbour connection is indicated by the fact that, when *symmory* members came to the Piraeus to assume their active duty, they already knew, not only the name and rating of the ships they were to captain, but also such matters as who amongst their *symmory* comrades was the last to captain the ship and whether he still withheld equipment from it.³⁰ All these organisational peculiarities were meant to ensure better control over financial and other matters; above all, however, they were meant to facilitate a speedy and efficient despatch of fleets.

In 354 BC, Demosthenes proposed to the Assembly a plan which he believed would increase the efficiency of naval finance and fleet mobilisation. That proposal, noteworthy for its obsession with arithmetic neatness rather than its practical feasibility, was probably voted down.³¹ Nevertheless, two of the specific measures it contains are of interest to us. The first of these recommended the distribution of the total force of ships (which Demosthenes theoretically set at 300 triremes) among the 20 trierarchic *symmories*. But such an arrangement, we have just seen, had in fact been introduced in 358/7 BC. The second measure – in spite of Demosthenes’ presentation of it as a novelty – was also very likely an established practice in 354 BC. This was the division of the total dockyard space into a number of parts and the equal apportionment of the fleet among these parts. Such an arrangement seems to go back to the year of Periandros’ reform of 358/7 BC, when the *symmory*-ship-harbour nexus was firmly established. Neither of these measures in Demosthenes’ proposal, therefore, introduced anything new. However, since the second one provides a further, useful piece of information, we shall take a closer look at it.

Having said that his 20 *symmories* are to be assigned fifteen ships each, Demosthenes goes on to propose that the *stratego*i should divide the dockyards (νεῶρια) into ten parts (τόποι), which will be distributed by lot among the ten Athenian tribes. Regarding these dockyard parts, Demosthenes explains that each one of them shall consist of thirty shipsheds (νεῶσικοι) that are “as close to each other as possible”, i.e. a unit of thirty abutting shipsheds. This done, the *stratego*i shall distribute the *symmories* and the ships amongst these parts so that one pair of *symmories*, and the 30 triremes belonging to that pair, should occupy one dockyard part (τόπος) of thirty shipsheds (Dem. 14.22-23). In this instance, too, it is the scheme’s arithmetic neatness that is the novelty, not the practice of accommodating specific groups of ships into designated shipshed sections arranged by *symmory*. The language used in the proposal is also revealing. For one, Demosthenes consistently speaks of *triêreis* only, and correctly so, since at that date the Athenians had not yet acquired “fours” (*tetrêreis*) and “fives” (*pentêreis*).³² For another, his entire plan is based on the assumption that *one* shipshed (*neôsoikos*) accommodated *one* trireme (Dem.14.22). The probable reason for this is that no double shipsheds had yet been constructed at that date (354 BC).

One of the greatest merits of the Zea Harbour Project is the archaeological documentation it has provided for the existence of double shipsheds alongside the single ones. Estimated to have been approximately 80 m in length, a double shipshed was able to house two ships positioned end to end. Datable ceramic material found in situ, it is reported, indicates that the construction of double shipsheds in Zea dates from some time after the period 375-350.³³ Our discussion of Demosthenes’ proposal now gives us reason to believe that the terminus post quem of this innovation is 354 BC. By 330, however, double shipsheds were certainly a feature in the layout of the Zea harbour.

29 [Dem.] 47.19-22; Gabrielsen 1994, 182-99.

30 [Dem.] 47.21-22, 25.

31 Dem. 14.16-23.

32 In the Athenian fleet, *tetrêreis* appear for the first time in 330/29 BC (IG II² 1627.266-78), and *pentêreis* in 325/4 BC (1629.783-812); see Figure 2 above. On the introduction of these types of ships in Greek navies, see Morrison 1990.

33 AHP I.1: 152-7 (further references in AHP I.2: General Index s.v. “double-unit shipshed(s)”) and I.2: pl. 37. Dating of ceramic material: AHP I.2: 1-42, esp. 39.

Additional corroboration of this is provided by another observation regarding the coastline of Zea. If, as is established by Bjørn Lovén's conservative but credible estimate, the maximum length of the ancient Zea harbour shoreline was 955 m,³⁴ then – reckoning with an interaxial distance of 6.5 m – Zea would have been able to accommodate at most 146 shipsheds, which, if single, would have housed an equal number of ships. In Demosthenes' plan of 354 BC, which operates with a total force of 300 triremes, it would still be quite possible to speak of a *neōsoikos* as a shipshed housing a single ship: hardly exceeding 120 ships, the force stationed at Zea at that time required less than the theoretical maximum space of 146 shipsheds. But such a thing would not have been possible in 330/29 BC. For in that year Zea actually had as many as 196 *neōsoikoi*, which, if understood as shipshed units each housing one ship only, would compel us to postulate an incredibly lengthy shoreline.

All of this points to the existence of double shipsheds. As a corollary of this innovation the word *neōsoikos*, while it still meant “shipshed”, no longer revealed whether the structure to which it referred housed one or more ships. Consequently, the statement, in the record of 330/29 BC, that there were 196 *neōsoikoi* must be taken to mean “space (provided by single and double shipsheds) to house 196 ships”.³⁵ To sum up, by 330 BC the developed part of the Zea harbour shoreline consisted of alternating clusters of single and double shipsheds.

How exactly these clusters of single and double shipsheds were arranged, and especially how they were related to each other were, arguably, matters determined by a combination of two factors: (a) the availability of unbuilt space round the Zea basin at any given time – given the unlikelihood that all double shipsheds were built in one go; and (b) the fairly lengthy inland space required by a double shipshed. Here (Fig. 4), I offer a purely hypothetical reconstruction of the way double and single shipsheds

would have been arranged in order to illustrate my main point: that these clusters were randomly arranged.

4. The meaning of *diazux* as a ship description

If our reconstruction so far is correct, then it can perhaps help us to explain an intriguing peculiarity in the Naval Records of the 320s. This is the fact that, in addition to recording a ship by name, shipwright and class, the *epimelētai* sometimes also use the description *diazux*. One example comes from the record of 326/5 (*IG II²* 1628, ll. 17-27):

στρατηγῶι ε[ι]ς Σάμον
 Διωξάνδρ[ωι]· τριήρης
 Κρατίστη Χ[αι]ρ[εστρ]άτου
 20 ἔργον, διά[ζ]υξ· τριήραρχ
 Φιλπιδί[η]ς Παιανι : Πυ-
 [θο]κλῆς Ἀχαρ : Ἀλκιβιά-
 [δης Θυ]μαι[τά]δ : Λυσικράτης
 [. . . 7 . . . : Φ]ιλόκωμος Παια,
 25 . . . 9 . . . Ἀναγυρά : Λυ-
 [σπιπιδης Γ]αργήτιος,
 [. . . 8 . . . Λα]μπρεύς·

(Sent to) Dioxandros, the strategos on Samos (in 327/6), trireme *Kratiste*, the work of Chairestratos. *Diazux*. Trierarchs: Pilippides Paianieus, Pythokles Achar(neus), Alkibiades [Thy]mai[ta]d(es), Lysikrates [- -], Philokomos Paia(nieus), [- -] Anagrya(sios), Ly[sippides G]argettios, [- - La]mpreus.

Again, in an entry of the record of 325/4 BC, which lists ships sent to the Adriatic, we read (*IG II²* 1629, ll. 1-21):

[τριή]ρης Κουφοτάτη,
 [Τολ]μαίου ἔργον, και : δόκ, διάζυξ·
 [τρ]ιήραρχος Κριτό-
 [δ]ημος Ἐνδίου Λαμπρ

³⁴ Lovén AHP I.1: 150-51, table 8.1, fig. 3.

³⁵ It follows that the distribution of the *neōsoikoi* given in the record of 330/29 BC (Mounichia 82, Zea 196, and Kantharos 94) as well as the total for all three harbours (372) tells us also how many of the total of 410 ships could be accommodated in shipsheds, and how many (38) could not be so accommodated. For the attestation of *hypaiθhrioi* ships in the late 350s, see p. 41 above.

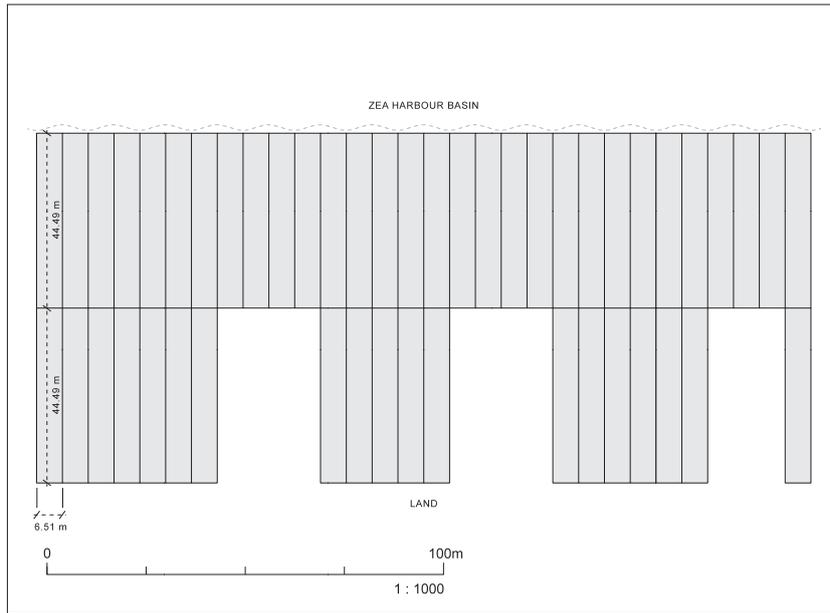


Fig. 4. *The arrangement of clusters of single and double shipsheds in Zea: a hypothetical reconstruction.*

5 καὶ συντριήραρχοι
Δέρκιππος Κόπρει,
Θεόφραστος {ο} Χο<λ>αρ·

[Tri]eme *Kouphotate*, the work of [Tol]maios, new (*kai(nē)*), tested (*dok(imos)*), *diazyx* Trierarch: Kritodemos Endiou Lamptreus; syntrierarchs: Derkippos Kopreios, Theophrastos Cholargeus.³⁶

Several attempts have been made to explain the meaning of the designation *diazyx*. August Böckh proposed that it could be the opposite of *azyx*, which, in his view, means a ship without a set of oars. At the same time, however, Böckh conceded that nothing certain can be said about this matter, a conclusion that subsequent scholars have disregarded.³⁷ A slightly different explanation is given by Johannes Kirchner. Commenting on *IG II*² 1628, l. 20, he says that *diazyx* describes the fact that the ship in question had been disjoined or demolished and was therefore not fit for service (*ad loc.*). This interpretation, however, is disproved by the fact that all of the ships so far attested with the designation *diazyx* are recorded as newly built

vessels currently in commission. For example, the dockyard officials of 325/4 stated the following:

275 τετρήρη ἔδομεν κατὰ ψήφισμα βουλῆς, ὃ
εἶπεν Ἀλκίμαχ· ἐγ Μυρρι·
τετρήρης Εὐετηρία, Ἀρχένεω ἔργ· τῶν
ἐπ' Εὐθυκρίτου ναυπη (328/7): ἦν ἐποίησα Πολυκρά
Ἀφι,|δόκι, διάζυξ·
(*IG II*² 1629.272-276 (325/4 BC))

A tetreres which we have handed over (to trierarchs) in accordance with a decree of the Council proposed by Alkimachos of Myrrhinous: Tetreres *Eueteria*, the work of Archeneos, which was built in the archonship of Euthykritos (328/7) by Poluktates Aphidnaios. Tested (*dokimos*); *diazyx*.

Finally, Morrison and Williams refer to Thucydides' statement (1.29.3) to the effect that in 435 the Corcyraeans "yoked their old ships to make them seaworthy" (ζεύξαντές τε τὰς παλαιὰς [sc. τριήρεις] ὥστε πλώιμους εἶναι). According to Morrison and Williams,

³⁶ The remaining *diazyx* entries are *IG II*² 1629.272-278 (325/4 BC); *IG II*² 1631.167-174 (323/2).

³⁷ Böckh 1840, 104; followed by Cartault 1881, 148: *azyx* is "Un navire qui, dans les arsenaux, n'en était pas garni"; *diazyx*, according to Cartault, is the opposite. It should also be noted that the word suggested by Böckh, *azyx*, is not attested in the naval records or in any other source.

this probably refers to the practice of fitting *hypoζōmata* to ships which are not on the active list.³⁸ In his commentary on the Thucydides passage, Simon Hornblower finds the explanation of Morrison and Williams to be probable and proposes the existence of “some relation between “yoking” in the [Thucydides] passage and the word *diazyx*, which appears in 4th-century navy-lists”. Ultimately, however, Hornblower finds the meaning of this word obscure.³⁹ In fact, the explanation of Morrison and Williams is refuted by the Naval Records themselves. They show that when ships supplied with *hypoζōmata* are recorded, the terminology used does not include the word *diazyx*. For example:

Παρθένος, Λυσικράτους ἔργ·
αὐτὴ ὑπέζωται (IG II² 1621, l. 67-8)

Parthenos, the work of Lysikrates. This ship is fitted with *hypoζōmata*.⁴⁰

To sum up, none of the existing explanations of the meaning of the term *diazyx* is satisfactory.

The interpretation offered here takes its point of departure in the basic meaning of the verb *zeugnymi* (“I join together”, etc.), and especially of the related *syn-zeugnymi* (“I couple” or “I pair”). The opposite meaning (“I separate” or “I part something”) is expressed with the verb *diazeugnymi* (see LSJ s.v.). For example, according to Polyaeus (*Strat.* 3.11.3), the Athenian *strategos* Chabrias, whilst commanding a fleet, used the following stratagem. First he joined his squadron of twelve ships in pairs (ναυσι δεκαδύο κατὰ δύο ζεύξας) and then he separated (or disjoined) them (διαζεύξας). Likewise, the adjective *syzyx* (or *syzygos*) means “wedded”, “married”, “paired”, “coupled”, etc., while *diazyx* should mean “separated”, “unpaired”, or “single”. Indeed, in the Delian temple inventories we find a *syzygos* (or *syzyx*) *phialê* referring to “the one bowl of a pair of bowls that are together”.⁴¹ From

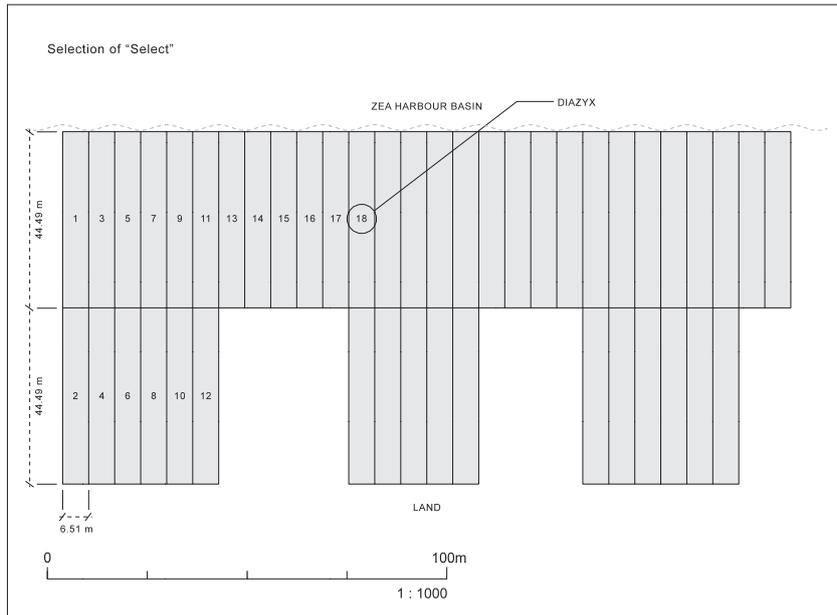


Fig. 5. Hypothetical distribution of ships from a particular class (and symmory) amongst clusters of single and double shipsheds.

38 Morrison and Williams 1968, 295. On the meaning of *hypoζōmata*, see Morrison, Coates & Rankov 2000, 169-71, 196-9.

39 Hornblower 1991, 73-4.

40 Again, in the record of 326/5 BC we read: ὑποζώματα ἐπὶ ναῦς, σὺν αὐτῇ ἢ βουλῇ ὑπέζωσεν ἢ ἐπὶ| Εὐαινέτου ἄρχοντο (IG II² 1628, l. 232) (“Number of *hypoζōmata* on the ships fitted with *hypoζōmata* by the Council in the archonship of Euainetos”).

this it follows that *diazzygos*, or *diazyx*, refers to one item of a pair of items, which is currently decoupled, standing alone.

On the basis of all this I conclude that *diazyx* described a warship that is “decoupled” or “unpaired”. The question remains: what could be the specific situation to which this description referred? To answer this question we need to return to the *Zea neōria* and try to accommodate the ships belonging to a particular class – say, those of the “select” class – and a particular trierarchic symmory into clusters of double and single shipsheds. Given that each ship had its own shipshed (whether double or single), and given that, to achieve a quick mobilisation, ships from different classes and symmories were never stored together in the same double shipshed, then the resulting pattern of distribution of ships to shipsheds would look like the one depicted in Fig. 5. *Diazyx* designated the ship of a specific class that was currently stationed in a double shipshed all of its own. The *epimelētai* of a given year thereby made it known, to their successors in office and to trierarchs, that the ship in question was an *unpaired* one.

If my reconstruction is accepted, it may provide yet another clear illustration of the way in which archaeological fieldwork, in this case the work carried out by the *Zea Harbour Project*, and the study of inscriptions can be brought into a fruitful interplay, usefully interacting with each other so as to produce new scholarly insights.

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Abbreviations

AHP I.1 = Lovén, B. *The Ancient Harbours of the Piraeus: I.1: The Zea Shipsheds and Slipways: architecture and topography* (Monographs of the Danish Institute at Athens, Vol. 15, 1) Aarhus, 2011.

AHP I.2 = Lovén, B. & M. Schaldemose. *The Ancient Harbours of the Piraeus: I.1: The Zea Shipsheds and Slipways: Finds, Area 1 shipshed roof reconstructions and feature catalogue* (Monographs of the Danish Institute at Athens, Vol. 15, 2) Aarhus, 2011.

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41 ID 1429Aii, l. 7; 1432A bis l. 35, both from the 2nd century BC.

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