

POTS AND TRADE: SPACEFILLERS OR OBJETS D'ART?

It is now a commonplace view that fine pottery may not have formed the major part of any cargo in antiquity.¹ The archaeological evidence of shipwrecks seems to confirm the view held by most students of the ancient economy that pots—both fine and coarse—were merely ‘parasitic’ on the main items of trade, staples, metals and slaves.² However there are some who plead a special case for the fine wares—especially the figure-decorated—during the archaic and classical periods. J. Boardman, for example, though in principle in agreement with the general view that pottery accompanied ‘more important materials’,³ still seems to hold the view (which he formulated in 1964) that ‘Corinthian vases were being carried for their own sakes, as objets d’art, or at least best plate’.⁴ This paper will examine the recent claim—in response to those who, it is maintained, have ‘demoted the consignments of Greek pottery, plain or decorated, to “space-fillers” or “profitable ballast”’⁵—*viz.*, that ‘Athenian decorated pottery was not cheap and . . . was as valuable and profitable a trade commodity as most that any classical ship took on board’.⁶

I. THE IMPLICATIONS OF THE POSITIVIST FALLACY

Much of the recent work on pottery and trade has been undertaken by archaeologists and historians working on the Roman period.⁷ Thus while it is acceptable for Campanian black gloss wares, Arretine and Late Roman fine wares to travel as ‘space-fillers in more valuable cargoes’⁸, and Boardman admits that ‘much the same might be

¹ E.g. J. Boardman, ‘Silver is white’, *RA* 1987, 293: ‘The export of fine pottery may have been of great importance to the potters’ quarter, but the vases may not have been a major element in any cargo. This is a commonplace view by now . . .’

² M. Frederiksen (N. Purcell ed.), *Campania* (Rome 1984) 343 n. 96: ‘It is of the greatest importance that the production of these forms of pottery can now so clearly be seen to be parasitic upon developed trade rather than directly on agriculture’; M. I. Finley, *Ancient history: evidence and models* (London 1985) 23: ‘other ceramic goods—table ware, cooking vessels, lamps—also shipped in large quantities, were ‘parasitic’ on the containers and their contents in their occupation of shipping space’.

³ J. Boardman, ‘The material culture of Archaic Greece’, in *CAH* iii.3, 453; *cf.* J. Boardman, *Gnomon* xlii (1970) 500: ‘the problem will always be to determine how far it may be almost casually accompanying trade in other goods, rather than a bulk commodity in its own right’; ‘The excavations’, in J. Boardman and J. Hayes, *Excavations at Tocra 1963-1965: the archaic deposits i* (*BSA* suppl. iv [1966]) 14.

⁴ J. Boardman, *The Greeks overseas* (Harmondsworth 1964) 33; *id.* (London 1980) 17. This aspect of his views on trade is omitted in Boardman 1988a, 27.

⁵ Boardman 1988a, 27.

⁶ Boardman 1988a, 33.

⁷ E.g. M. Fulford, ‘The interpretation of Britain’s late Roman trade: the scope of medieval historical and archaeological analogy’, in H. Cleere and J. du Plat Taylor (eds.), *Roman shipping and trade: Britain and the Rhine provinces* (London 1978) 59-69; ‘Carthage: overseas trade and the political economy, c.AD 400-700’, *Reading Medieval Studies* vi (1980) 68-80; J.-P. Morel, ‘La céramique comme indice du commerce antique (réalités et interprétations)’, in P. Garnsey and C. R. Whittaker (eds.), *Trade and famine in classical antiquity* (Cambridge 1983) 66-74; D. W. J. Gill, ‘METRU.MENECE: an Etruscan painted inscription on a mid-fifth century B.C. red-figure cup from Populonia’, *Antiquity* lxi (1987) 82-87; Gill 1988b; Gill 1988c.

⁸ Fulford 1980 [n.7] 69. The term ‘profitable ballast’ is borrowed from studies of porcelain in the Dutch China trade; *cf.* M. Vickers, ‘The influence of exotic materials on Attic white-ground pottery’, in H. A. G. Brijder (ed.), *Ancient Greek and related pottery: proceedings of the international vase symposium, Amsterdam 1984* (Amsterdam 1984) 90 n. 30. On porcelain and the Dutch East India Company: C. L. van der Pijl-Ketel (ed.), *The ceramic load of the ‘Witte Leeuw’ (1613)* (Amsterdam 1982); T. Volker, *Porcelain and the Dutch East India Company as recorded in the Dagh-registers of Batavia Castle, those of Hirado and Deshima and other contemporary papers 1602-1682* (Leiden 1954). On the nature of saleable ballast: H. Hobhouse, *Seeds of change: five plants that transformed mankind* (London

true of plain black pottery of the Greek period'⁹, trade in the 'figure-decorated pottery of Athens is in a different category'.¹⁰ Boardman's position assumes that figure-decorated pots were more valued than the plain in antiquity, and this is a view which is shared by others.

The view that Greek decorated pottery was highly valued in antiquity is a common one, and is derived from what A. M. Snodgrass has described as 'the positivist fallacy'.¹¹ Some dedications on the Athenian acropolis have traditionally been used to show that 'potters may have grown wealthy in their profession', but the dubious nature of the inscriptions (and iconography) has caused this category of evidence to be withdrawn.¹² This attempt to privilege pottery is clearly seen in A. W. Johnston's attempt to link the Sostratos of Herodotus with the Sostratos who dedicated a stone anchor stock at Gravisca to Aeginetan Apollo, and tie it in with the appearance of SO commercial marks on imported Athenian pots.¹³ Part of Johnston's thesis seems to be influenced by modern perceptions of Greek pottery, and there seems to be little basis for his claim that Sostratos was 'a major exporter of fine Attic pottery' or that Athenian decorated pots 'were apparently as popular in Italian markets [in antiquity] as they are in European today'.¹⁴ The ceramo-centric view of trade and the ancient economy may be illustrated by J. N. Coldstream's claim that 'the success of Corinthian commerce must owe something to high artistic and technical qualities of Corinthian artifacts';¹⁵ this position does not take account of those items of trade which have not been recovered from the archaeological record. Likewise Coldstream suggests that the Tarentines 'were not interested in trade' because there seems to be little Laconian pottery imported between

1985) 107-8. S. McGrail ('The shipment of traded goods and of ballast in antiquity', *OJA* 8 (1989) 353-8) discourages the use of term 'ballast' in relation to ceramic cargo but accepts 'spacefillers'; see also A. J. Parker, 'Classical antiquity: the maritime dimension', *Antiquity* 64 (1990) 342.

⁹ Boardman 1988a, 27. This is the context in which the present writer has placed black-glazed pottery: D. W. J. Gill, *Attic black-glazed pottery in the fifth century BC: workshops and export* (Oxford D.Phil. diss. 1986); 'Attic black-glazed pottery', in P. M. Kenrick, *Excavations at Sabratha 1948-1951* (London 1986) 276-7; 'The date of the Porticello shipwreck: some observations on the Attic bolsal', *IJNA* xvi (1987) 32; cf. M. Vickers and D. W. J. Gill, 'Archaic Greek pottery from Euesperides, Cyrenaica', *Libyan Studies* xvii (1986) 106. In Table B bolsals, which are normally black-glazed, have a greater value by volume than the red-figured pots.

¹⁰ Boardman 1988a, 28.

¹¹ A. M. Snodgrass, *Archaic Greece. the age of experiment* (London 1980) 124-6. On the implications of the 'positivist fallacy' for classical archaeology: D. W. J. Gill, 'Expressions of wealth: Greek art and society', *Antiquity* lxii (1988) 735-43.

¹² Johnston 1979, 35. Johnston has now reassessed the evidence: 'Amasis and the vase trade', in *Proceedings of the Amasis Painter and his world, Malibu 1986* (Malibu 1988) 135. This appeared too late for Boardman (1987 [n.1], 293) who continues to use them as indicators that 'some potters seem to have acquired a degree of wealth'. See also M. Vickers & D. W. J. Gill, 'Reflected glory: pottery

and precious metal in classical Greece', *Jdl* cv (1990) 6-8.

¹³ A. W. Johnston, 'The rehabilitation of Sostratos', *PdP* xxvii (1972) 416-423; followed with more caution by F.D. Harvey, 'Sostratos of Aegina', *PdP* xxxi (1976) 206-214. This identification is described as 'too optimistic' by R. M. Cook (*JHS* ci [1981] 224). Johnston has restated his position in the Supplement to L. H. Jeffery, *Local scripts of archaic Greece* (Oxford 1990) 440: 'Sostratos on [the anchor] is persuasively equated with the trader whose fame Herodotus felt no need to explain ... the letter forms ... would allow an equation with So(...), who marketed many Attic black-figured vases to Etruria in previous years'.

¹⁴ Johnston 1972 [n. 13] 420, 422. Similar views may be found in J.B. Salmon, *Wealthy Corinth* (Oxford 1984) 106, 110, 113. For an account of how Greek ceramics became commodities to be sold on the European art market: M. Vickers, 'Value and simplicity: eighteenth-century taste and the study of Greek vases', *Past and Present* cxvi (1987) 98-137. See also: N. H. Ramage, 'Sir William Hamilton as collector, exporter and dealer: the acquisition and dispersal of his collections', *AJA* xciv (1990) 469-80; D. W. J. Gill, 'Fictile vases from the Disney collection', *Journal of the History of Collecting* ii.2 (1990) 227-31.

¹⁵ J. N. Coldstream, *Geometric Greece* (London 1977) 167; cf. for an opposite view, C. A. Morgan, 'Corinth, the Corinthian Gulf and Western Greece during the eighth century BC', *BSA* lxxxviii (1988) 337.

the Laconian Late Geometric plates and the end of the Archaic period.¹⁶ A more accurate statement may be that Laconian pottery either does not seem to have been unloaded at Taras during this period or that it has yet to be discovered or that the Tarantines traded in commodities that have left no archaeological trace.

II. PRICES FOR PLAIN AND FIGURE-DECORATED POTTERY

One result of this ceramo-centric view has been shown in the eagerness to see a 'mark-up' for figure-decorated pottery over the plain black. A glance at the tabulated prices for these pots shows how little evidence there is, and thus one needs to sound a note of caution.¹⁷ Johnston's examples of marking-up are not numerous. The two Nolan amphorae (one red-figured and one black gloss) from Gela (Type 16E, nos. 8 and 9) provide prices of 2 and 1.5 obols respectively. However his comparison of a 9 obol black gloss bell-krater (Type 18C, no. 59) with a 3 drachma red-figured hydria (Type 18C, no. 63), both from Camarina, is open to question as the shapes are very different; one is an open vessel, the other closed. The same black gloss bell-krater (of c. 440) is itself double the regular price of red-figured bell-kraters two decades later (Type 14F, nos. 1-6). Comparison between figure-decorated and plain is further complicated by the way that two red-figure hydriae attributed to 'the group of Polygnotos' are priced at 2 and 3 drachmae (Type 21F, nos. 7 [0.41 m high] and 8 [0.48 m high]), and as Johnston has pointed out 'the difference in size and quality is slight, scarcely enough . . . to explain the considerable discrepancy in price'.¹⁸ Some might argue that the comparison of these prices is too synchronic, for after all Johnston has suggested that 'the two- and three-drachma products of c. 440 [are] comparable with the 3 to 7 obol vases of late in the century'.¹⁹ Yet the evidence for a fall in prices is slight, and Johnston's earlier argument that the difference is due to the quality of potting and decoration of the earlier pieces compared to the later 'near mass-produced kraters' is perhaps more accurate.²⁰ One doubts that there was indeed a 'premium paid for figured vases' or that the number of figures must have raised the value of a pot and that 'a multi-figure volute crater must have cost £100s'.²¹

It has also been claimed that 'we have no prices for the finest and most fully decorated red figure vases'.²² This however is not the case (Table A). Even pots decorated by Beazley's 'Berlin painter' (whom Boardman placed with 'the Kleophrades painter' as 'the two great pot painters of the early fifth century, arguably the two greatest red figure artists whose works and careers we can judge')²³ do not seem to have been as

¹⁶ J. N. Coldstream, *Greek geometric pottery* (London 1968) 372. Elsewhere Coldstream (pp. 384-5) argued that ivory—now recognised as water buffalo horn (E. D. Francis and M. Vickers, "Ivory tusks" from Al Mina', *OJA* ii [1983] 249-51)—was exchanged for Late Geometric pottery of Cycladic type found at Hama.

¹⁷ Johnston 1979, 33. J. Boardman (*Athenian red figure vases: the classical period* [London 1989] 238) asserts that black-glazed pots 'were of course cheaper than decorated vases'.

¹⁸ A. W. Johnston, 'Trademarks on Greek vases', *Greece and Rome* xxi (1974) 148.

¹⁹ Johnston 1979, 35. Boardman (1988b, 372) follows Johnston at this point and states that prices for pots 'do seem to decline through the fifth century'.

²⁰ The only reduction which may be observed (Johnston 1979, 33) is between a 9 obol black-glazed bell-krater ('480-430') and 4 obol red-figure bell-kraters ('430-'). For his earlier views: Johnston 1974 [n. 18] 148-149.

²¹ Johnston 1979, 34; Boardman 1988a, 30. These views, arguing for high prices for highly decorated pots, would seem to contradict the privileging of the status of pots with simple decoration: see Vickers 1987 [n. 14] 99-104.

²² Boardman 1988a, 30. Boardman (1988b, 372) also believes that prices are related 'to size and to complexity of decoration (number of painted figures)'.

²³ J. Boardman, *Athenian red figure vases: the archaic period* (London 1975) 91.

valued in antiquity as they are today. A belly-amphora (Type A) attributed to this painter and found in Vulci carries a price of only 7 obols. Two more pots from Vulci are also relevant. A hydria in 'imitation of the Berlin painter' also carries a price of 7 obols, and a amphora perhaps 'near the Berlin painter' a price of 5 obols.²⁴ A pelike attributed to 'the Achilles painter' bears a commercial graffito which may be read as 4 items for 3.5 obols, which gives a price of 0.88 obol (PLATE I, a-b).²⁵ This is slightly higher than a price found on a pelike in Göttingen which is marked with a price of 16.5 obols for 32 pieces (or 0.52 obol each).²⁶ These prices do suggest that even the 'best' pottery was not highly valued in antiquity, and it should be remembered that the highest recorded price for an Athenian pot, found on two red-figured hydriae, pales into insignificance beside their equivalents in silver.²⁷ The nature and quality of the decoration on the pots seems to make little or negligible difference to the price, and thus the comparison of the movement of Attic pots with those in later periods would seem to be a valid one. The point that the 'most fully' decorated pots were more valuable is also not strictly true. A red-figured hydria (0.47 m high) from Camarina with six figures (Type 18C, no. 63) is the same price—3 drachmae—as one in Leningrad (0.48 m high) with two rows of pictures (Type 21F, no. 8).

III. THE VALUE OF POTTERY AS A CARGO

The case for regarding decorated pottery as a valuable export has recently been restated by Boardman.²⁸ He has attempted to present the value of different cargoes—wine, oil, wheat and barley—alongside the values for Athenian pottery. He took as his unit of volume the space occupied by two 'average' seven-choes amphorae of wine which he assumed were not 'dove-tailed'. The space occupied by the 'average' amphora is open to question but, taking Boardman's measurements, two small ones (0.60 m high) would take up 0.108 m³ and two large ones (0.80 m high) 0.144 m³.²⁹

In his attempt to demonstrate that 'Athenian decorated pottery was not cheap and that it was as valuable and profitable a trade commodity as most that any classical ship took on board',³⁰ Boardman provided a series of figures for different pottery shapes which allowed their volumes to be calculated. If these volumes are multiplied by known prices of pots, it is possible to obtain a series of values for the space occupied by the two

²⁴ Johnston 1979, 159, Type 10F, nos. 21, 23 and 24, figs. 9w and 12p. The apparent 'mark-up' between the Type A belly-amphora by the 'Berlin Painter' and an amphora perhaps 'near the Berlin Painter' may not be significant due to the differences in size and potting.

²⁵ The pelike is on loan to the Ashmolean Museum, Oxford (*Auktion lxx* [1986] 75, no. 216, the drawing of the graffito is inaccurate; M. Vickers, 'Golden Greece: relative values, minae, and temple inventories', *AJA* xciv [1990] 616, 617 figs. 3-4). The price and batch inscription is preceded by a ligatured *al* or *ma* which may refer to a personal name (a suggestion I owe to Alan Johnston; cf. Johnston 1979, Type 2B, i-ii).

²⁶ Johnston 1979, 250 n. 1, Type 26G, no. 1; cf. D.A. Amyx, 'The Attic stelai III: vases and other containers', *Hesperia* xxvii (1958) 299. This graffito, Johnston (1979, 34) feels, 'would seem to me to be a batch of similar slight pelikai, but I retain a question-mark'.

²⁷ Johnston 1979, 113, Type 18C, no. 63, 165, Type 21F, no. 8. For the relationship between these silver hydriae and their clay equivalents: Vickers 1984 [n. 8] 90 and n. 26; 'Artful crafts: the influence of metalwork on Athenian painted pottery', *JHS* cv (1985) 116; D. W. J. Gill, 'Classical Greek fictile imitations of precious metal vases', in M. Vickers (ed.), *Pots and pans: a colloquium on precious metals and ceramics in the Muslim, Chinese and Graeco-Roman worlds*, Oxford 1985 (Oxford 1986) 10.

²⁸ Boardman 1988a; 1988b.

²⁹ In Table C figures are presented for large (0.80 m high) and small (0.65 m high) amphorae. Taking the greatest diameter as 0.30 m, there would be 14 large amphorae per cubic metre and 17 small. For Chiot amphorae: U. Knigge, *Der Südhügel (Kerameikos ix, Berlin 1976)* from grave nos. 95, 150, 166, 226, 290, 304.

³⁰ Boardman 1988a, 33.

amphorae.³¹ I have had cause to question the calculations presented by Boardman in his first paper as the measurements and prices of the pots do not correspond with his Table 1 (value by volume).³² In his reply, Boardman claimed that the figures in the first paper were correct.³³ Yet, if this was the case and his calculations were laid out accurately in his Table 1, it might legitimately be asked why it was necessary to revise them?³⁴ For if we take the measurements of the pots presented in the first paper, plus the pelike which he added in the second,³⁵ only two pieces fall into the value brackets of 'Decorated Vases A' and 'Decorated Vases B' in his Table 1 (see Table B); moreover one of these two pieces, the cup, depends on a price so far unknown in commercial graffiti and is produced from nowhere for Boardman's second paper. One wonders why Boardman continues to present his Table 1 when the calculations do not support it.³⁶

Boardman continues to place faith in the 1 drachma red-figure lekythos, even though this piece is excluded from the list of prices which Johnston 'would like to think . . . are assured interpretations'.³⁷ Johnston himself admits the possibility of this being the price inscription for a lekythos but as the ligature of kappa and alpha point to the price relating to a *kados* (or a derivative)—'not a word we find elsewhere associated with lekythoi'—the inscription is probably spurious (as I have already suggested).³⁸ Johnston's view that 'a drachma appears a high price for such a piece' is not mentioned by Boardman, and if one follows up Boardman's reference to Johnston's endnote one does not find 'corroboration' for this high price.³⁹ Rather the reader is referred to a comment on a graffito found on a red-figure lekythos (Taranto 4544) which Johnston finds difficult to understand: the graffito 'is not happily interpreted as "obol" since the resulting price of four obols would seem rather high for a lekythos, even one 41.8 cm. tall'.⁴⁰ Although I would agree with Boardman that the readings of these commercial graffiti are not certain, one ought not to use such a dubious piece of evidence to support a crucial point in an argument, especially when Johnston himself has been reluctant to make use of the same inscription.⁴¹

Boardman is dismissive of my use of the price of 1/2 obol for a lekythos which he suggests 'might even have been applied to squat lekythoi which are half the volume'.⁴² However this interpretation fails to take account of the full inscription on a red-figure pelike (perhaps more accurately a *stamnos*) from Naples.⁴³ One of the items in the inscribed list of pot-names, batch sizes and prices, refers to 50 '*lekythia mik*' and Johnston has suggested that 'we must think in terms of the meanest "squat lekythoi"' at 3 obols for 50.⁴⁴ The six '*lekythoi dik*' for a total of 3 obols have been taken by Johnston as 'being normal pieces [sc. lekythoi] without false necks',⁴⁵ and their value would be more than 8 times that of their smaller companions. This difference could support the suggested price of 1/2 obol for a full-sized lekythos.

Boardman also claims that I ignore a pelike and bolsals, but he did not provide measurements of these pots in his first paper;⁴⁶ I merely attempted to show the

³¹ Prices are derived from Johnston (1979, 33) where the highest certain figure is taken.

³² Gill 1988a.

³³ Boardman 1988b, 371.

³⁴ Boardman 1988b, 373.

³⁵ Boardman 1988a, 30; 1988b, 373.

³⁶ Boardman 1988b, 372. These views also appear in Boardman 1989 [n. 17] 235.

³⁷ Johnston 1979, 33. The lekythos is Type 11C, no. 1. It should be noted that Boardman (1988b, 372-373) uses revised measurements for 'an early lekythos'.

³⁸ Johnston 1979, 34, 201; Gill 1988a, 369.

³⁹ Johnston 1979, 201. Boardman 1988b, 372 refers to Johnston 1979, 63 n.10.

⁴⁰ Johnston 1979, 16.

⁴¹ Boardman 1988b, 372.

⁴² Boardman 1988b, 372.

⁴³ Johnston 1978.

⁴⁴ Johnston 1978, 223.

⁴⁵ Johnston 1978, 224.

⁴⁶ Boardman 1988a, 30. Boardman does not record if the measurements for the bolsal are those for the ones marked with the price graffiti. His estimate may be too high as the size of bolsals vary. At 0.5 obol each, 1m³ of bolsals would be worth:

misleading nature of Boardman's own figures. Moreover his argument can only be weakened by the invention of prices to keep the value of pottery high. Thus the price of a kylix is '(say) 1 dr'⁴⁷ which he considers 'fair if not modest'.⁴⁸ However when one realises that the highest recorded price for a figure-decorated bell-krater was 4.5 obols (Type 14F, no. 5), and skyphoi (Type 16B, no. 34) and bolsals sold at 1/2 obol,⁴⁹ Boardman's suggestion is not in keeping with the available evidence. Indeed if a Type A amphora attributed to 'the Berlin painter' only cost 7 obols,⁵⁰ Boardman's estimate is exaggerated. It is perhaps in the light of this amphora that Boardman has re-examined his claim that 'we have no prices for the finest and most fully decorated red figure vases',⁵¹ and changed it to a less dogmatic 'we have more information about the prices of trivial vases and none about the most elaborate'.⁵²

It is immediately striking that the unit cost for bell-kraters, lekythoi and Nolan amphorae give a fairly consistent value (Table C). This might indicate that the price of a pot consigned to export was determined not by the quality of the decoration but by the volume it occupied in a cargo-hold. A further type of ceramic cargo which might be considered is that of fictile tiles. Corinthian tiles are known to have been made to a standard size, and prices from Eleusis suggest that they were as valuable a cargo as figure-decorated pottery if not more so (Table C).⁵³ A set of slim tiles (0.03 m deep) would be worth 74 drachmae and 1 obol (@ 5 obols each) per cubic metre and a set of thicker ones (0.06 m deep) 36 drachmae and 4 obols (@ 5 obols).

However Boardman does point out that small pots could be packed inside larger ones and this would cause an increase in the unit cost. This problem would be relevant to open shapes such as kraters, rather than a closed shape like a hydria which would be hard to pack with small pots; this might be a further reason why hydriae have higher prices. Further light on this problem is provided by a series of graffiti found on the undersides of Attic red-figured bell-kraters.⁵⁴ Five kraters, decorated by three different 'hands', are inscribed with a series of lists; their find-spots are not known. The lists record consignments of different pots—some large, some small—with the number and price for each type. Each consignment included six *krateres* and varying numbers of *oxides*; other shapes listed were *bathea*, *oxybapha*, and *pellinia*. Despite the varying size of the consignments—from 28 to 96 pots in each (the main component of six *krateres* is the same)—the total price for the batch is relatively constant, fluctuating between 31 and 34 obols. It seems possible that these sets were made up to a certain value to take up the space in a ship's hold defined by six bell-kraters. This unit of six is found on the foot of a fragmentary bell-krater from Al Mina where six *krateres* were packed with 40 *oxybapha*.⁵⁵ Given the low prices and large numbers of the pots accompanying the

Boardman hypothetical: 0.055 x 0.17 x 0.108 = 85 dr

Cambridge GR.107.1890: 0.057 x 0.178 x 0.108 = 76 dr

Oxford 1879.187: 0.063 x 0.194 x 0.119 = 57 dr

As these values vary so much I do not include them in Table C; in any case bolsals are usually black-glazed rather than red-figured.

⁴⁷ Boardman 1988b, 373; Boardman 1989 [n. 17] 235.

⁴⁸ Boardman 1988b, 372.

⁴⁹ D. W. J. Gill, 'The workshops of the Attic bolsal', in Brijder 1984 [n. 8] 106.

⁵⁰ Johnston 1979, Type 10F, no. 21, fig. 12p; J.D. Beazley, *Attic red-figure vase-painters*² (Oxford 1963) 196, no. 2.

⁵¹ Boardman 1988a, 30.

⁵² Boardman 1988b, 372.

⁵³ J. E. Jones, L. H. Sackett, and A.J. Graham, 'The Dema House in Attica', *BSA* lvii (1962) 83-4. The Corinthian tiles from the Dema House measured 0.692 x 0.55 x (0.03 or 0.06) and this compares well with tiles from the Athenian agora, Delphi and Olynthus. Prices: Pritchett 1956, 282-3.

⁵⁴ Amyx 1958 [n. 26] 289-92, pl. 52; Johnston 1979, 161, Type 14F, nos. 1-5. They are decorated by Beazley's 'Kadmos', 'Pothos', and 'Dinos' Painters.

⁵⁵ J. D. Beazley, 'Some inscriptions on vases, IV', *AJA* lxi (1957) 8; Johnston 1979, 162, Type 14F, no. 17.

krateres it seems likely that they are small and might have been packed inside the bell-kraters; the *oxybapha*, for instance, seem to have been small bowls.⁵⁶ A further set of 83 pots is listed on the underside of an Attic red-figured 'pelike' (probably more correctly a *stamnos*) found at Naples; the batch was worth 4 drachmae and 4.5 obols.⁵⁷

The consignment size may have been limited by how much could be packed into the kraters. If the kraters were stacked in two piles of three, it would have taken up a cargo space of approximately 0.13 m³ excluding packing.⁵⁸ This provides a figure of around 46 bell-kraters (the equivalent of 7.69 sets) and a value of around 42 drachmae per cubic metre of cargo space (or around 6 drachmae for Boardman's hypothetical unit).

IV. THE PLACE OF POTTERY IN TRADE

If these lower figures are correct it was probably never commercially viable to transport fine pottery as a main item of trade. Rather pots are more likely to have accompanied the main commodities as spacefillers. In a case like Spina where large numbers of pots are found this may reflect the southward movement of a bulky cargo, perhaps slaves or racehorses, which would have left the ships relatively empty on their return allowing pots to have travelled as little more than profitable ballast.⁵⁹ Indeed the widespread distribution of fine pottery should be seen as an indicator of the vitality of ancient trade rather than clever marketing by potters. As M. Fulford has argued, major ports or areas with natural resources can stimulate pottery production;⁶⁰ thus Arretine and Campanian black gloss wares (as well as various coarse wares) 'correspond with the most important agricultural regions, renowned for their quality and yields of their cereals'.⁶¹ For the Greek world similar centres may be found. The production of Athenian pottery should be seen against the background of activity in the Piraeus with the import of grain and the export of silver and lead from the Laurium mines. Likewise Miletus, long acknowledged from the literary sources as an important centre of trade, has now been recognised as a centre of production from pottery previously assigned to Rhodes.⁶²

The question concerning value by weight in maritime trade is probably mis-aimed. This may be illustrated by considering a ship which could contain 3000 medimnoi of grain (3000 medimnoi x 52.53 = 157,590 litres capacity).⁶³ Such a cargo of wheat would be worth between 15,000 dr [65 kg of silver] (@5 dr/medimnos) and 48,000 dr

⁵⁶ This is derived from the graffito on the underside of an Attic bowl in the Villa Giulia: M. Cristofani, 'Rivista di epigrafia etrusca', *SEI* (1982) 341, pl. lii, 102. It was part of a batch of 35.

⁵⁷ Johnston 1978; 1979, 162, Type 14F, no. 15, fig. 12c.

⁵⁸ These figures are derived from measurements taken from the ex-Castle Ashby bell-krater by 'the Kadmos Painter': *CVA Castle Ashby* (15) pl. 51 (706); *Greek, Etruscan and South Italian vases from Castle Ashby*, Christie's, Wednesday 2 July 1980, 48-9, lot no. 30. Ht. 0.333m. Johnston (1979, 35) noted that the average height of the kraters of Type 14F was 0.315m. A stack of three would be c. 0.6m, and the space occupied by the six would be 0.6 x 0.35 x 0.63. An illustration of the attention given to a ceramic cargo, despite it being a spacefiller, is provided by the Dutch East India Company which packed porcelain in special crates of standard

measurements, 6 square feet and 18 inches in height: C.J.A. Jörg, *The Geldermalsen: history and porcelain* (Groningen 1986) 58.

⁵⁹ Gill 1987 [n. 7] 85; Gill 1988c, 180; D. Nash, 'Celtic territorial expansion and the Mediterranean world', in T. C. Champion and J. V. S. Megaw (ed.), *Settlement and society: aspects of west European prehistory in the first millennium BC* (Leicester 1985) 45-67.

⁶⁰ M. Fulford, 'Economic interdependence among urban communities of the Roman Mediterranean', *World Archaeology* xix (1987) 58-75. See also Frederiksen 1984 [n. 2], 328-9.

⁶¹ Fulford 1987 [n. 60] 69.

⁶² R. E. Jones, *Greek and Cypriot pottery: a review of scientific studies* (Athens 1986) 666.

⁶³ L. Casson, *Ships and seamanship in the ancient world* (Princeton 1971) 182-3.

[207 kg] (@16 dr/med). At 5 drachmae per medimnos of corn, about 2500 sets of pots (i.e. including at least 15,000 bell-kraters) would be required to purchase the shipload; at 16 drachmae per medimnos about 8500 sets (i.e. at least 50,000 bell-kraters) would be required (Table D).⁶⁴ When one compares these figures with the volume taken up by pots to the same cargo value one realises that value by volume is an important factor (Table D). If we accept P. Garnsey's suggestion 'that Athens never in a normal year had to find grain from outside Attica, narrowly defined, for more than one-half of its resident population' or that 'Attica was capable of feeding in the region of 120,000-150,000 people . . . under normal conditions'⁶⁵ then with a population of 200,000-250,000 to feed it is possible to make an attempt to outline the scale of imports.⁶⁶ If each person consumed 230 kg of grain per year,⁶⁷ and there was a need to import grain for between 50,000 and 100,000 people, then the level of imports would be between 11,500 tonnes (287,500 medimnoi) and 23,000 tonnes (575,000 medimnoi). In terms of shiploads (each carrying 3000 medimnoi) this would be the equivalent of 96 to 192 ships per year (under normal conditions).⁶⁸ It should be clear that if a ship has limited cargo space, a ship's captain, however capable, would not be able to double his capacity just because he was carrying decorated pottery rather than grain. The evidence of the price inscriptions themselves might have served to point us in the direction of value by volume. They do not appear to read x pots weighing y and worth z dr, or just y weight of pots for z dr. Rather these graffiti, presumably added to pots exported by sea, seem to read x pots (i.e. objects taking up a defined volume) for z dr.

The figures in Table D raise other questions. If so many wheat-bearing ships were sailing to Athens in a 'normal' year (and we leave aside other seaborne imports such as slaves, timber and metals) then where does this leave the export of Athenian pottery? The 20,000 Athenian black-figure pots known in 1974⁶⁹—and some of those have been found at Athens and in Attica—could have been exported by 100 sailings a year over five decades at a rate of four pots per voyage. More attention needs to be paid to M. I. Finley's plea for more quantification when discussing the movement of pottery.⁷⁰ The slow rate at which imported Greek pottery arrived in Etruria—the figures presented by M. Martelli and J. C. Meyer suggest that over 5000 pots are known⁷¹—might perhaps indicate that pottery was not a significant item of trade (Table E). Taking a positivistic stance, it might well appear that even in the busiest period of '525-500', Attic pots were only arriving in Etruria at a rate of less than 60 a year; one can only speculate as to the percentage of pots that have survived.⁷²

⁶⁴ This figure may be appreciated when it is realised that the Beazley Computer Archive in Oxford (August 1987) only recorded 25,000 items (not sets); however this does not include Beazley's attributed pots. I am grateful to Thomas Mannack for this information. Cf. J. Boardman, *Athenian black figure vases* (London 1974) 7: 'something like twenty thousand Athenian black figure vases have been discovered'. The price of 16 dr per medimnos for wheat refers to 'famine' conditions.

⁶⁵ P. Garnsey, *Famine and food supply in the Graeco-Roman world. responses to risk and crisis* (Cambridge 1988) 105.

⁶⁶ Garnsey 1988 [n. 65] 90.

⁶⁷ Garnsey 1988 [n. 65] 91; L. Foxhall and H.A. Forbes, 'Sitometreia: the role of grain as a staple food in classical antiquity', *Chiron* xii (1982) 41-90.

⁶⁸ In the autumn of 340 Philip seized a grain-fleet of 230 (or 180) ships; cf. Garnsey 1988 [n. 65], 143.

⁶⁹ Boardman 1974 [n. 64] 7.

⁷⁰ M. I. Finley, *The ancient economy* (London 1973) 33; cf. S. C. Humphreys, *Anthropology and the Greeks* (London 1978) 119.

⁷¹ M. Martelli, 'Prime considerazioni sulla statistica delle importazioni greche in Etruria nel periodo arcaico', *SE* xlvii (1979) 37-52; J.C. Meyer, 'Roman history in light of the import of Attic vases to Rome and Etruria in the 6th and 5th centuries BC', *Analecta Romana Instituti Danici* ix (1980) 47-68. We await the final publication of the fine pottery from Gravisca.

⁷² A. W. Johnston (1988 [n. 12] 126) 'would spread gloom about our ability to assess survival rates in sixth-century [pottery] production'. R. M. Cook's ('Die Bedeutung der bemalten Keramik für den griechischen Handel', *JdI* lxxiv [1959] 114-23) attempt to estimate what proportion of pots are extant today depends on the survival rate of prize Panathenaics. Johnston has pointed out that their

These figures do not seem significant when extant batch marks and shipwrecks indicate large batches of fine pottery could be carried as a minor component in a cargo. Shipwrecks investigated in the Lipari Islands have shown that large numbers of pots could be inserted in the space between the two sections of the amphora-contained cargo. In later periods the wreck of the *Geldermalsen* (1752) contained 171 dinner services of Chinese porcelain in 203 chests (c. 160,000 pieces). Yet 60% of the cargo value was in tea (686,997 lb), and there were in addition 147 pieces of gold on board.⁷³ The commercial graffiti recording batches of 6 bell-kraters show that these large objects were parts of sets comprising up to 96 pots (*supra*, p. 00); this overshadows the minimum of 60 Attic pots estimated to have been arriving annually in Etruria during the period '525-500'. Some batches were large in number although they need not have taken up much space. The sets of 6 bell-kraters would only take up 0.13m³, and one of the largest batches outside Athens, 285 items recorded on an Attic lamp found at Reggio, would have taken up 0.91m³.⁷⁴ Such batches are recorded at least as early as the Middle Corinthian horizon. A graffito on a krater in the Louvre records a mixed batch (*sum[mikta]*) of 7 vessels.⁷⁵ Other large Attic batches include 20 red-figure oinochoai (Type 8F, no. 11), 23 red-figure column-kraters (Type 9F, no. 51), and 150 decorated items recorded on the foot of a small open pot from Ampurias (Type 8F, no. 12).

V. POTTERY AND PROFIT

These figures for different cargoes have to a large extent been linked to value rather than profit. There certainly appears to have been speculation in foodstuffs. Thus Teos around 470 BC set up an inscription listing curses on those forcing up the price of grain, and fourth-century BC Athens responded to speculation and profit-making by appointing special officials.⁷⁶ The evidence for pottery is not straightforward. Some prices seem to have been marked in Attic script although this does not require them to have been 'applied in Athens'.⁷⁷ One piece of evidence presented for Athens as the place of marking is the over-incision on a red-figured pelike from Naples.⁷⁸ A single incised line overlies the lambda in the price inscription, and as pots with this rather basic graffito have been found 'in Etruria, Bologna, Spina, Campania, Apulia, Sicily, and now Rhodes',⁷⁹ Johnston feels that the implication is that 'the price graffito too is Athenian'.⁸⁰ How far one can argue for unity within the pots marked with a simple line

survival rate is 'not likely to be consistent with that of less special vases' (Johnston 1979, 50) as they are not 'a typical indicator' (Johnston 1988 [n. 12] 126). Moreover Johnston (1988 [n. 12] 126) feels 'unhappy about taking back into the sixth century figures derived ... from circa 375': cf. A. W. Johnston, 'IG II² 2311 and the number of Panathenaic amphorae', *BSA* lxxxii (1987) 125-9.

⁷³ Jörg 1986 [n. 58]; *The Nanking cargo: Chinese export porcelain and gold, European glass and stoneware recovered by Captain Michael Hatcher from a European merchant ship wrecked in the South China Seas*, Christie's Amsterdam, Monday 28 April—Friday 2 May 1986.

⁷⁴ D. W. J. Gill, 'An Attic lamp in Reggio: the largest batch notation outside Athens?', *OJA* vi (1987) 121-5. The correct height of the lamp crate should have read 2.76m not 0.276m.

⁷⁵ A. W. Johnston, 'Two-and-a-half Corinthian

dipinti', *BSA* lxxviii (1973) 186.

⁷⁶ Garnsey 1988 [n. 65] 74-9.

⁷⁷ Johnston 1979, 34 and 229; cf. Boardman 1988a, 30 ('Some of the decorated vases have prices ... scratched upon them, apparently in the potters' quarter or at least before shipment rather than after') and 32 ('The prices scratched on vases were put on in the potters' quarter and are wholesale').

⁷⁸ Johnston 1978; 1979, 34, Type 14F, no. 15: 'The marks of 14F were applied in Athens, as the spelling on 1-5 and the overincision on 15 show'.

⁷⁹ A. W. Johnston, 'Rhodian readings', *BSA* lxx (1975) 160, on no. 72.

⁸⁰ Johnston 1978, 222. This type of simple line falls into Johnston's category of Type 18C (iii), where he comments (Johnston 1979, 202): 'The marks were applied very early in the life of the vase; this is indicated by the very wide distribution for the vases ...'

and thus draw the conclusion that all were applied in Athens is open to question. Apart from price graffiti which have been found at Athens, a further piece of evidence may be found on a red-figure oinochoe attributed to 'the Bull Painter'.⁸¹ On the underside the miltos wash seems to cover the price mark which states 20 *poi* (i.e. painted oinochoai) for 1 drachma and 4 obols (i.e. 0.5 obol each). If this price was marked before firing then it would suggest that some (not all) price inscriptions were added at Athens.

One of the few instances of a price being asked outside Athens is found on a red-figured bell-krater in New York.⁸² Underneath is incised a graffito in Cypriot script with the unit cost of three. As a Persian standard was 'in general use on the island', Johnston assumed that 'the unit would most naturally be the siglos' and this led him to draw the conclusion that the pot was worth three sigloi, 'the Attic equivalent of just sh'⁸³ Although it seems to be true that a Persic standard was in use on Cyprus, no attention is drawn to the use of the Persic obol.⁸⁴ If these Persic obols were the unit with which the red-figured bell-krater was marked then the value on Cyprus would be the equivalent of 4 Attic obols, a price well attested for this shape.⁸⁵ If this interpretation is correct, there would appear to be no difference between prices of pots at Athens—if that is where some prices were marked—and Cyprus. This inscription would not support those who believe that large profits could be made from the transport of figure-decorated pottery.

VI. TRADE IN SILVER

Boardman sees the debate on trade being derived 'from studies dedicated to demonstrating the prime importance of vessels in precious metal in classical antiquity' rather than from a genuine desire to grapple with the issues raised by historical work on the ancient economy.⁸⁶ It is from this viewpoint that he attempts to show that 'silver was not an ordinary commodity of trade'.⁸⁷ This ignores the fact that silver ingots have been found in a fifth century shipwreck, at least one graffito on a piece of silver plate indicates that there was likely to have been an organised method of distribution, and that silver coins have widespread circulation.⁸⁸ He sees as a problem the amount of silver that

⁸¹ B. B. Shefton, 'The Greek Museum, University of Newcastle upon Tyne', *AR* 1969-70, 60-61, no. 14; Johnston 1979, Type 8F, no. 11.

⁸² Johnston 1979, Type 26F, no. 21.

⁸³ Johnston 1979, 63 n. 15. He cites G. F. Hill, *Catalogue of the Greek coins of Cyprus* (London 1904) xxii-xxiii.

⁸⁴ E.g. E. Babelon, *Traité des monnaies grecques et romaines* ii (Paris 1910) 742 nos. 1214 (0.98g, 0.86g) and 1215 (0.94g).

⁸⁵ 3 Persic obols @ 0.94g = 2.82g. 4 Attic obols @ 0.72g = 2.87g. For the price of red-figure bell-kraters: Johnston 1979, 33, Type 14F, nos. 1-4 and 6.

⁸⁶ Boardman 1988a, 31. Boardman does however concede that trade in pottery was probably not 'important' to the 'state' (Boardman 1987 [n.1], 295), even though he had attempted to demonstrate that 'Athenian decorated pottery ... was as valuable and profitable a trade commodity as most that any classical ship took on board' (Boardman 1988a, 33; but cf. Gill 1988a).

⁸⁷ Boardman 1988a, 28. This claim is in direct

disagreement with the historical view of the ancient economy: Finley 1973 [n. 70] 134: 'Silver was the most important Athenian resource, exported in substantial quantities'; R. Osborne, *Demos: the discovery of classical Attika* (Cambridge 1985) 11: 'it is arguable that it was the only significant Athenian export'. Boardman's position does not take account of the silver listed in the Naukratis stele: B. Gunn, 'Notes on the Naukratis stele', *JEA* xxix (1943) 55-9.

⁸⁸ E.g. C.J. Eiseman, 'The Porticello shipwreck: lead isotope data', *IJNA* viii (1979) 339-40; C.J. Eiseman and B.S. Ridgway, *The Porticello shipwreck: a Mediterranean merchant vessel of 415-385 BC* (College Station 1987); A. W. Johnston, 'Some non-Greek ghosts', *BICS* xxv (1978) 79-80; C.H.V. Sutherland, 'Overstrikes and hoards: the movement of Greek coinage down to 400 BC', *NC* ii (1942) 1-18. On the date of the Porticello shipwreck: D. W. J. Gill, 'The date of the Porticello shipwreck: some observations on the Attic bolsals', *IJNA* xvi (1987) 31-33.

could be mined from Laurium. He suggests that 'the entire product . . . in its most profitable year, 483 BC'⁸⁹—M. Vickers had only described this as 'a particularly rich strike of silver'⁹⁰—could be quite 'easily tucked away in a single ordinary merchant ship of the period'.⁹¹ However he overlooks the fact that such a cargo would have had an important 'buying' power. A mere 78 kg of silver would buy a shipload (3000 medimnoi) of wheat (at 6 drachmae a medimnos). 2.5 tonnes of silver would have bought over 30 shiploads of wheat. This is the equivalent of c. 96,000 medimnoi, perhaps a quarter of one recorded figure of annual corn imports at Athens.⁹²

Boardman, it seems, underestimates the importance of silver to the economy of Athens. Recent calculations by C. E. Conophagos have suggested a possible output of 20 tonnes (the equivalent of 736 talents) of silver per year in the fifth century from the Laurium mines;⁹³ despite outlay for manpower and fuel, as well as tax to the state, he suggests an income of over 337 talents. Although such output is unlikely to have filled a merchantship of 120 to 160 tonnes, a cargo of grain could have been acquired with a little silver. However a small amount of silver would leave room for other commodities such as wine and oil to be carried, and these in turn could be accompanied by pottery. Boardman also seems to underestimate the profitability of carrying silver⁹⁴ although this ignores the testimony of Xenophon:

from Athens merchants may take away in exchange a great many different things which people need, or if they do not wish to take any goods as exchange-cargo, they may do good business in taking silver; for wherever they sell this they always receive a higher price than they gave.⁹⁵

And that silver was a regular item of Mediterranean trade is, furthermore, suggested by the Naucratis Stela of Nektanebos II (360–343 BC) which required a 'tithe of the gold and the silver . . . which comes from the Greek Sea . . . and which are produced in Pi-emroye, called <Nau>cratis'.⁹⁶ Thus it seems that a profit could be made from carrying silver which would seem to be an important element in the economy of Athens. At the same time one should not see silver as the only means of 'payment' for imports at Athens.

It is noticeable that Boardman omits gold and silver from his tables comparing different commodities of trade. However as one of his aims was to expose what in his eyes is the 'extreme and . . . wrong view' of studies emphasising the role of precious metals in antiquity, such an omission is surprising. If we take the gold-figured silver phiale (weighing 100 drachmae) from Duvanli in Thrace which seems to have been made to an Attic drachma standard, it is possible to work out the value of a shipment of silver plate. If the phialai were stacked in groups of ten it would be possible to fit 113 such stacks into a cubic metre; this would be worth 18.9 talents (i.e. 113,300 drachmae). If the phialai were unstacked then 793 phialai could be fitted into the same space but

⁸⁹ Boardman 1988a, 28. These figures do not refer to 'output' but rather to the amount which accrued to the state. R. Osborne (1985 [n. 87] 116) urges caution over this evidence: 'it is not clear whether this is the income from a single year or has built up over some lengthy period, but it tells us nothing about the organisation of the exploitation'.

⁹⁰ Vickers 1985 [n. 27] 112.

⁹¹ Boardman 1988a, 28.

⁹² On levels of imports: P. Garnsey, 'Grain for Athens', in P.A. Cartledge and F.D. Harvey (eds.),

Cruce: essays presented to G.E.M. de Ste. Croix on his 75th birthday (Exeter 1985) 62–75. For comments on Demosthenes and grain imports: Garnsey 1988 [n. 65] 96–9.

⁹³ C. E. Conophagos, *Le Laurium antique et la technique grecque de la production de l'argent* (Athens 1980) 341–354. This figure should however be used with caution.

⁹⁴ Boardman 1988a, 28.

⁹⁵ Xen. *Poroi* iii 1–2; cf. Finley 1973 [n. 70] 134.

⁹⁶ Gunn 1943 [n. 87].

would only be worth 13.2 talents (i.e. 79,300 drachmae).⁹⁷ As far as gold plate is concerned a phiale in New York now weighs 747 g although its original weight may have been closer to 756 g as it carries a Punic weight inscription which would imply that it should have weighed 90 darics.⁹⁸ Ninety stacks of ten phialai could be fitted into a cubic metre, which at 90 darics each would be worth 81,000 darics; this would be equivalent, at a ratio of 20 (silver) drachmae to 1 (gold) daric, of 1,620,000 drachmae (i.e. 270 talents). Unstacked one could fit 529 phialai into a cubic metre and they would be worth 47,610 darics, the equivalent of 952,200 drachmae (i.e. 158.7 talents). This gives the ratio of value per cubic metre between the most expensive figure-decorated pottery (red-figured hydriae @ 3 drachmae each), and unstacked silver and gold as 1:1184:14212. With stacked metal phialai and the sets of fictile pots including six bell-kraters (@ 42 dr/m³: Table B), the ratio would be 1:2698:38571. Such values indicate that very little silver or gold would need to be carried by sea (where value by volume is important) compared with pottery.

The values of commodities by weight are important for overland transport, although in most cases for Athenian pottery this would be preceded by maritime shipment where the above factors would come into force.⁹⁹ Boardman shows that weights for pots are variable although he suggests a price of 30–17 drachmae per 40 kg.¹⁰⁰ This may be compared with the value of 40 kg of silver at 9280 drachmae, and 40 kg of gold (4728.13 darics @ 8.46g) at 49645 (at a ratio of 1:10.5) to 94563 (at a ratio of 1:20) drachmae. In other words a single silver phiale weighing 100 drachmae (431 g) would be worth by weight the equivalent of 133–235 kg of figure-decorated pots. Thus even in overland transport the movement of even small quantities of precious metal should not be ignored.

VII. THE TRADERS OF POTTERY

The growing number of excavated shipwrecks around the Mediterranean have not only reminded us that pots accompanied other items of trade, but also challenged earlier assumptions about identifying the nationality of some traders by the origin of the pottery they carried. Few would claim that the distribution of Corinthian and Attic pottery was confined to Corinthian and Athenian merchants. Aeginetans and Phoenicians are commonly thought to have carried Corinthian pottery and Ionian, Phoenician and Etruscan merchants have left their commercial marks on Attic pottery.¹⁰¹ However for minor wares it is widely assumed that they will only be carried by merchants from their state of origin. Thus in answer to the question 'Who then were the Greeks who

⁹⁷ Plovdiv 1515: B. D. Filow, *Die Grabhügelnekropole bei Duvalij in Südbulgarien* (Sofia 1934) 63–5, fig. 80, pl. iv, no. 2. H: 0.03; d. 0.205. A stack of ten could be calculated as follows: $(9 \times 0.02 + 0.03) \times 0.205 \times 0.205 = 0.009 \text{ m}^3$. For the significance of the phiale's weight: D. W. J. Gill, 'Luxury vases', *Omnibus* xv (March 1988) 10. See also Vickers 1990 [n.25].

⁹⁸ New York 62.11.1: D. von Bothmer, 'A gold libation bowl', *BMAA* xxi (1962–63) 154–166; *idem.*, 'A Greek and Roman treasury', *BMAA* xlii,1 (1984) 50, no. 86; M. Vickers, 'Demus's gold phiale (Lysias 19.25)', *AJAH* ix (1984 [1988]) 48–53. A stack of ten has been calculated as follows: $(9 \times 0.02 + 0.037) \times 0.224 \times 0.228 = 0.011 \text{ m}^3$.

⁹⁹ Value by weight might be a factor for cargoes crossing the isthmus of Corinth; cf. B. R. MacDonald, 'The diolkos', *JHS* cvi (1986) 191–5.

¹⁰⁰ Boardman does not provide us with details of the pots he weighed which makes it hard to undertake an independent assessment of his work.

¹⁰¹ E.g. Boardman 1980 [n. 4] 16; B. B. Shefton, 'Greeks and Greek imports in the south of the Iberian peninsula. The archaeological evidence', in H.G. Niemeyer (ed.), *Phönizier im Westen* (Mainz 1982) 337–70; Gill 1988b; Johnston 1978, 82; Johnston 1979; A. W. Johnston, 'Etruscans in the Greek vase trade?', in *Il commercio etrusco arcaico: atti dell'incontro di studio, 5-7 dicembre 1983* (Rome 1985) 249–55.

established this trading station [sc. Al Mina]?', J. Boardman responded with, 'the finds ... answer the first question'.¹⁰² The appearance of Euboean wares is for him firm evidence that Euboeans founded the port, even though there is an equally strong possibility that non-Euboeans (or even non-Greeks) carried it there. Even in later periods (Al Mina VI and V) he maintains this approach, claiming 'the Greek vase fragments will again help us to identify the homes of the Greeks mainly concerned in the eastern trade, for although some fine Greek wares (such as Corinthian) might have been carried by any Greek traders, it is still too early to speak of a serious or deliberate trade in decorated pottery as such'.¹⁰³ This thesis—which underpins Boardman's attempt to identify early Greek trade in the absence of literary evidence—must be challenged by the appearance of 'minor' Greek wares alongside other types of fine pottery in shipwrecks.¹⁰⁴

Linked to this question over identifying 'Greek' traders by Greek pottery is the problem of the appearance of Greek pottery in the western Mediterranean before the main colonisation movement. The thesis of 'Trade before the Flag' presented by A. Blakeway in the 1930s is one that continues to appear in discussions of pre-colonial activity.¹⁰⁵ It is true that Blakeway's thesis has had to be revised in the light of recent archaeological discoveries and the use of scientific techniques which have shown that some of the pottery which he supposed to be imported was in fact local, yet some of the assumptions behind his work have not been challenged. Since the appearance of M. Bernal's work on the often unconscious motives of scholars who dealt with Greece and the Near East, it is possible to see what has been a general resistance to the acceptance of Phoenician activity as a by-product of European anti-semitism.¹⁰⁶ It is important to emphasise that such attitudes themselves were rarely shared by scholars, but it is nevertheless the case that a dismissive approach towards the Phoenicians probably owes much to this intellectual position. Thus, we can well understand why in the early 1930s, Blakeway might refuse to give the Phoenicians 'the credit of having carried the Greek Geometric pottery of the eighth century to the West'.¹⁰⁷ Instead, the appearance of this pottery was a sign of 'Greek' commerce. For him 'the distribution of Greek pottery is ... often the only contemporary evidence of Greek commerce'.¹⁰⁸ Even though there is plentiful evidence for oriental objects in the west¹⁰⁹ and we have the explicit testimony

¹⁰² Boardman 1980 [n. 4] 40, *cf.* p. 42: 'The evidence for the Euboeans' role in the east is wholly archaeological. The literary record does not contradict it; indeed it says nothing at all of this truly epoch-making enterprise.' His views have been restated in J. Boardman, 'Al Mina and history', *OJA* 9 (1990) 169-90, which will provide a useful springboard for future debate.

¹⁰³ Boardman 1980 [n. 4] 46.

¹⁰⁴ E.g. the ceramic part of the cargo of the 6th century Giglio island shipwreck (M. Bound, 'Una nave mercantile di età arcaica all'Isola del Giglio', in *Il commercio etrusco arcaico* [n. 101] 65-70; M. Bound and R. Vallintine, 'A wreck of possible Etruscan origin off Giglio Island', *IJNA* xii (1983) 113-22) included Etruscan bucchero, Corinthian, Ionian and Laconian wares.

¹⁰⁵ A. Blakeway, 'Prolegomena to the study of Greek commerce with Italy, Sicily and France in the eighth and seventh centuries BC', *BSA* xxxiii (1932/3) 170-208. More recently: Boardman 1980 [n. 4] 162: 'archaeology, geography and common

sense combine to suggest that trade normally preceded the flag'; D. Ridgway, 'The first western Greeks: Campanian coasts and southern Etruria', in C.F. and S. Hawkes (ed.), *Greeks, Celts and Romans* (London 1973) 5-38; contrast Coldstream 1968 [n. 16], 374.

¹⁰⁶ M. Bernal, *Black Athena: the Afroasiatic roots of classical civilization i: the fabrication of ancient Greece 1785-1985* (London 1987). Contrast Boardman (1990 [n. 102] 170): 'In more recent years special emphasis has been placed again on the role of the Phoenicians ... Some recent discussions have been motivated mainly by contemporary interests in racism, and through the justified suspicion that earlier scholars have been themselves motivated mainly by a grossly Greco-centric viewpoint; but this is not the way to an acceptable scholarly revision of received ideas'.

¹⁰⁷ Blakeway 1932/3 [n. 105] 172 n. 5.

¹⁰⁸ Blakeway 1932/3 [n. 105] 172.

¹⁰⁹ Coldstream 1977 [n. 15] 228-230.

of Thucydides for Phoenician trade in the pre-colonial period,¹¹⁰ some continue to hold Blakeway's position that these trading activities were in the hands of Greeks alone. The second point behind Blakeway's article was to attack the Hasebroek position which Blakeway saw as stating that:

Greek trade in the archaic period was utterly unimportant and had little or no influence on the course of Greek history. At the most it was an accidental result of overseas expansion. Trade followed the flag. Colonisation created trade; not trade colonisation.¹¹¹

Yet it is Hasebroek's general position which is being restated in the debate about ancient trade,¹¹² which should cause those whose work is founded on theses such as Blakeway's to review their position.

Certainly the conclusions drawn from the export of fine pottery during the Archaic period need to be examined. The low levels of annual pottery imports for Etruria during this period (despite the large numbers of pots found) must bring into question the level of trade at this time (*supra*, p. 000). It is surely right to stress that the presence of imported fine pottery (and coins) in Egypt and the Black Sea regions is not necessarily an indicator of Attica, for example, supporting a population beyond its means and requiring additional foodstuffs.¹¹³ Despite this the increased level of imported pottery at Naucratis in Egypt perhaps reflects trade following the foundation of an *emporion*.¹¹⁴ This in turn raises a question over chronology as Herodotus suggests that the foundation belongs to the reign of Amasis (568–526) and it is perhaps following this restructuring that we should expect to detect signs of trade (of which pottery is a mere indicator).¹¹⁵ The earliest pottery from the site belongs to the 'Transitional' Corinthian horizon which is dated on the orthodox chronology to '630–620'.¹¹⁶ However as these dates to a large extent depend on the foundation dates of the western colonies given in Thucydides and the earliest pottery known to H. Payne in 1931¹¹⁷ there may be need for further revision which need not detain us here.¹¹⁸

VIII. CONCLUSION

Present archaeological evidence from shipwrecks would suggest that pottery was not a major component in maritime trade and it would seem to fulfil a role similar to that of

¹¹⁰ Thuc. vi 2.6; but see Boardman (1980 [n. 4] 210) who thinks that this testimony 'was not true'. Whether or not Thucydides is reflecting a 'learned' position rather than the 'truth', we should hesitate before dismissing the possibility of Phoenician activity in the West.

¹¹¹ Blakeway 1932/3 [n. 105] 170–1, and see p. 208.

¹¹² E.g. P. Cartledge, "'Trade and Politics' revisited: Archaic Greece', in P. Garnsey, K. Hopkins, and C.R. Whittaker (ed.), *Trade in the ancient economy* (London 1983) 1–15. However it should be realised that Hasebroek underestimated the amount of 'international' trading by the Greeks in the archaic period. For the original discussion: J. Hasebroek, *Trade and politics in ancient Greece* (London 1933).

¹¹³ Garnsey 1988 [n. 65] 107–110.

¹¹⁴ Hdt. i 178.

¹¹⁵ Cf. A.B. Lloyd, *Herodotus Book II. Introduction* (Leiden 1975) 26–7.

¹¹⁶ Boardman 1980 [n. 4] 121.

¹¹⁷ H. Payne, *Necrocorinthia: a study of Corinthian art in the archaic period* (Oxford 1931) esp. 23–27.

¹¹⁸ On the importance of the foundation dates: A. M. Snodgrass, *An archaeology of Greece: the present state and future scope of a discipline* (Berkeley 1987) 51–64. Snodgrass' view that Payne's chronology had been 'vindicated' (p. 56) rests on the results of excavations at Selinus presented by R. Martin, 'Histoire de Sélinonte d'après les fouilles récentes', *CRAI* (1977) 46–63. Recent excavations have discovered pottery at least as early as sub-Geometric Protocorinthian: R.J.A. Wilson, 'Archaeology in Sicily, 1977–1981', *AR* xxviii (1981–1982) 101–2; idem, 'Archaeology in Sicily, 1982–1987', *AR* xxxiv (1987–1988) 144–8. R. M. Cook ('The Francis-Vickers chronology', *JHS* cix [1989] 165) feels that Herodotus' statement about Naucratis 'favours' the proposed chronology.

Chinese porcelain in ships of the East India Companies.¹¹⁹ Not only could pottery accompany—or even be ‘parasitic’ upon—other commodities but it could reflect the movement of other items in the opposite direction. Thus ships carrying Black Sea corn to feed the urban communities of the Aegean would not be competing with cargoes—or more properly consignments—of pottery travelling in the opposite direction. It is for the historian and the archaeologist to explore the different mechanisms for such trade and this is the problem which should be addressed.

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ABBREVIATIONS

- Boardman 1988a: J. Boardman, ‘Trade in Greek decorated pottery’, *OJA* vii (1988) 27–33.
 Boardman 1988b: J. Boardman, ‘The trade figures’, *OJA* vii (1988) 371–3.
 Gill 1988a: D. W. J. Gill, ‘Trade in Greek decorated pottery’: some corrections’, *OJA* vii (1988) 369–70.
 Gill 1988b: D. W. J. Gill, ‘Silver anchors and cargoes of oil: some observations on Phoenician trade in the western Mediterranean’, *PBSR* lvi (1988) 1–12.
 Gill 1988c: D. W. J. Gill, ‘The distribution of Greek vases and long distance trade’, in J. Christiansen and T. Melander (ed.), *Proceedings of the 3rd symposium on ancient Greek and related pottery, Copenhagen, August 31—September 4 1987* (Copenhagen 1988) 175–85.
 Johnston 1978: A. W. Johnston, ‘Lists of contents: Attic vases’, *AJA* lxxxii (1978) 222–6.
 Johnston 1979: A. W. Johnston, *Trademarks on Greek vases* (Warminster 1979).
 Pritchett 1956: W.K. Pritchett, ‘The Attic stelai II’, *Hesperia* xxv (1956) 178–317.

¹¹⁹ A. J. Parker, ‘Shipwrecks and ancient trade in the Mediterranean’, *Archaeological Review from Cambridge* iii 2 (1984) 99–114; Fulford 1987 [n. 60] 61. We should certainly wait for the full publication of the shipwreck off Dattilo before we concur that it carried ‘a cargo apparently almost exclusively of BG [black-glazed] tableware’ (R.J.A. Wilson, ‘Archaeology in Sicily, 1982–87’,

AR 1987–88, 125; and cf. Fulford 1987 [n. 60] 60–1). On the wreck: M. Bound, ‘The Dattilo wreck (Panarea, Aeolian Islands): first season report’, *IJNA* xviii (1989) 203–19. I am grateful to Mensun Bound for information on his excavation. Brian Shefton reports a late archaic shipwreck with a significant cargo of pottery off Marseilles.

Table A

Painters, prices and shapes of Athenian pottery (after Johnston 1979). The chronological groupings are those used by Johnston.

Group 1 ('-480')

amphora

Berlin painter	Type 10F, 21	7 obols
Berlin painter, near (?)	Type 10F, 24	5 obols

hydria

Berlin painter, imitation of	Type 10F, 23	7 obols
Tyszkiewicz painter	Type 10F, 17	4 obols

Group 2 ('480-430')

Nolan amphora

Providence painter	Type 13B, 7	3.5 obols (?)
Dresden painter	Type 6B, 15	3 obols (?)

pelike

Achilles painter	[Oxford loan]	0.88 obol
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hydria

Peleus painter, manner of	Type 18C, 63	18 obols
Polygnotus, group of	Type 21F, 7	12 obols
	Type 21F, 8	18 obols

column-krater

Polygnotus, group of	Type 24F, 2	10 obols
Bologna 228, painter of	Type 7B, 6	3 obols (?)

Group 3 ('430-')

neck-amphora

Kadmos painter	Type 18F, 1	6 obols
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pelike

Nikias painter	Type 14F, 15	7 obols
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oinochoe

Bull painter	Type 8F, 11	0.5 obol
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bell-krater

Agrigento painter	Type 26F, 11	3 obols
Kadmos painter	Type 14F, 1	4 obols

	Type 14F, 2	4 obols
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Pothos painter	Type 14F, 3	4 obols
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	Type 14F, 4	4 obols
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Dinos painter	Type 14F, 5	4.5 obols
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Table B

Values for red-figured and black gloss pots occupying 144,000 cm³, the unit used by Boardman. * denotes a pot falling into Boardman's values presented in his table 1; £ denotes a value derived by Boardman from a questionable price; + denotes a value derived by Boardman from an invented price; \$ denotes a possibly high reading (see n. 46).

	<i>drachmae</i>
DECORATED VASES A	24-15
a lekythos	25 £
a cup	16 + *
a bolsal	12.22 \$
DECORATED VASES B	12-8
a big hydria	9.6 *
a pelike	7.26 [not 7.15]
a moderate bell-krater	4
a Nolan amphora	4

Table C

The values of different commodities taking up 1 m³. The amphorae carrying wine and oil are calculated on the basis that they were not 'dove-tailed'.

Wine

(17 amphorae, 0.65 m high, each containing 7 choes)	
Chian, @ 2 dr / chous	238 dr
Thasian, @ 1 dr / chous	119 dr
Attic, @ 2.5 obols / chous	50 dr
(14 amphorae, 0.80 m high, each containing 7 choes)	
Chian, @ 2 dr / chous	196 dr
Thasian, @ 1 dr / chous	98 dr
Attic, @ 2.5 obols / chous	41 dr

Oil

(17 amphorae, 0.65 m high, each containing 7 choes)	
@ 4.6 dr / chous	547 dr
@ 3 dr / chous	357 dr
@ 1 dr / chous	119 dr
(14 amphorae, 0.80 m high, each containing 7 choes)	
@ 4.6 dr / chous	451 dr
@ 3 dr / chous	294 dr
@ 1 dr / chous	98 dr

Wheat

@ 16 dr / medimnos	305 dr
@ 6 dr / medimnos	114 dr
@ 5 dr / medimnos	95 dr

Barley

@ 6 dr / medimnos	114 dr
@ 5 dr / medimnos	95 dr
@ 3 dr / medimnos	57 dr

Gold phialai (90 darics each)

stacked	1,620,000 dr
unstacked	952,200 dr

Silver phialai (100 dr each)

stacked	113,300 dr
unstacked	79,300 dr

Tile (Corinthian)

0.03 m deep @ 1 dr	89 dr
0.03 m deep @ 5 obols	74 dr
0.06 m deep @ 1 dr	44 dr
0.06 m deep @ 5 obols	37 dr

Pots

Red-figure hydria, @ 3 dr per unit	67 dr
Sets of pots including 6 bell-kraters	42 dr
Red-figure bell-krater, lekythos, or Nolan amphora	28 dr

Table D

A comparison of value by volume between painted pottery and wheat (setting aside loading constraints). A cargo is considered here to be 3000 medimnoi (157,590 litres). 3000 medimnoi of wheat (@5-16 dr/medimnos) would be worth 15,000-48,000 drachmae.

	<i>no. of pots equivalent to a cargo of wheat pots</i>	<i>no. of ships required to carry</i>
a big hydria, @ 3dr, 0.045m ³	5,000-16,000	1.43-4.57
a moderate bell-krater, @ 4.5 obols, 0.027m ³	20,000-64,000	3.43-10.97
a set of 6 stacked bell- kraters filled with small pots, @ 34 obols, 0.134m ³	2,647-8,471 (sets)	2.18-6.99
an ordinary lekythos, @ 1/2 obol, 0.003m ³	180,000-576,000	3.43-10.97
a Nolan amphora, @ 2 obols, 0.012m ³	45,000-144,000	3.43-10.97
a bolsal, @ 1/2 obol, 0.001m ³	180,000-576,000	1.12-3.59

Table E

The level of imported Greek pottery arriving in Etruria. The rate of pots per year is shown in brackets. The dates used by Martelli and Meyer are based on the Studniczka-Langlotz chronology.

	<i>Corinthian</i>	<i>East Greek</i>	<i>Attic</i>	<i>Laconian</i>
625-600	52 (2.08)	159 (6.36)		
600-575	26 (1.04)	163 (6.52)	30 (1.2)	
575-550	42 (1.68)	177 (7.08)	101 (4.04)	39 (1.56)
550-525		106 (4.24)	530 (21.2)	30 (1.2)

(i) Figures derived from Martelli (1978, 43, fig. 3)

625-600	1	(0.04)
600-575	17	(0.68)
575-550	99	(3.96)
550-525	443	(17.72)
525-500	1470	(58.8)
500-475	983	(39.32)
475-450	629	(25.16)
450-425	228	(9.12)
425-400	41	(1.64)

(ii) Figures derived from Meyer (1980, 50, Table 3)



(b)



(a)

(a) Attic red-figured pelike attributed to 'the Achilles painter'
(loan to the Ashmolean Museum, Oxford).

(b) Commercial graffito on the underside of the pelike.