GIANT CARGO-SHIPS IN ANTIQUITY

Athenaeus preserves an intriguing description by the otherwise unknown writer Moschion of a giant grain-ship, the *Syracusia*, built by Hiero II of Syracuse in the later third century B.C.[1] The account is extremely circumstantial. Besides a full description of the ship's layout, Moschion gives such details as the name of the architect (Archias of Corinth), the size of the construction-force (well over 300), the construction time (a year), details of the launching arrangements devised by Archimedes, and even the procedure for judging crimes committed on board. The ship's interior was of great opulence; its features included a conservatory, a library, a chapel, wall fittings of ivory and cedarwood, and a polychrome floor-mosaic showing the whole story of the *Iliad* (recalling the presence of floor-mosaics in the Roman ships on Lake Nemi).[2] Though they point to a vessel of great size by any pre-industrial standards, the various details cohere, and seem too elaborate to be invented. The most recent commentator, Casson, reasonably rejects Torr's scepticism about the account.[3]

Casson nevertheless adopts a novel interpretation of the ship's capacity, which has the effect of reducing its implied size by about half. The cargo on the ship's first (and perhaps only) voyage was '60,000 (measures) of wheat, 10,000 *keramia* of pickled Sicilian fish, 20,000 talents of wool, and 20,000 (talents) of miscellaneous cargo'. The grain measure is not stated; but the normal practice of Greek writers was to reckon grain by the medimnos (about $52\frac{1}{2}$ litres). The passage is understood thus by Graser and Torr.[4] Casson, because he finds the ship-size that this implies difficult to credit, conjectures that during the period which divided Moschion from Athenaeus 'the original figure in *medimni* was somehow converted to modii' (8·75 litres).[5]

The conclusion is open to more than one objection:

1. Even Greek writers on Rome such as Polybius obstinately reckon grain by the medimnos, though the measure is extraneous to the society that they are describing.[6] As late as the fourth century A.D. Julian affects to assume that the modius will be a measure unfamiliar to his Greek-speaking readers.[7] To find the modius at all in a Greek source is unusual; to find it not merely used, but used with such familiarity that the word itself could be omitted, is almost inconceivable.

2. The transmitted text of Moschion explicitly uses medimnoi later in the same excerpt.[8]

3. If restored in terms of the modius of 8·75 litres, the details of the cargo make nonsense of Moschion's statement that the vessel was a grain-carrier (πλοῖον σιτηγόν), and that its voyage to Egypt was partly justified by a grain-

[1] Athenaeus 206 d–209 e. The main description is reproduced and translated by L. Casson, *Ships and seamanship in the ancient world* (1971), pp.191–9. I wish to thank Mr. J. S. Morrison for his helpful comments on an earlier draft; he is not responsible for any views expressed here.

[2] Cf. G. Ucelli, *Le navi di Nemi*[1] (1940), pp.219–25.

[3] Casson, p.185 n.5.

[4] B. Graser, *De veterum re navali* (1864), p.48; C. Torr, *Ancient Ships* (1894), p.27 n.72.

[5] Casson, pp.185–6.

[6] Polybius 2.15; 6.39; 34.8.

[7] *Misopogon* 369 b.

[8] Athenaeus 209 b.

shortage there.[1] Casson's figures for cargo tonnage make grain, though mentioned first in the list, the least of the four cargoes, accounting for a mere 20 per cent of the total burden.[2]

It is clearly impossible to read these figures in terms of a grain-measure of a modius. If we accept the passage, we must take its main figure as traditionally interpreted in terms of the medimnos, and concede that the vessel was of prodigious size by ancient standards. Torr's reading of the cargo as 2,400 tons of corn, 250 of fish, 500 of wool, and 500 of other cargo, making a total of 3,650 tons, (though approximate) is enough to show the actual implication of Moschion's figures.[3]

Whether we should reject the ship-size that this implies as impossibly large is not at all clear. As was the case with the two Roman giant ships whose tonnage can be surmised, the sailing life of the *Syracusia* was extremely short. The fact that such ships managed to complete a single voyage need not show that they were fully seaworthy. Like the Roman obelisk-carriers, the *Syracusia* appears to have been a monument to the power of the monarch who caused her to be built, rather than the product of continuous evolution in ship-design. She served to carry to Egypt the one cargo mentioned, but because her draught proved too great for existing harbours, Hiero had to abandon any thought of using her as a normal merchantman. He bestowed the *Syracusia* and her cargo on King Ptolemy as a gift (another gesture of pure absolutism), and the ship evidently ended her days at Alexandria.[4]

The Roman ships that carried obelisks were both laid up after their voyages, one being placed on display at Puteoli, the other being used as the foundation for harbour works at Ostia.[5] This seems to show that they had no practical usefulness as ships once their specialized tasks had been completed. Presumably as with the *Syracusia*, their draught was too great for most harbours, and the vessels were too unwieldy or too unsafe for regular navigation. Because of their evident impracticability for regular use, all three ships fall outside the main pattern of ancient ship-building. They are more important as extreme illustrations of the ruler's ability to mobilize resources than as examples of naval architecture.

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[1] 206 e; 209 b.

[2] Casson's figures in tons (p.186) are: grain 400, fish 500, wool 520, miscellaneous cargo 520.

[3] See n.4, p.331 above.

[4] Athenaeus 209 b. Two other consignments of grain dispatched by Hiero were 1,000 medimnoi (40 tons) sent to a poet in Greece who praised the *Syracusia* (which he had presumably seen *en route* to Alexandria at Piraeus); and a ship-load sent to a citizen of Corinth in exchange for gold (Athenaeus 209 b; 232 a–b).

[5] Pliny, *NH* 36.70, 16.202. The tonnage indicated for the Augustan vessel which carried the Flaminian obelisk to Italy is over 3,000 (Torr, loc. cit.). The wheat carried is stated as 400,000 modii (this evidence is not cited by Casson; Cedren, Migne *PLG*, t. 121.338–9; Chron.a.354, *MGH auct. ant.* 9.1.145). The obelisk and base weighed about 400 tons (Torr, p.26 n.68; p.27 n.71; 440 according to Casson, p.189 n.25). The known weight of the Vatican obelisk and base transported under Gaius, together with Pliny's statement that the ship also contained 120,000 modii of lentils, point to a minimum weight of 1,300 tons; but as Casson notes, this seems too low to explain the fact that the ship was evidently too large for normal use (Casson, p.189). Presumably Pliny's account of the capacity is incomplete; though he had apparently seen the ship, he gives no precise dimensions. What are probably remains of the ship have been found at Portus, but as Casson notes, the length deduced by the excavator (104 metres or 350 Roman feet) is difficult to credit (Casson, p.189 n.25).