MARATHON: THE PERSIANS' VOYAGE

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In the campaign of Marathon few indeed are the elements that can be taken as reasonably certain and beyond question, and most have been the subject of repeated study.[1] One such is the speed of the Persian fleet on its hurried voyage from Marathon to Phaleron after the discomfiture of the land army, and the time it might be expected to have taken on the trip. Estimates have run the gamut from Hammond's optimistic 8–9 hours[2] through Grundy's "nine or ten hours"[3] and

[1] In this article the following abbreviations will be used:
Burn: A. R. Burn, *Persia and the Greeks* (London 1962).
Caspari: M. O. B. Caspari, "Stray Notes on the Persian Wars," *JHS* 31 (1911) 104 ff.
SSAW: L. Casson, *Ships and Seamanship in the Ancient World* (Princeton 1971).
Casson, *TAPA*: L. Casson, "Speed under Sail of Ancient Ships," *TAPA* 82 (1951) 136–49.
GOS: Morrison and Williams, *Greek Oared Ships* (Cambridge 1968).
HCT: A. W. Gomme and others, *Historical Commentary to Thucydides* (Oxford 1945–1970).
Hammond: N. G. L. Hammond, "The Campaign and Battle of Marathon," *JHS* 88 (1968) 13–57.
How and Wells: How and Wells, *A Commentary on Herodotus* (Oxford 1912), Vol. II.

I must also make special mention of my gratitude to Prof. Lionel Casson, of New York University, to whom I am indebted for much useful information and helpful comment in the preparation of this article.

[2] Hammond 43. I have elsewhere set out my objections to this figure, which I consider impossibly low (*JHS* 1975.)

[3] G. B. Grundy, *The Great Persian War* (London 1901) 191. Grundy here offers two quite different estimates: (a) 9–10 hours, which he offers as a purely theoretical time representing the absolute minimum under the best possible conditions, with no question of its being actually attained on this particular occasion; and (b) about 18 hours, which is the time he thinks the heavily laden Persian fleet really took ("if they started on daybreak on the day of the battle, they cannot have been off Phaleron much before midnight"). Hignett (*Xerxes' Invasion of Greece* [Oxford 1963] 73, note 1), quoting the first estimate protests that it is "far too small," but takes no account of the second, higher figure that Grundy thought reflected the reality. An even faster trip is postulated by Glotz (*Histoire Grecque* [Paris 1931] Vol. II, 39), who allows the same time as Grundy's theoretical estimate, 9–10 hours, but apparently includes under it the detour to Aigilia. For the

12–14 hours (the most popular figure) to a possibility of over twenty hours, including the Aigilia stop.[4] Except for Hammond, who bases his figure on the amount of time left free between other fixed points in his reconstruction of the campaign,[5] these estimates are based upon

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correct spelling of "Aigilia" (for simplicity's sake I here retain the traditional form), see Kendrick Pritchett, *Marathon*, in *University of California Publications in Classical Archaeology*, Vol. IV, No. 2 (Berkeley 1960) 172, note 249.

[4] J. L. Myres, *Herodotus* (Oxford 1953) 211 (14 hours); Caspari 104 (12–14 hours); Pritchett (above, note 3) 173 accepts this. 20 hours: Caspari 104; his lower figure, 12–14, is for the trip direct from Marathon to Phaleron, the higher, 20, via Aigilia. The Aigilia detour, fitting ill with a fleet that is supposed to be racing for Phaleron, has always been a source of trouble. It is most easily explained away by assuming that Aigilia was visited only by some ships detached from the main Persian fleet, which continued on its way: so Burn 252.

We may also note that different figures have even been quoted for the distance from Marathon to Phaleron, which is given as 70 miles (Caspari; Myres; Pritchett; How and Wells), 90 miles (Grundy; Hignett) or 58 nautical miles (= 66 land miles) (Hammond 43); this last being the figure I have adopted for the present study. One's first reaction is that upon this point at least unanimity might reasonably have been expected (allowing for the land miles, nautical miles and kilometres in which it is variously expressed), but in fact the distance to be covered will vary according to how close a course was laid to round Sounion, and whether the ships had to tack. We must always remember that at sea, especially for ships dependent on the wind, the straight line is not always the best or fastest route between two points and calculations based on the direct distance may sometimes turn out to be misleading. Moreover, "ships dependent on the wind" must include not only sailing ships proper but also, frequently, triremes, which not only depended a lot on sails on long trips but were much affected by the heavy seas running when the wind blew (see below, note 11).

[5] Everything depends on Plutarch's statement that the Persian–Athenian confrontation off Phaleron took place on the same day as the battle (Plutarch, *Aristeides* 5.5). If one accepts this, as Hammond does, it means a great deal has to be fitted into the one day and the voyage accelerated accordingly. But Plutarch only says that the Athenians got back to Athens the same day, not that the Persians did (this is inferred from the fact that the Athenians thought they had to hurry; (see below p. 171). There is also the problem of Plut. *Mor.* 350E: *Μιλτιάδης μὲν γὰρ ἅρας ἐς Μαραθῶνα τῇ ὑστεραίᾳ τὴν μάχην συνάψας ἧκεν ἐς ἄστυ μετὰ τῆς στρατίας νενικηκώς*. Interpretation is difficult. Does *τῇ ὑστεραίᾳ* go with *συνάψας* or *ἧκεν*? If the first, it means the battle was fought the day after the Athenian army left Athens. The famous wait of several days before the battle is eliminated and Plutarch's account parallels that of Nepos (*Miltiades* 5.3). If, on the other hand, *τῇ ὑστεραίᾳ* goes with *ἧκεν* it means that the Athenian army got back to Athens only the day after the battle and thus contradicts Plutarch's own statement in the *Aristeides* that they got back not *τῇ ὑστεραίᾳ* but *αὐθήμερον*. Rawlinson, *History of Herodotus* III (London 1880) 493, note 9, follows this interpretation: "Plutarch supports this view since he says expressly that Miltiades returned to Athens the day *after* the battle." The choice is thus between having Plutarch contradict the picture accepted by all modern authorities (over the wait before the battle) and having Plutarch contradict himself. Without going into the question of Plutarch's various sources, it would per-

what we may call the approach by extrapolation: that is, one takes the speed known to have been attained by a single ship on one particular voyage, or, once it was realised that a fleet moves much more slowly than a single ship,[6] the speed of a fleet on one known voyage. This figure, sometimes reinforced by a consideration of one or two other voyages, is then divided into the distance from Marathon to Phaleron, and the answer taken to be the time the Persians took on the trip.[7] This may surely be productive of error. The speed of an ancient ship fluctuated widely according to the circumstances of each individual voyage, particularly the wind, and a figure well attested for one trip may be quite inapplicable to another, even by the same ship. As the principal factors affecting the speed we may note the following:

(1) The wind. As has been emphasised by Casson,[8] this is crucial. Direction is rather more important than strength. Ancient square-riggers could make good time only with the wind more or less astern, say up to an angle of 45° abaft the beam. If the wind is forward of that the ship will still sail, up to an angle of 80° into the wind, but it will not sail very fast.[9] Wind direction is thus vital, and it should be realised that this applies not only to transports built on the lines of merchantmen, with few oars and entirely dependent on sail, but also, to a great extent, to triremes. A trireme could attain high speed under oars alone in the manoeuvres of battle, but to maintain high speed on a long voyage usually needed a favourable wind. On the other hand, with a

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haps be wisest in the present study at least to count Plutarch an unreliable witness in the matter of Marathon chronology.

[6] W. W. Tarn. "Fleet Speeds," *CR* 23 (1909) 184–86. *Note*: the reader should perhaps be warned that the date appearing on the title page of *CR* 1909 is 1910, which has caused some misquotation and incorrect references.

[7] Caspari and Grundy (notes 4, 3, above) add on a large margin for error out of a healthy scepticism that the heavily laden Persian ships would really live up to these theoretical expectations.

[8] Casson, *TAPA* 137; *SSAW* 282: "In the study of the speed of ancient voyages, the very first step must be to classify them according to the winds encountered en route." The approach by extrapolation, averaging various voyages and neglecting local conditions such as (especially) winds, earns his caustic condemnation: it "will produce nothing worthwhile beyond some practice in arithmetic." (Casson, *TAPA* 137).

[9] For sailing into the wind, see T. Rice Holmes, *CQ* 3 (1909) 26–39; *GOS* 312; the practice is described by Arist. *Mechanica* 7.851b6. For the figure of 80°, see Casson, *TAPA* 137, *SSAW* 274, and *TAPA* 81 (1950) 45.

really adverse wind a trireme could still make progress where a transport could not.[10]

(2) The composition of the fleet. As convoy speed is the fastest speed of the slowest ship, the inclusion of slower craft will delay the triremes. Moreover, winds too adverse for the transports will then also hold back the triremes which might, if they had been alone, have gone ahead under oars.

(3) The seas. High winds, at least in open waters, mean heavy seas, for which transports, with their lofty bows and sterns and heavy construction, are much better suited than triremes.[11] In a mixed fleet, accordingly, if the wind blows foul the triremes may have to wait for the transports (or tow them). If the wind blows fair, but there is a sea running, then the transports may be able to sail at their top speed but the triremes not.

(4) The course of the voyage. Since a following wind is essential for a high speed on a long voyage, it follows that the voyage has to be more or less in a straight line (assuming the wind does not change). We cannot apply figures from a straight course, with a stern wind all the way, to a course in the shape of a loop or U-turn, where such a thing is not possible.

(5) The urgency of the situation. Where there is need for haste triremes can obviously go faster by having the crew row harder; but the transports, dependent on the wind, can do nothing to make it blow harder or from another quarter, and will go at the same speed whether in a hurry or not.

In addition to these five factors there are of course other things that affect the speed of a fleet, such as the degree of experience of the crews and the foulness of the ships' bottoms, but these are unknown factors for the Marathon voyage. It will thus be seen that it is not enough simply to apply the speeds and times of other known voyages to Marathon on a purely arithmetical basis. We must also, so far as we can, take into

[10] By "transport" here and elsewhere I refer to a ship built on the lines of a freighter and sailing like one. Troops were of course sometimes carried on triremes, and there even exists a special "transport-trireme" (see below, note 28). But what is important in our present argument is the distinction between ships with and without oar-banks.

[11] The trireme is well likened to a racing eight by W. W. Tarn, *Hellenistic Military and Naval Developments* (Cambridge 1930) 124. See also A. W. Gomme, "A Forgotten Factor in Greek Naval Strategy," *JHS* 53 (1933) 16–24.

consideration such factors as the above, for what we need is an estimate, not on the basis of other known voyages, of how long it would take a fleet to sail 70 miles, but rather how long it took this particular fleet to cover the 70 miles of this particular course in this particular weather. Amid so many unknowns it would be misleading to expect any great precision in our figures, but only if we do what we can to take into account considerations such as the above will our results lie within the range of realism.

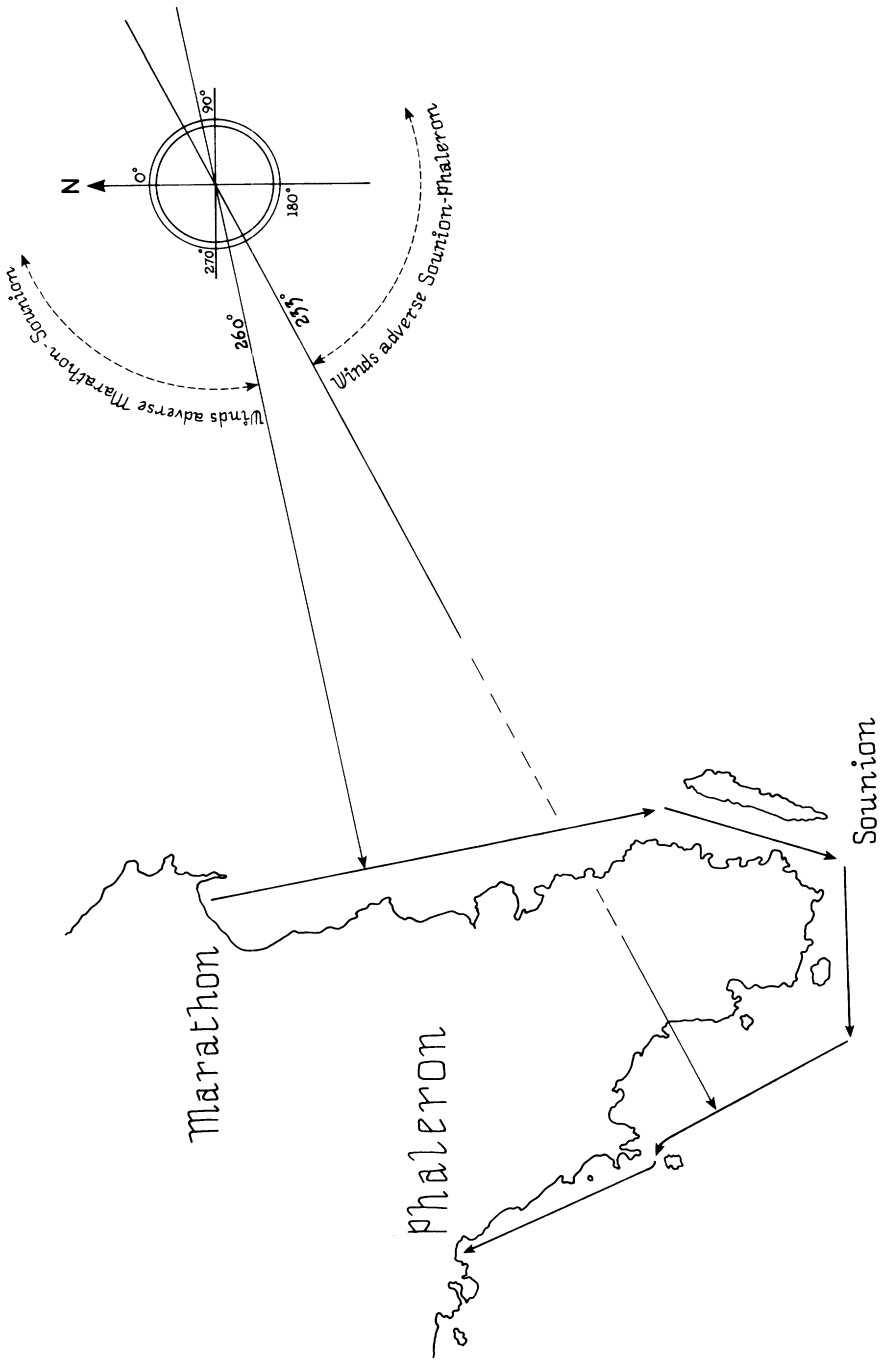
The speeds attained by ancient fleets under different weather conditions have been listed and analysed by Casson.[12] In comparison with most speeds hitherto accepted, Casson's figures are consistently low. However, no other such analysis exists, so far as I know, nor have I seen Casson's figures challenged in the 24 years that they have been in print. As regards the Marathon voyage, therefore, they must be either disputed or applied. I have not myself been able to fault Casson's general picture nor to find any reason for excluding this particular voyage from its scope, and so applied they must be. But first we must try to establish the particular circumstances of the Persians' voyage.

The most important is wind and weather. Here we have a piece of good fortune. In Plutarch's account, as interpreted by Hammond, the Persians were "forced back by the wind and the sea inwards (i.e., onshore (*ὑπὸ τοῦ πνεύματος καὶ τῆς θαλάσσης εἴσω πρὸς τὴν Ἀττικὴν ἀποβιαζομένους*) ... There was therefore a strong wind and high seas were running towards Attica, that is down towards Sunium."[13] Plutarch is not always reliable, and in this particular passage makes the mistake of thinking that the Persians were accidentally driven to Phaleron by stress of weather, which augurs ill for his credibility. However, confirmation is at hand. During the summer and into the first half of September there usually exists in the Aegean a seasonal wind of considerable regularity, the etesian winds as the ancients called them, now known locally as the *meltemi*.[14]

[12] Casson, *TAPA* 146–48. The material is later reprinted, largely unchanged, in *SSAW* 293–94. A series of 16 fleet voyages is listed and studied according to weather conditions, voyages of a day or less being excluded.

[13] Hammond 43; Plut. *Aristeides* 5.4.

[14] On the etesians, see Dem. 4.31; 8.14. In Arist. *Meteo.* 362 their presumed causes are described at length; in *De Mundo* 4.395a, they are described as "a mixture of the winds from North and West." On the *meltemi*, see Burn 388.


N
0°
90°
180°
270°
260°
245°
Winds adverse Marathon-Sounion
Winds adverse Sounion-Phaleron
Marathon
Phaleron
Sounion

The *meltemi* is entirely a daytime wind, blowing every day with considerable strength and falling off every evening to a windless calm that lasts throughout the night. Lasting throughout the summer, it comes to an end in a series of storms about the middle of September: there is thus a good chance that it was blowing at the time of the Persians' voyage, particularly if Burn's early dating of the battle is correct.[15] In direction it comes approximately from the North veering or backing from time to time towards the East or West, so that we can think of it as blowing in an arc ranging from NE to NW. Off the East coast of Attica a heavy swell, driven by the wind, comes rolling down from the North and in the funnel-shaped Thorikos Channel between Makronissi and the mainland builds up to some really heavy weather between Lavrion and Sounion. This is at its worst during the afternoon, and then slowly dies down to a flat calm during the hours of darkness. This set pattern is repeated day after day, and more or less matches what Plutarch, as interpreted by Hammond, says, which would seem to indicate that weather patterns, at least as applied to Marathon, have not changed since antiquity and the conditions prevailing to-day can therefore be considered reliable evidence for a study of the campaign.[16] We may thus accept that when the Persians sailed from Marathon (if they did so by day), in all probability the wind was a northerly one of some kind, blowing strongly, and that "high seas were running towards Attica, that is down towards Sunium."

We must now consider how far these conditions would be favourable for a trip from Marathon to Phaleron. In Fig. 1 the Persians' course is

[15] Burn 240, note 10, places it in August.

[16] The same conclusion has been reached independently by Casson on the basis of a comparison of the winds encountered by Nelson in 1798 with those met by one of the Alexandria grain clippers in a voyage described by Lucian (*TAPA* 81 [1950] 45 ff.; see also Casson, *TAPA* 138). The Plutarch–Marathon parallel would seem to confirm his conclusion. In more general terms, it is maintained by Rhys Carpenter (*Discontinuity in Greek Civilization* [Cambridge 1966] *passim*) that the climate of the Aegean in antiquity differed substantially from that of today. His chief point, however, that from 1000 till 850 B.C. there was a severe drought, does not cover the present period, though he believes that for the classical period Greece was wetter and colder than today, on the evidence of a rise in the sea level since antiquity (see his pages 22–25). The existence of the drought is reasserted by B. Bell, "The Dark Ages in Ancient History, 1," *AJA* 75 (1971) 1–26. M. Cary, however (*The Geographic Background of Greek and Roman History* [Oxford 1949] 3), on the evidence of isocarps (the geographical distribution of various crops and plants) believes that "It may be assumed that the Mediterranean climate on the whole has remained unchanged since Greek and Roman times."

drawn in on an outline map of Attica. From each of the two principal sections of it I have drawn a perpendicular, representing a wind dead on the beam. These two perpendiculars, when plotted on the compass, are found to lie on headings of 260° and 233°. Any wind on a heading outside this narrow range of 27° will be adverse, i.e., forward of the beam, on one half or the other of the total course. A north wind, for example, blowing on a heading of 180°, will be very favourable as far as Sounion but very adverse (in fact 37° forward of the beam) from then on. With an East wind the reverse is true. There is thus only a narrow range of possible winds that would be favourable throughout the trip, correspondingly reducing the chances that one such was actually blowing on the actual day. Moreover, in drawing this diagram we have classed as favourable any wind that is not actually adverse, forward of the beam. This is not the same thing as the really favourable winds required for high speeds. Even a wind on 246°, which would be the ideal, being in the exact centre of the arc of favourable winds, works out as lying 15° abaft the beam on both halves of the course, which, while enough to keep the vessel reasonably on the move, will not give very high speeds. The general picture emerging from all of this is fairly plain. There is only a very narrow range of winds that will give a sailing vessel favourable winds all the way from Marathon to Phaleron, because of the U-shaped course, and even then speeds will only be reasonable, not high. However, it should perhaps be made clear that these difficulties apply only to a non-stop voyage with an unchanging wind, such as was that of the Persians. An ordinary sailor on a commercial voyage finding the wind unfavourable or the sea too rough would simply put in to port and wait for conditions to change. After all, ships did regularly run from Chalcis round to Phaleron without too much trouble, and, in particular, Xerxes' fleet made just this voyage in 480, after the engagements at Artemision; but Herodotus expressly says it took them three days to get from the Euripus to Phaleron, a point of some significance (Herod. 8.66). Marathon–Phaleron, in short, was not a particularly difficult voyage; it was only difficult to do it fast.

Having done our best to establish the weather and the particular conditions of the voyage, we now turn to the fleet that made it. What was its composition? Here there are two possibilities to be considered.

First, the entire Persian fleet may have gone to Phaleron, moving as one unit. This is what we would normally read into the narrative of Herodotus, who simply says that "the Persians" sailed to Marathon, and the clear implication is that all of them did so. In that case, the speed of the fleet will have been set by its slowest ships, probably the horse-transports. Second, realising the need for speed, they may have sent ahead their fastest vessels, leaving the rest to follow and rendezvous later. This would certainly be true if, as has sometimes been suggested,[17] we are dealing with a planned Persian attempt to slip a force into Athens by sea unconnected with the battle at Marathon. This situation will be more complicated to evaluate. Let us consider them in turn.

First, the case for the entire fleet. It certainly included Phoenician ships, a regular element in any Persian fleet if not indeed its backbone, and their presence at Marathon is attested by the well-known painting in the Stoa Poikile at Athens, in which Phoenician ships (seen and specifically identified as such by Pausanias) were represented in the act of taking aboard the defeated army (Paus. 1.15.3). These may have been transports built on traditional freighter lines, or war galleys. In neither case does it seem likely that their performance would have differed all that greatly from their Greek counterparts.[18] There remain the horse-transports. At Athens during the Peloponnesian War and later, such ships were normally old triremes, converted by removing the two lower oar banks and installing horses in the vacant space.[19] They could thus move under oar-power,[20] and it might even be argued

[17] Munro, *CAH* 4.249–51; Caspari 105; Gomme, *Phoenix* 6 (1952) 77 f.

[18] For my view that Phoenician galleys need not necessarily have been much faster than Greek, see *JHS* 1975. What little is known about them is summarised in *SSAW* 94–96. The conclusion there is that they were triremes the same length as Greek ones but rather broader in the beam, with the top bank of oarsmen sitting inside the gunwale, rather than on top of it and rowing through an outrigger, as in the Greek version. However, the evidence is decidedly scanty.

[19] Thuc. 2.56.2. For Athenian and other horse-transports see C. Torr, *Ancient Ships* (Cambridge 1895) 14; *SSAW* 93–94; *GOS* 248–49.

[20] Ar. *Eq.* 599 f. has the horses rowing, in a comedy dating from a time when at Athens horse-transports were still a novelty worthy of comment. The dockyard records listing horse-transports show that each ship had as part of its equipment 60 oars (= one bank of a trireme), e.g., *IG*² II, 1628, 161. We may also note *IG*² II, 1623, 14 ff., where we find listed a ram, ἔμβολον, as one of the fittings of a ship named the Ἱππαγωγός, presumably left over from previous service as a fighting trireme. A horse-

that they could keep pace with triremes. In anything other than battle manoeuvring triremes normally used only one bank of oars at a time,[21] giving them an effective oar-power theoretically equal to a horse-transport, but this overlooks the need periodically to rest the oarsmen on a lengthy voyage, and the fact that horse-transports as a class seem to have been regarded as a slow and unhandy type of vessel.[22] We may safely infer that even an Athenian horse-transport could not move at anything like normal trireme speed under oars, though it could keep up with a fleet travelling under sail. As for the Persian horse-transports, we are told by Herodotus that Darius' orders to his subject states were that a fleet be built (Herod. 6.48). If this is to be strictly interpreted (which may not be safe) it means that the entire fleet was new construction, and that both horse-transports and troopships were designed for the job, not converted freighters or triremes. It is very hard to say what form a custom-built horse-transport would take, but it would probably be different from the converted triremes of the Athenian navy, a makeshift solution. Herodotus in mentioning them describes them as *ploia*, a word normally reserved for merchant vessels as opposed to war galleys, with which (*neas makras*) his text contrasts them. We should therefore probably be safest in believing that the Persian horse-transports were unlike the triremes and were modelled on the lines of merchantmen.[23] If the fleet moved in its entirety it is these vessels that would set the pace, and the applicable speed is that of a fleet travelling under sail.

Second, there is the possibility of a detached section of the fleet, omitting the slower craft. Unfortunately, the slowest craft, the horse-transports, were also the most valuable for this expedition: it has often

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transport could hardly use a ram, and a ship named "Hippagogos" is surely likely to be intended for transporting horses.

[21] *GOS* 309; *SSAW* 280.

[22] Nicias, speaking of triremes, (Thuc. 7.14.1) stresses the short duration of the oarsmen's best efforts (*βραχεῖα ἀκμὴ πληρώματος*) and even on a voyage as urgent as that of the Athenian trireme bearing news of the reprieve to Mitylene we are told that the crew took turns to row and to rest (Thuc. 3.49.3). For the notorious unhandiness of horse-transports, see Livy 44.28, where a fleet of 35 Gallic horse-transports (of type unknown) is set upon by 40 *lembi*. The Gauls, landlubbers who can hardly stand up to even a calm sea, and handicapped by their "unhandy type of vessel" (*inhabili navium genere*), run for the shore.

[23] There is a possible contradiction here. See note 29, below.

been remarked that the cavalry would be useful for the dash up from Phaleron to Athens. If they were included the same speed would apply as to the entire fleet. But suppose the force comprised infantry alone, loaded on to the triremes, which could then go round under oar-power? The whole question of how ancient armies in general were transported has been little considered;[24] here, there seem to exist four possibilities. One is that troops sailed in transports modelled on merchantmen, or merchantmen commandeered for the purpose. This is the simplest and most likely solution. It will mean that the squadron will, once again, travel at the rate of a fleet under sail. The second is that they were loaded on to specially designed troopships. Such specialised vessels, neither merchantmen nor trireme proper, were certainly known in antiquity, but we do not hear of them before the Peloponnesian War.[25] Even given that the Persian fleet was expressly built for this particular campaign (so that they could have been specially designed for their purpose, as we believe the horse-transports probably were), and that the Persians were more experienced than the Greeks in large-scale warfare, I feel it on the whole unlikely that this degree of sophistication existed in the Archaic Age.[26] In any case, whatever

[24] No doubt in antiquity, as today, there was no uniform practice and troops were carried in different ways depending on the needs of individual campaigns. It would appear that in classical times, on the whole, troopships were employed, escorted where necessary by a screen of war galleys (e.g., Dem. *Phil.* 1.22, recommends that an expeditionary force be accompanied by ten fast triremes ὅπως ἀσφαλῶς ἡ δύναμις πλέῃ; and Scipio's armada for the invasion of Africa was accompanied by twenty *rostratae* on each flank (Livy 29.25). In an emergency soldiers could man triremes, doing their own rowing like Homeric warriors (Thuc. 1.10), the best known example being the 1000 hoplites under Paches sent off to crush the revolt in Mitylene (Thuc. 3.18), but it was always unusual and except in direst need presumably required assured good weather and undisputed command of the sea—the soldiers would find it hard enough to master this unfamiliar element and get to their destination at all without having to cope with emergencies on the way.

[25] *GOS* 247–48; *SSAW* 93. The term for a troopship is στρατιῶτις (*sc.* ναῦς) or ὁπλιταγωγός, the latter being a purely Thucydidean word. The problem of exactly what a στρατιῶτις is was first considered by K. J. Dover in his edition of Thucydides VI (Oxford 1965) 42 (note on 6.31.3), the argument being repeated in amended form in *HCT* 4, 308 (note on 6.43.1). The point at issue is whether a στρατιῶτις is an ordinary trireme temporarily modified to carry troops (and if so what is the modification?) or a larger vessel built for the purpose and quite distinct from a fighting trireme.

[26] Perhaps wrongly, I have accepted that the horse-transports were especially built as such but not the troopships, because I think there is a greater need for a specialised craft for horses than for men. The point, it appears to me, is incorrectly taken in *HCT* 4, 309, where it is remarked that *vis-a-vis* troopships horse-transports "are obviously a

such a vessel was like it could hardly match trireme speeds, though it might have been a little faster than a fleet under sail alone. The third possibility, that the soldiers filled the benches and rowed themselves to Phaleron, *auteretai*, can be ruled out. The most charitable verdict is that they would have been unlikely to have made record time, and speed was what was needed. The fourth and last possibility may be subdivided into two. One or two banks of oars may be removed to provide seating space for some 60 or 120 infantrymen per ship: speed will again drop off seriously, and be little faster than under sail alone. Alternatively, the ship may retain its full complement of oarsmen and cram as many soldiers as possible into the space normally allocated to the marines. In this way a trireme may be able to carry up to 40 soldiers, but it is known that once again the speed falls off.[27] It is probably this last arrangement that would make for the fastest run. The crews could at least try to hurry by rowing hard, and if they met adverse winds could make some sort of progress in conditions where sailing ships could make none at all. But it means organising the army and concentrating the soldiers on board the triremes that are to make the trip, and it does not sound as if things proceeded in this disciplined and systematic manner during the confusion of the Marathon evacuation. And with the lack of a stern wind all the way to help them and speed further reduced by the number of "passengers," the overall time will not be fast by trireme standards. And on balance of probability, I feel that the most likely thing to have happened is that the whole fleet went to Phaleron.

We have now studied the conditions of the voyage, and the fleet that

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different matter, since horses cannot row" (*pace* Aristophanes, note 20 above). It is at least arguable whether soldiers could row, and has been so argued by none other than Gomme (*HCT* 2, 271: "untrained rowers would be worse than useless"). More important than rowing are the loading and unloading arrangements. In a horse-transport it would help greatly if the ship incorporated some sort of loading ramp, like a World War II landing craft, or the small car ferries that today are so plentiful in Greek waters. Men, on the other hand, could easily scramble over the side of a freighter or trireme.

[27] See *GOS* 248. At the Battle of Lade the Chian triremes each carried 40 marines (Herod 6.15). In Xerxes' fleet the figure is 30 (7.184). However, "an increase in the number of 'passengers' aboard had a great effect on the speed of the triremes" (*HCT* 2, 217), and one of the reasons Phormio was able to deal with his Corinthian adversaries as he did was that they were handicapped by being στρατιωτικώτερον παρεσκευασμένοι, "the ships to be used more like transports than fighting vessels" (*HCT* on 2.83.3).

was to make it. Winds would be either middling, on the beam on one side or the other and not giving too much help, or favourable on the first half and adverse on the second. There would be a sea running that might cause the triremes some trouble. The fleet, if it travelled as a whole, would travel at the speed of sail; if it is triremes only, transporting the infantry, they will travel a bit faster, but not too much. With these considerations in mind we may now turn to the figures listed by Casson. Sixteen voyages by fleets under sail are listed,[28] under varying weather conditions. Three of these he notes as much faster than the others, at average speeds of 4.5, 4.4, and 4 knots. The middle one can be ruled out as reliable evidence because it took place in freak weather conditions that greatly surprised the crews. Of the other two, both are for fleets without transports, one consisting only of triremes and the other of *lembi*. The second can be dismissed for our purposes. *Lembi* were small, light, fast craft unsuitable for carrying a proper army.[29] But the first one does look promising. There Caesar, in hot pursuit of Pompey, embarked a small part of his army in triremes and dashed from Rhodes to Alexandria at high speed (Appian, *BC* 2.89). He averaged $4\frac{1}{2}$ knots, the highest fleet speed quoted by Casson and an example of *celeritas Caesariana* that Datis would no doubt have been happy to imitate. Applied to Marathon, 58 sea miles (assuming the fleet could throughout follow the direct course and was nowhere obliged to tack, which would raise the figure for the distance to be covered) covered at $4\frac{1}{2}$ knots gives a time of 13 hours. Unfortunately, it is not possible, for we run up against the same difficulty that has beset us all the way—the wind. From Rhodes to Alexandria Caesar was sailing in a straight line and on a route where the prevailing winds blow hard from the northwest, dead astern. It is the route of the Puteoli—Alexandria grain clippers, and a recognised racing stretch, with a strong tail wind all the way. This does not in the least match the profile we have outlined of the Marathon trip, with its unhelpful wind pattern, and only makes it plain that unless we assume for it (a) fast triremes only, with (b) not many Persian soldiers aboard to impede the oarsmen, and (c) a strong north wind that (d) coincidentally veered about 160° just

[28] Casson *TAPA* 147; *SSAW* 293–94.

[29] C. Torr (above, note 19) 115. In *Pol.* 5.109 ff., *lembi* are used for an amphibious force employed in commando-style operations.

as the fleet rounded Sounion so as to be behind them all the way—unless all of these are to be accepted, the generally agreed time of 12–14 hours cannot stand. The Persians must have taken much longer.

Since loading the army on to triremes will not save the 14 hour figure, we are driven back on what we thought was most likely to be the truth, that the whole fleet, transports included, went to Phaleron, and to it Casson's figures must now be applied. Setting aside the three particularly fast voyages, the remaining 13 tell a consistent story, and Casson's conclusion is clear and unambiguous: "Before a favourable wind a fleet could log between 2 and 3 knots. With unfavourable or very light winds a fleet usually could do no better than 1 to 1½ knots."[30] Indeed, there is even the fleet sent by Caesar from Lilybaeum to Ruspina which, since it included heavily-laden transports—a possible parallel with the Persian fleet[31]—logged an average of only 1.7 knots, and that with a *favourable* wind.[32] It is these figures that must now be applied to the Persians' voyage. For the Marathon–Sounion stretch we may reckon the winds as favourable and according to Casson allow 2–3 knots. The distance being about 30 nautical miles, that gives the fleet a time of 10–15 hours to Sounion alone—and that with a favourable wind. After Sounion, Casson's second set of figures, for "unfavourable or very light winds" would seem the realistic one to apply (see Fig. 1). That means a speed of 1–1½ knots for a further 30 nautical miles, giving a time of 20–30 hours. Adding the two legs together we thus arrive at a total time from Marathon to Phaleron of 30–45 hours, or perhaps a little less if triremes only were used.[33] In other words, we really

[30] Casson, *TAPA* 148; *SSAW* 296.

[31] Grundy (note 3, above) believed that transports, heavily laden with plunder, were present and slowed the fleet up.

[32] Caesar, *Bell. Afr.* 34; Casson, *TAPA* 147 and 148, note 53; *SSAW* 294 and 296, note 114.

[33] In view of the importance of these figures and the fact that they are far beyond the range of times normally proposed I thought it best to submit this material to Prof. Casson, who very kindly read it through. He assures me that he believes I have applied his figures correctly and in an appropriate manner, and that the time given above is probably right. I may perhaps here remark on one voyage, not listed by Casson because it was not longer than a day, which has sometimes been brought to my notice as evidence of high speed. Xenophon (*Anab.* 6.42, quoted by *GOS* 309) says that a long day's rowing would bring a ship from Byzantium to Heracleia, in the Black Sea. This is very hard to believe, though the evidence ought to be impeccable: Xenophon is reliable, and had been there himself. However, this gives a distance of about 140 miles for (say) 18 hours, which averages out at nearly 8 knots. Moreover, this takes no account at all of

ought to think in terms of a two-day voyage, which would fit with the experience of Xerxes' fleet at Salamis.[34]

Moreover, there is confirmation, of a sort, that the voyage was of this order of magnitude in the *Crito* of Plato (*Crito* 43d). There, it will be recalled, Crito arrives very early in the morning to tell Socrates that the state trireme on its way home from Delos has got to Sounion, and that he expects it will arrive in the Peiraeus later in the day; Socrates, because of a dream, thinks the following day more likely. The information comes from certain passengers who left the ship at Sounion and made their own way to Athens, presumably overland, and presumably on foot (riding seems to have been an uncommon mode of travel at Athens: even in the crisis of Marathon the desperate appeal for help was carried to Sparta by a runner, not a rider). This can hardly have taken less than 10–12 hours, and they evidently arrived well in advance of the ship. It would be unwise to pursue these calculations into further detail as there are too many unknown factors, notably the question of whether they (or the ship) travelled overnight, but the general inference is clear: prospects for the run from Sounion up to Phaleron on this occasion were such that some of the passengers decided that it was quicker to get out and walk.

It would seem, therefore, that a time of 30–45 hours is the most likely estimate for the voyage. Perhaps it was less than that if triremes only were employed (say 25–30?). Perhaps other voyages could be added to the list of Casson, raising his average speeds. Perhaps some

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the fact that this particular trip includes the entire length of the Bosporos (17 miles), going against a current that can run as fast as 6 knots. To maintain the schedule given, therefore, the ship would have to achieve on this section a speed through the water of anything up to 14 knots, which is ridiculous. I am very unhappy about this passage, and I feel we would be safer not to take it into consideration.

[34] As previously noted, it took 3 days for the 96 nautical miles from the Euripus to Phaleron. Assuming it sailed non-stop this works out at 1.2 knots. Allowing for an overnight stop of 12 hours, the average while sailing rises to 1.6 knots; with two such stops, 2 knots. Applying this last, the highest possible speed, to the 60 sea miles from Marathon to Phaleron, we will still have a time of 30 hours. I may also mention that by the courteous assistance of Mr. Peter Throckmorton I spent some time in the shipyards of Salamis and Perama talking to yacht and caique captains (from whom are derived my statements on the *meltemi* and weather conditions off the east coast to Attica) about the time they themselves would expect to take on this run, under sail alone. Significantly, the initial reaction of everyone was to think of where they would stop over at the end of the first day. It was automatically taken to be at least a two-day trip.

unusual weather conditions did exist that we have not guessed at. But one thing seems beyond question. On the basis of what information we have and the most likely estimates to be made from it, the journey time must have been in quite another range of magnitude from that generally allotted to it. The general picture for the Sounion–Phaleron stretch is one of uncertainty and tedium, and for the trip as a whole we might almost say that we should be thinking in terms of days rather than hours.

This extremely long time, naturally, has serious repercussions on the campaign as a whole; nevertheless, unless there is a fault in our reasoning up to now, they must be faced. Plutarch's confrontation at Phaleron on the same day as the battle is of course ruled out, but there are graver consequences. One is a factor implicit in most reconstructions but seldom actually spelled out. This is the statement in Plato that the Spartan force arrived in Athens on the day after the battle.[35] Although no one expressly says so, the clear implication in all our sources is that when the Spartans came the Persians had already left. A Spartan–Persian confrontation on the beach at Phaleron would be so striking an element in the story that it could not be passed over in silence, and I think we may take it as certain that no such thing happened. The Spartan arrival, therefore, sets a deadline before which the various Persian movements have to be completed and the Persians themselves got out of the scene. But if that deadline is the day after the battle, as Plato says, then things can become difficult, particularly in view of the

[35] Pl. *Menex.*240c: *τῇ ὑστεραίᾳ τῆς μάχης*; *Laws* 698e: *ὕστεροι . . . τῆς ἐν Μαραθῶνι μάχης γενομένης μιᾷ ἡμέρᾳ*. The two accounts show great similarities and are obviously drawn by Plato from the same source. Thus Hignett (above, note 3) 63, note 7, makes the Spartans arrive "on the 17th or more probably the 18th" of the lunar month, the battle probably being fought on the 17th (58, note 4). So also How and Wells 113. Grundy (above, note 3) 193, comments that "the Athenian army from Marathon cannot have been long at Athens before the Spartan contingent arrived there" because the Persian dead were still unburied, but does not specify a time. Macan (*Herodotus Books IV–VI* [London 1895], Vol. 1, 375, *ad* 6.120) takes the remarkable position that the Spartans got to Athens "before the arrival of the Persians or the Athenians themselves . . . so that the latter found the Spartans there already." If the latter did then the former did too and the Spartan–Persian confrontation becomes a reality, but this remains purely implicit in Macan's text. Burn 257 gives a day-to-day timetable of the campaign in which the Spartans arrive on the third day after the battle, by which time the Persians are well out of the way and already at Mykonos on their way home. On page 253, note 41, he explicitly rejects the two Platonic passages, pointing out various inaccuracies in them.

very long time proposed for the Persians' voyage in the present study. It is not easy to get the Persians round to Phaleron, spend some time anchored there, and under way again before the Spartan arrival. Of course, when Plato speaks of the Spartans "arriving," he may mean in Attica, not Athens; this could mean an overnight stop at Eleusis with the actual arrival at Athens a day later, giving us a more ample margin of time to get the Persians out of the way first. And in any case the two Platonic passages are somewhat doubtful. Both are, in effect, a patriotic speech and "the day after the battle" might be no more than rhetorical exaggeration; moreover, the *Menexenos*, if not the *Laws*, is a peculiar document, and one does not know quite how seriously to take anything in it.[36]

A more serious difficulty is the reaction of the Athenian army at Marathon. If it was almost a two-day sail round to Phaleron, why did the Athenians feel that they had to rush back to Athens to get there first? The race back to Athens is a vital part of the Herodotean tradition and I am not at all disposed to question it. This was part of Athenian popular tradition and, as Hammond rightly points out, at Athens Herodotus read his works publicly to audiences that no doubt included veterans of the war so that any errors would quickly be set right by these "fierce and accurate critics."[37] The real trouble is that at this point there lies at the heart of the narrative a contradiction that has always caused difficulty and confusion. On the one hand, Persian strategy or even plain common sense demands that if they are going to try to get to Athens at all then they should make a rush for it, and the Athenians do in fact react as if that is what they actually did. On the other hand, the long voyage (even at 12–14 hours) round Sounion is undeniably a very slow way of getting there. Thus to some writers the fleet becomes a "flying squadron," dashing headlong for Athens, because that is what strategy requires.[38] To others, a contest between

[36] Macan (above, note 35) Vol. II, p. 189, stresses the unreliability of the Platonic account, which makes it surprising that reliance upon it has led him into the position outlined above, note 41.

[37] Hammond 28.

[38] Munro, *CAH* 4.249: "They incontinently made off in the direction of Sounion, hoping to get to Athens before the Athenian army." The phrase "flying squadron" was first used by Caspari 105, and later repeated by How and Wells 113, and Pritchett (above, note 3) 173. The term involves some internal inconsistency, for those using it also propose a time of 12–14 hours, while the Athenian army probably took 7–8 hours

a Persian fleet sailing at 5 m.p.h. for 70 miles and an Athenian army marching for 26 miles is so one-sided as to be practically "No Race."[39] It would now appear that the Persians must have taken much longer even than that. Why then did the Athenians feel they had to hurry home? One can offer guesses, but in the absence of evidence they must remain just that.

As has often been suggested, the Persians may have divided their forces, the squadron that went to Phaleron being already well on its way when the remainder fought the battle;[40] a variant of this could be that the horse transports, being slow sailers, were deliberately sent off in advance of the rest of the fleet (hence *chôris hippeis*, "the cavalry are away") with the intention that cavalry and infantry would all arrive at Phaleron together. Perhaps, on the evidence of the shield signal, the Athenians feared treachery in the city and thought they had better hurry back to deal with it. Perhaps they feared that the Persians, instead of going all the tedious way to Phaleron, might take a short cut by landing somewhere before then (such as, e.g., the excellent beach

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to return to the city; a flying squadron that takes nearly twice as long as the Athenians walking seems infelicitously named, even if the intention is only to point up the contrast between a force of fast triremes and the rest of the fleet.

[39] E.g., Caspari 104. Arguments such as this are, of course, much strengthened if my own calculations on the length and difficulty of the run are accepted. One minor point that has seldom if ever been taken into account is the fact that if the two forces were in a race, strictly speaking, to Athens, then to the sailing time to Phaleron must be added the time to unload the troops and get them up to Athens. If one sees the voyage as a two-day one then the extra hour or two would not make much difference, but one should keep it in mind when reading estimates of 9 or 10 hours. Conversely, the Athenians only had to get to Athens, not Phaleron, to win the day. One sometimes reads of the Persians arriving to find the Athenians waiting for them on the beach. It is a dramatic picture, and may well be true, but Herodotus says that on the march home the Athenian army ended up at Cynosarges, which was evidently just outside the city. One would expect them to march down to the sea to oppose a landing, and they probably did, but there is no evidence for it.

Another point to be remembered is that, according to J. L. Myres, *G&R* 12 (1943) 33–42, the ancients, including the local inhabitants, had an erroneous idea of the shape of Attica. They thought that it was square, and so would underestimate the distance by sea relative to the road. Myres himself points out (p. 40) that this would make the race back from Marathon an even greater achievement in Athenian eyes than it actually was. Naturally, it may help to explain why they thought they had to hurry, and may likewise have influenced any topographical advice given to Datis by Hippias. Equally naturally, it would have had no effect at all on the realities of the situation or the times actually taken.

[40] See note 17, above.

at Loutsa, just south of Raphina) to commence their overland dash a lot sooner. Perhaps they argued that while the Persian infantry was resting all the way to Phaleron, being rowed by others, and maybe even sleeping if they travelled by night, they had to both march to Phaleron and be ready to fight when they got there; therefore they had to both travel and rest, and, unlike the Persians, could not do both at the same time. Perhaps it was no more than a general feeling that with no idea what the Persians would try next, the only safe move was to get back quickly and guard the city.

All this must remain still conjecture, for the problem of Marathon remains unsolved and it is not the aim of this paper to offer a solution. The Persians' voyage has been studied largely in isolation from the other elements of the campaign, but although it would now appear that it must have been much longer than previously believed I have not thought it wise at this stage to base upon it further speculation on the effect this has on the overall picture, or to attempt a full reconstruction. But realities must be faced, and I shall be quite satisfied if one piece of the jig-saw now has its shape and size more clearly defined.