

COINS AND AMPHORAS—CHIOS, SAMOS AND THASOS IN THE FIFTH CENTURY B.C.*

(PLATE I)

THE American excavators in the south-west area of the Forum at Corinth have revealed an intriguing architectural complex, which they have called the 'Punic Amphora Building'. Evidently it housed a thriving import business with a speciality in fish and wine, whose trade extended in one direction to Sicily and perhaps Spain and in the other to Chalkidike and Chios. Masses of fragments of Punic and Chian amphoras were found crushed and pounded in the make-up of successive floor-levels in the courtyard, together with numerous pieces from Mende and elsewhere. Many others emerged from the single floors of most of the rooms or were discovered in the littered debris from the final phase of occupation. The life of this business house was somewhat short, but a domestic building on the same site had earlier been partly devoted to the same trade.¹ All this activity ceased with dramatic suddenness; the emporium went out of use and in the late fifth century it was overlaid in one area by a new road.² The end seems to be securely dated *c.* 430 B.C. by Attic black-glaze pottery in the final floor-level or in the debris covering the last floor.³ Professor Williams plausibly links the collapse of business with the interruption of Corinth's trade caused by the outbreak of the Peloponnesian War: one of Athens' first war measures was to blockade both the Saronic and the Corinthian Gulfs.⁴ This new material evidence for Corinthian commerce is most welcome in itself and, as I hope to show in this paper, it may help clarify other problems.

I. THE CHIAN COINAGE AND THE CHIAN STANDARDS

Virtually all of the fragments of Chian wine-jars found in the Punic Amphora Building come from bulbous-necked amphoras in the two final phases of this form. In the earlier the bulge is confined to the upper part of the neck, in the later it is being reduced to a narrow band below the rim (FIG. 1).⁵ Stray fragments from the succeeding new-style jars with straight cylindrical neck have been found in the area, but not in any floor make-up. They could come from jars included in the latest shipments handled, but not dumped or pulverised since the end came too soon. In any event the change from bulbous-necked to straight-necked Chian amphora can now be put with some confidence in the late 430s B.C. (PLATE Ia).⁶ It had become fashionable to date this change more than a decade earlier. The final class of bulbous-necked amphoras shows an increase in capacity—clear adjustment to the Attic *chous* unit—and coincides with the end of the old didrachm coinage. It was therefore linked with the Athenian Coinage Decree and dated *c.* 449 B.C. Before long, however, the larger jars appear to have proved commercially unacceptable

* I must thank Professor Charles K. Williams II, Virginia Grace, Dr Martin Price, Dr Colin Kraay, Dr Joseph Braschinsky, Professor Mabel Lang, Professor Leslie S. Shear, Keith Rutter and Ian Carradice for valuable discussion, information, offprints, casts, photographs and other assistance. My colleague Dr John Hind patiently helped me translate the crucial portions of Dr Braschinsky's articles.

¹ See Charles K. Williams II, *Hesp.* xlvii (1978) 15–20 and xlviii (1979) 106–24. His short report in *Hesp.* xlix (1980) 108–11 does not change the picture.

² *Hesp.* xlviii (1979) 114. Building V, to the west of the Punic Amphora Building, was apparently built *after* that went out of use; its construction also falls in the last

quarter of the fifth century. See *Hesp.* xlvi (1977) 41–5 with xlvii (1978) 20 and xlviii (1979) 118.

³ See *Hesp.* xlviii (1979) 111–14 with 118.

⁴ *Ibid.* 118. For the blockades see Thuc. ii 69.1 and 83–93 with Gomme's notes in *HCT* ii 216–40.

⁵ My FIG. 1 is taken from the good drawing in *Hesp.* xlvii (1978) 18, fig. 5, where the typical Mendean shape can also be seen.

⁶ Prof. Williams kindly told me of these fragments in a letter, answering my query on the point; it was he who suggested provisionally the explanation offered in my text. For Chian old- and new-style jars juxtaposed see also V. Grace, *Amphoras and the Ancient Wine Trade* (Princeton 1961) figs. 43–5.

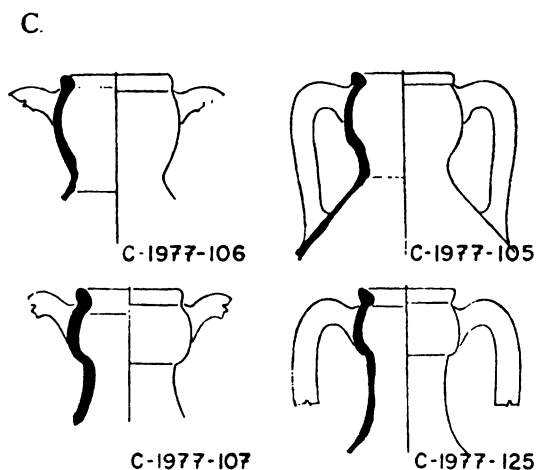


FIG. 1. Chian wine-jars from the Punic Amphora Building, Corinth (after *Hesp.* xlvii [1978] 18; courtesy, the American School of Classical Studies, Athens).

and they were replaced by jars of the same capacity, but of a totally new shape. The earliest of these were guaranteed by being stamped with the type of the old didrachm coinage—a sphinx sitting left before an old-style amphora under a bunch of grapes (PLATE Ib).⁷

Several deposits from the Athenian Agora had always suggested a later dating for this change than the orthodox one. One well-deposit closed c. 430–425 B.C. included the last phase of bulbous-necked Chian amphoras along with several specimens of the straight-necked type. Some of these had the official Chian stamp.⁸ Much more recently a large dump of rubbish from a public dining-room was found near the Royal Stoa. Bulbous-necked Chian jars from the penultimate phase accompanied a mass of red-figured vessels that came down at least to 440 B.C. and black-glazed ware of similar range; a few of these indeed looked definitely later.⁹ Another well-deposit known since 1953 contained similar Chian jars. The red-figure ware again came down to c. 440 B.C., which matches the black-glaze dating and the single *ostrakon* cast against Perikles. Presumably this was used in the famous ostracism of 443 B.C.¹⁰

On this evidence—as with the new clue from Corinth—the bulbous-necked Chian amphoras appear to come down into the 430s. Further confirmation may be found in the meticulous German excavations in the Kerameikos. The South Hill cemetery went out of use at that very time. Among the latest interments are two infant burials in Chian amphoras of the final bulbous-necked phase. They are the only two jars of this class known from the cemetery, though the preceding groups are well represented.¹¹ Earlier evidence from Corinth itself strengthens the

⁷ The growth of the thesis linking the jars with the Coinage Decree can be traced through Grace, *Hesp.* Suppl. viii (1948) 182 and *Hesp.* xxii (1953) 104 f.; J. Boardman, *BSA* liii–liv (1958/9) 308; J. P. Barron, *Silver Coins of Samos* (London 1966) 86 f. (hereafter 'Barron'); Grace in *Exploration arch. Delos* xxvii (Paris 1970) 359 f. and *Fest. Blanckenhagen* (Locust Valley 1979) 134 f. This consensus led Prof. Williams in *Hesp.* xlvii (1978) 18–20 initially to date the abandonment of the Punic Amphora Building before 448 B.C.; he had not yet studied or indeed recovered all the ceramic evidence for dating and at that point there were no new-style Chian fragments to complicate the issue.

⁸ *Hesp.* iv (1935) 495 f. and 514–16 with iii (1934) 296 f. and 303 f. The deposit (R. 13:4) is headed 'Ca. 440–425 B.C.' in *Agora* xii (Princeton 1970) 398. It is worth noting that Lucy Talcott (496 f. of her report) treated the dump as evidence for a flourishing wine shop

that came to a sudden end c. 430 B.C. Why should its Chian series end some fifteen years earlier? Significantly Virginia Grace had written only the year before (*Hesp.* iii [1934] 303) 'Our jars are dated by the deposit in which they were found . . . probably about 430'.

⁹ *Hesp.* xlii (1973) 383–5 (deposit H:5). Again why should the Chian amphoras 'date no later than 450 B.C.' (p. 384)? Behind this lurks the assumed dating c. 449 B.C. for the change of capacity—marked, as we saw, by the last phase of the old-style jars.

¹⁰ *Hesp.* xxii (1953) 59–115. The deposit (N:7:3) is headed 'Ca. 460–440 B.C.' in *Agora* xii 395. For the Chian jars see p. 104 f., nos 150–2 (Grace) with pl. 39; no. 150 should be compared for neck profile with the righthand top jar in FIG. 1. For the dating and the *ostrakon* see p. 61 of the *Hesperia* article.

¹¹ *Kerameikos* ix: *Der Sudhügel* (Berlin 1976) 11–14 (cemetery date), 20–5 (amphoras), 151 f. and 155 with

case. In 1937 Mary Pease published the contents of a well, the filling of which she dated *c.* 420 B.C. on the basis of the fine Attic ware included and the latest Corinthian pottery. The mass of coarse ware contained Chian amphoras of the final bulbous-necked phase, but none of the succeeding straight-necked new style.¹²

These final bulbous-necked Chian amphoras appear on the last series of the didrachm and tetrobol coinage of the island. The tetradrachms and drachms that follow—still on the Chian standard—display the new straight-necked jar before the sphinx. On Mavrogordato's scheme the didrachm coinage ended by 431 B.C. and this now seems about right.¹³ The unique Chian electrum stater, intermediate in style between the two silver groups, *may* fall in an interval when silver was not being struck. The reason for a shift to electrum, however, at this period is hard to divine. Compliance with an Athenian Coinage Decree of *c.* 449 B.C. will obviously no longer fit.¹⁴ Any break in silver coinage must have been very brief. By 429/8 B.C. the Treasurers of the Other Gods at Athens are found registering 485 Chian drachmae and 1 tetrobol. No combination of didrachms and tetrobols could produce that total. At least the new drachms must have been struck by then, some even reaching Athens.¹⁵ This is rapid circulation, but the war may explain it. In the summer of 430 B.C. fifty triremes from Lesbos and Chios were off Attica, serving against the Argolid under Perikles. Some Chian officers perhaps tried to win divine favour by gifts, or money spent at Peiraieus may have swiftly found its way into sacred funds through Athenian or metic hands.¹⁶

The narrow-banded bulbous Chian amphoras held 8 Chian or 7 Attic *choes*, whereas the preceding class contained just 7 Chian units. The new-style jars preserved the neat adjustment to the Attic system. In the late 430s this can be seen as an example of Chian tact. It left them full autonomy, whilst meeting Athenian convenience; Chios kept its own coinage standard and separate measures of capacity.¹⁷ Some new jars seem to show a further increase in capacity, as the series steadily develops. Evidently they are meant to hold some 9 Chian or 8 Attic *choes*, the standard Attic *metretes*. I would see this as fresh Chian diplomacy. This was seen at its best in 425/4 B.C., when a serious rift threatened. Chian reasonableness prevailed, evoking a similar spirit at Athens. The special relationship was restored.¹⁸

pl. 65.4 and 8 (Graves 290 and 304). Chian amphoras are by far the commonest foreign storage jars used in the cemetery. There are no less than 9 of the late sixth/early fifth-century type and 21 of the post-Persian bulbous-necked varieties apart from the two being discussed. Good, typical examples are pl. 54.7; 60.1; 62.5; 55.4.

¹² *Hesp.* vi (1937) 301–5 with fig. 33, no. 202. For the dating see p. 257 f., where we learn that the great majority of the coarse ware could not be listed. If in any group only one example could be satisfactorily restored, only one was given. There were then surely other Chians, but in too fragmentary state. Note that Pease remarks on p. 303 about the wine amphoras in general 'Parallels for all the shapes are found in contemporary deposits of the Corinthian excavations'. Since *new-style* Chian jars were already known (see my n. 8), her silence about them should mean that they were present neither in her well nor in others closing *c.* 430 B.C.—or indeed going down into the 420s.

¹³ J. Mavrogordato, *NC* 1915 361–432, with pls XVIII–XIX. Agnes Baldwin, *A.J.Num.* xlviii (1914) 44–7, ended the didrachm series *c.* 440 B.C. and put the anonymous tetradrachms and drachms 'within the period *ca.* 440–420 B.C.'. For the coins see her pp. 21–6 and pls III, 11–30 and IV, 1–23. Her dating rests on style alone.

¹⁴ See Baldwin (n. 13) 24 no. 52 and 23 no. 46 with 44 and pl. IV, 11 (style); J. Boardman, *BSA* liii–liv (1958/9) 308 n. 23; Barron 86 f.; C. M. Kraay, *Archaic*

and Classical Greek Coins (London 1976) 242 f. with pl. 52, 889. The three English scholars date this stater by the accepted dating of the Coinage Decree. So too did E. S. G. Robinson (*Hesp.* Suppl. viii [1948] 328–30), but without allowing a break in the silver series. Most recently E. Erxleben (*ArchivPap.Forsch.* xx [1970] 76 f.) has also argued against a break.

¹⁵ See *IG* i² 310.112 f.: J. Boardman, *loc. cit.*; Barron *loc. cit.* (correcting Boardman's 489 drachms). Boardman first apparently saw the significance of this epigraphic evidence.

¹⁶ Thuc. ii 56–8 with vi 31.2. Hagnon subsequently took this force off to Poteidaia and the plague with it. The gods certainly needed placating.

¹⁷ See Grace *Delos* (n. 7) 359–61, *Fest. Blanckenhagen* (n. 7) 134 f. with n. 21; J. Braschinsky, *Sov.Arch.* 1976 100 (in Russian). Braschinsky has kindly told me by letter of many other Chian capacity measurements from *c.* 500 to the third quarter of the fifth century. The Chian/Attic coinage ratio about 8:7 (drachms of 3.90 and 4.30 gms) and the capacity ratio—also a trifle approximate—has been neatly confirmed by actual capacity measures from Chios itself. See W. G. Forrest, *BSA* li (1956) 63–7 with pl. 5.

¹⁸ In a letter of 1975—enclosing an unamended typescript of 1954—Mabel Lang gave me invaluable information. The only two measurable last quarter fifth-century jars available in 1954 had to be measured with barley and the results scaled up accordingly. The

II. SAMIAN AMPHORAS AND SAMIAN NUMISMATIC CHRONOLOGY

Virginia Grace and Joseph Braschinsky have both independently identified a distinctive fifth-century storage amphora as the container for the famous Samian olive oil. They partly rested their case on the depictions of amphoras on a small Samian silver denomination, where an olive branch appears as a constant adjunct. These amphoras correspond closely with jars known from the archaeological record.¹⁹ Barron's arrangement of the trihemiobol sequence must be adjusted in the light of this record. If the sequence of shapes suggested by this is correct, then Barron's no. 4 (PLATE Ie) becomes the earliest type instead of the last. The amphora is still very bulbous and stocky, but more developed than the post-Persian jar fished up from the sea off Samos or a later jar from a tomb at Cypriot Marion (PLATE Ic-d). Grace would date the coin c. 468/7 B.C. along with tetradrachms nos 35-7 of Barron's Class III. It shares with these the circular reverse incuse and upright olive-branch.²⁰ The taller and rather slimmer jar of Barron's trihemiobol no. 3 (PLATE Ih) is like one fished up off Eretria (not illustrated), another from a cemetery on the lower Don and a third used for infant burial in the Kerameikos not long after 450 B.C. (PLATE If-g). A Samian jar from Olbia (PLATE Ii), archaeologically dated before 450 B.C., is also remarkably close. Grace's date for the coin is 460/59 B.C., where Barron places his short-lived Class IV tetradrachms. Again the trihemiobol and tetradrachms share the circular incuse and the upright olive-branch.²¹ Trihemiobol no. 2 (PLATE Ij) has a still slimmer amphora with longer handles. This jar seems to lie midway between the Olbia amphora and a Samian jar from Thasos with a vague fifth-century context (PLATE Ik). The coin has a *square* reverse incuse and this time the branch points downwards. Grace puts it in 446/5 B.C. The very next year, on Barron's dating, the square incuse—which had been regular since the start of Class V—was abandoned and the circular incuse used again instead.²²

The revised trihemiobol datings look about right, but we should proceed to probe Barron's tetradrachm datings critically.²³ Nos 38 and 39 of his Class III have an amphora symbol on the reverse (PLATE Il), which he himself linked with the jars of the trihemiobols. He treated them all as probably wine containers, but Samian wine enjoyed no repute in classical times and the constant connection of the jars with olive branches surely clinches the matter.²⁴ Now the shape of the amphora on the tetradrachms is quite unlike that of trihemiobol no. 4, with which on Barron's chronology it should be contemporary. Rather it seems to resemble uncomfortably

corrected capacities came to c. 25 litres or 8 Attic *choes*. Curiously this capacity is found at Chios in the first quarter of the fifth century also. See Braschinsky (n. 17) *loc. cit.* A Chian amphora of the same date from the Kerameikos (*AthMitt* lxxxix [1966] 27 no. 43 with pl. 23,3) holds precisely 25.10 litres, as Ursula Knigge kindly informed me by letter. For Thucydides' praise of Chian tact and the 425/4 B.C. episode see Thuc. viii 24.4-6 and iv 51.

¹⁹ See Grace, *Hesp.* xl (1971) 68 and 75-7 with pl. 15,3-8; Braschinsky, *Krat.Sov.Inst.Arch.* [KISA] cix (1967) 22-4 and *Archaeologia* xix (Warsaw 1968) 55-7—both in Russian.

²⁰ See Grace (n. 19) 75-7 with nn. 62, 69 (Marion jar).

²¹ See Grace *loc. cit.* She kindly sent me two photographs of the Eretria jar. Though reproduction is ruled out (the amphora is so encrusted with marine creatures), the general shape is clear and also such details as neck, handles, toe etc. The Kerameikos jar comes from Grave 288 (*Kerameikos* ix [1976] 151 and pl. 64,8): the Olbia amphora is discussed and illustrated, along with that from the lower Don, in the pages cited in my n. 19.

²² See Grace *loc. cit.* The Thasos amphora was briefly published in *BCH* lxxv (1951) 179 f. with fig. 98 (a photograph); its dimensions are 0.72 cm × 0.32 cm (height and max. diameter). Barron had put the trihemiobol sequence between 454 and 439 B.C.: see Barron 48 (a convenient summary of his overall chronology) and 71 with 198. He was, however, prepared to give 'provisional approval' to Grace's changes (*Hesp.* xl [1971] 75).

²³ Barron dated his Class I 499-495 B.C.; Class II c. 482/1-478/7; Class III c. 477/6-461/0; Class IV c. 460/59; Class V c. 459/8-454/3; Class VI 454/3; Class VII 453/2-440/39. See Barron 29-33, 48, 74-89 for the detailed arguments.

²⁴ See Barron 7 and 51-5 with 184 and pls ix-x. Grace (n. 19) 79 f. was surely right about Samian wine: the Samians themselves consumed much wine from overseas. See the numerous fragments of fifth/fourth century Mendeian jars recorded by H. P. Isler in *Samos* xiv (Bonn 1978) 131-3, nos 408-29 with pp. 63 and 68. Barron's Class III nos 35-7 have an upright olive-branch symbol; nos 33 f. have the *samaina*. The three type elements of the trihemiobol will then appear in immediate succession as symbols on the tetradrachms.

closely the jar on trihemiobol no. 3.²⁵ That jar, as we have seen, is no earlier than 460 B.C. But bringing the middle of Barron's Class III down below 460 B.C. must seriously compromise his chronology of Classes V–VII. He gives five years to Class V and saw rightly that it formed an unbroken, close-knit stylistic sequence with Classes VI and VII. In turn these two groups, he argued with reason, are a single letter-dated series covering fifteen years. On his chronology they ran from a postulated oligarchic coup to the surrender of Samos after revolt from Athens in 439 B.C. That will have ended silver coinage for over two decades.²⁶

Barron's dating for Classes V–VII has been attacked already by Colin Kraay. He believes that the tetradrachm with the letter *P* (Barron no. 91) should be treated as part of the alphabetic year-sequence. That would then have to be extended to nineteen years in all. Allowing just two years for Class V, Kraay then proposed to date the three groups *after* the revolt from c. 435 to 415 B.C.²⁷ I find this part tempting, since it squares so easily with the implications of dating down Class III. But on the other point my sympathies lie with Barron. The letter *P* is set between the ox's feet, not under the dewlap like all the year-marking letters. Instead in that position we find an 'ivy leaf' symbol, just where the 'panther's head' symbol appears on Barron no. 80. The 'panther's head' issue and one with neither letter nor symbol must be fitted anomalously *within* the *A–E* letter-sequence. Kraay has to admit this. It would seem reasonable then to treat the *P* issue similarly, especially as Barron gives strong stylistic reason for placing it between issues *A* and *M*.²⁸ His absolute dating of the fifteen-year letter sequence is another matter. He went here against the consensus of previous scholars, who put it after the revolt. Kraay has done good service in restating that view with new force.²⁹

Where numismatists disagree, we must look around for objective evidence. Two hoards at first sight may seem promising. The 'Asyut' Hoard has doubled the known specimens in Barron's Classes I–II, adding several new obverse dies. It shows that most of Class II had been struck by c. 480–475 B.C. That does not take us very far and we are perhaps left only with the salutary warning that the coin material in later classes may be some way still from being complete.³⁰ We must turn instead to the 1885 Naukratis Hoard. This so-called 'Silversmith's Hoard' of only fifteen silver pieces contained no less than three Samian tetradrachms: two were of Barron's Class III and of these one (his no. 25) was much worn. The third was a specimen of Class VI (no. 66e) in excellent condition. Head followed Gardner in dating this coin after 439 B.C., but thought that all the other coins recovered—including six elusive Athenian tetradrachms—were issued before 450 B.C.³¹ Now Barron, of course, dated the Class VI coin 454 B.C. For the rest he regarded the 450s as at least open for the fresh Aiginetan 'tortoise' and the stater of the Lycian dynast Kuprli.³² But the presence of Kuprli's coin raises problems.

This Lycian stater shows wear consistent with fifteen to twenty years circulation. If

²⁵ The die-cutters aimed at fair accuracy in detail on the trihemiobols—why not with the tetradrachm symbol also? Unluckily on Barron no. 38 it is badly distorted by a horizontal die-flaw (see pl. x), but even so its shape seems to have been close to that on no. 39. A modern forger of no. 39 failed precisely over the amphora, giving it a foot and shape like neither coin nor anything in the archaeological record. See E. S. G. Robinson, *NC* 1956 16 f. and pl. ii, C and 5.

²⁶ Barron 55–64, 83–93 and 186–93 for the three classes (nos 54–95).

²⁷ Kraay (n. 14) 332 f. Issues with *O*, *Π* and *Q* (koppa) will not have survived. Certainly *A* and *Θ* survive in single specimens, as Barron admits in discussing a possible missing issue *A* (p. 60 with 189, 191).

²⁸ See Barron's good arguments, pp. 58–64.

²⁹ See for example P. Gardner, *Samos and the Samian Coins* (London 1882) 43–7; B. V. Head, *BMC 'Ionia'*

(London 1892) 351–3 and *Historia Nummorum* ² (London 1911) 603 f.; E. S. G. Robinson, *Hesp. Suppl.* viii (1948) 330 f.

³⁰ See M. Price and N. Waggoner, *Archaic Greek Silver Coinage: the 'Asyut' Hoard* (London 1975) 22, 38 f. and 120 f. (burial date): *IGCH* 1644. For the Samian coins see p. 89 f., nos 645–63 (down to Barron no. 11).

³¹ *NC* 1886 4–8 with pl. i and W. M. F. Petrie, *Naukratis I* (London 1886) 64 f. (Head's report: an almost *verbatim* replica): *IGGH* 1847. Barron, 76 f., saw his arrangement confirmed, at least relatively, by the difference of wear—twenty years?—between his no. 25 and 66e.

³² Barron 76. The 'tortoise' is in the Boston Museum. See A. Baldwin Brett, *Museum of Fine Arts: Catalogue of the Greek Coins* (Boston 1955) no. 1113 with pl. 58. The Kuprli stater is in London. See *BMC 'Lycia'* (1897) 15, no. 71 (c. 450 B.C.) and pl. iv 13 = *NC* 1886 pl. i, 7.

Mørkholm is correct in dating it *c.* 450 B.C., then the hoard's burial should indeed be set with Head in the 430s. Certainly Kuprri had a long reign and his prolific coinage is still not tightly enough dated. Indeed the 'Asyut' Hoard, with two named and two associated staters, *seems* to push his accession back to *c.* 485 B.C. But Kraay has argued that issues from within the Persian sphere may have been added to the hoard material for some time after coinage from the Greek mainland was reduced to a trickle and then dried up. The terminal date bracket of *c.* 480–475 B.C., valid for the mainland, need not apply for Anatolia.³³ The dating of fifth-century 'tortoises' is still uncertain. Some scholars would date them *c.* 457–431 B.C., arguing that their large-skew reverses continue straight on from the large-skew of the last 'turtles'. Others prefer 445–431 B.C. Aigina would have resumed minting after a break, under the 'autonomy' clause written in to the Thirty Years Peace.³⁴ Though the 'tortoise' coinage is fairly abundant, the bulk of it may indeed have been struck from the late 440s onwards. No less than four specimens in good condition were found in the Syrian Hoard, which was probably buried *c.* 425–420 B.C. Significantly one is very close in style to the Naukratis coin, though neither die is identical.³⁵ New hoards and fresh study of old material suggest that before long these 'tortoises' may be convincingly and tightly arranged. My guess that the Syrian and Naukratis specimens belong to the 430s can then be tested—perhaps vindicated.³⁶

As Barron admitted, the six Athenian coins could have proved crucial for dating the hoard's burial, and this is even truer now that we have Chester Starr's masterly study. But unluckily Head gave no detailed descriptions and he used the same two Naukratis tetradrachms to illustrate both the 'Silversmith's Hoard' group and the large deposit exclusively of Attic tetradrachms found during that same first season.³⁷ Significantly the original four pre-430 tetradrachms from 'Naukratis 1885' in the British Museum were registered simply as gifts of the Egyptian Exploration Fund and not—like the 'Mallos', Cyrene and Lycian staters—further specified as 'from the Silversmith's Hoard'.³⁸ That they came from the large deposit is doubly confirmed. Petrie himself wrote of this find that 'specimens have been given to several museums' and surely that must include London. Moreover, before they reached the museum's trays, they had been subjected to drastic cleaning that must have reduced the original weight of many of them. Head's note at the relevant point in *BMC 'Attica'* amply bears this out.³⁹ The 'Naukratis 1885'

³³ See my argument in *BSA* lxxv (1970) 142–5; O. Mørkholm, *Acta Arch.* xliii (1972) 75 with n. 46. For 'Asyut' see Price–Waggoner (n. 30) 101 f., nos 767–80. This evidence was known to Mørkholm, who still held to his dating of his no. 47 (the Naukratis coin) and the near-contemporary nos 54–8 (based on Kelenderis obverse type). See *op. cit.* 71–7 for the full argument. Kraay's acute point is made in his review of 'Asyut' in *NC* 1977 189 and 192–4.

³⁴ For a start *c.* 457 B.C. see R. Rago, *RIANum* 1963 7–15; E. Erxleben, *Archiv Pap.Forsch.* xx (1970) 67–9; Ross Holloway, *ANSMusN* xvii (1971) 20 f. For *c.* 445 B.C. see E. S. G. Robinson, *NC* 1961 111 f.; C. M. Kraay (n. 14) 43, 47. For the 'autonomy' clause see Thuc. i 67.2 and 139.1.

³⁵ Compare Brett (no. 32) pl. 58, no. 1113 with *RNum*⁶ x (1969) pl. xxvi, no. 51. For the Syrian Hoard's dating (*IGGH* 1483; Massayaf) see Kraay, *RNum* x (1969) 210–19, 221 f.

³⁶ See Helene Nicolet-Pierre in *Frappe et Ateliers monétaires dans l'Antiquité et Moyen Age* (Belgrade 1976) 5–12 (the 1936 Megalopolis Hoard); Mando Economides-Caramessini in *Greek Numismatics and Archaeology* (Wetteren 1979) 231–9 with pl. xxvii f. (1970 Myrina, Karditsa Hoard). Nicolet dates the Megalopolis Hoard soon after 431 B.C.: Economides dates *hers* *c.* 440 B.C., though admitting many close similarities. Both Syrian and Naukratis staters look near to those 'tortoises'

shown on her pl. xxviii—a selection of her listed specimens, which show a quite unusual degree of die-linking.

³⁷ See *NC* 1886 6, 8 with pl. i, 2–3 (*BM* 43 = *BMC 'Attica'* [London 1888] pl. iii, 4; *BM* 60). Starr (*Athenian Coinage 480–49 B.C.* [Oxford 1970]) divided the coinage into five groups down to 449 B.C.: there then follow on his scheme over three decades of standardised tetradrachms down to *c.* 412 B.C. See his pp. 62–75 and 84–6 for these two *termini*. Kraay (n. 14) 64–8 strongly supported Starr. *BM* 43 is an example of Starr's late Group V (no. 205, pl. xxi). For the large hoard of Attic tetradrachms see Petrie (n. 31) 40 f.

³⁸ I owe this information to Ian Carradice, who kindly searched the records for me. The other two pre-430 original Naukratis tetradrachms in London (Barron 77 n. 11) are *BM* 55 and 59.

³⁹ See Petrie (n. 31) 40 f., 72 and 86 f. Head lists *BM* 45–61 in strict descending order of weight and notes (p. 7) that the lighter had lost from 5 to 10 grains in cleaning. The heaviest *BM* tetradrachm accessioned from Naukratis of the 480–*c.*420 B.C. period weighs 17.10 gms or 263.9 grains (1905, no. 3): the rest range down from 17.08 gms or 263.7 grains (*BM* 43) to 16.50 gms or 254.7 grains (1905, no. 1). Starr, (n. 37) 79 f., Table I, gives 17.15–19 gms as the median weight for his Group V, 17.20 gms for the later standardised issues.

specimens in other museums evidently have the same origin, as do later *BM* accessions. Altogether they give us a clear view of the larger 1885 deposit. With one exception these coins in London, Boston and Edinburgh belong to the standardised post-449 currency and the group recalls in several ways the great Tell el-Mashkuta deposit of the early fourth century.⁴⁰

When Petrie weighed the great bulk of his 60+ 'uniform' Attic tetradrachms, he established 264.2 grains for the average original weight of his 'stiff, but expressive' group. He weighed four other tetradrachms (average 265.5 grains) from a small later hoard of predominantly 'profile eye' coins.⁴¹ He also weighed four earlier tetradrachms from yet a third find. This can only be the 'Silversmith's Hoard' and what he says is most interesting. Three of these older coins—with their 'earliest, stiff and wooden style'—averaged 261 grains and were slightly worn. A fifth coin from this hoard was heavier and was of the type dominant in the large deposit. It should accordingly be put in the 440s. The sixth coin—too encrusted with lime to be worth weighing?—may have been of similar style.⁴² The Athenian part of the 'Silversmith's Hoard' then included at least one coin minted later than any found in the Jordan Hoard of c. 445 B.C. That hoard contained four Attic coins and fragments from the pre-Persian phase, one specimen each of Starr's Groups I, IIA and c, IV and VA and two from VB. The four 'earlier' Attic coins of the 'Silversmith's Hoard' were in all likelihood mainly of Groups IV–V.⁴³

We may here have hit on the reason why Head chose to illustrate both the Naukratis hoards with a specimen of Starr's Group V and an early standardised coin. This would have been a clear area of stylistic overlap.⁴⁴ His description of the 'Silversmith's Hoard' Attic coins as being 'of the best archaic style' should not mislead us—though, if equated with his later classification 'good archaic work', it might mean that all were of Starr's Groups I–V.⁴⁵ But I fancy that he would have included the earliest standardised tetradrachms in his 'best archaic' category, in view of his frank admission that his 'three classes blend so gradually that it is impossible to draw a strict line of demarcation between them'. Starr noted that some early standardised pieces were very close in style to the end of his Group V. The only clear differentiation was that the owl's tail had become a prong. Yet a Group V tetradrachm shows a very similar tail, while the owl on another is almost completely of the later type.⁴⁶ So the Attic coins of the 'Silversmith's Hoard' probably did come down into the 440s.

⁴⁰ Boston has three Naukratis tetradrachms (Brett nos 1089–91), Edinburgh one (K. Rutter, *Catalogue of the Greek Coins: Edinburgh Museum* [Edinburgh 1980] no. 23). A fifth coin from Naukratis was transferred to the British Museum Coin Department from the Department of Greek and Roman Life in 1909, weighing 16.93 gms. All these coins are dateable after 430 B.C. as are most of the 11 Naukratis specimens accessioned at the British Museum in 1905. I owe my information on the *BM* coins once more to Ian Carradice. For the Tell el-Mashkuta Hoard (*IGCH* 1649) see E. S. G. Robinson, *NC* 1947 115–21 and pl. v: Starr (n. 37) 72 f. and 85 (noting the Naukratis parallel). It had 'two certain examples of Group V (no. 210)': see Starr 61 with pl. xxi and *NC* 1947 pl. v, i. The large Naukratis deposit—despite the *IGCH* 1648 entry—evidently also had the odd fourth-century 'profile-eye' pieces. See Head, *NC* 1886 9: '... the first consisted mainly of coins ranging in date from B.C. 500–430'. Head then put the break between 'full-face eye' and 'profile-eye' Athenas c. 430 B.C. or a little later (see *BMC Attica* xxxi–xxxiv and 6–14): in *HN*² (n. 29) 373 f. the first are made to end c. 407 B.C., the latter begin c. 393 B.C.

⁴¹ See Petrie (n. 31) 86 f.: Head, *NC* 1886 9 ('chiefly of coins... ranging in date from B.C. 430–350') and *IGCH* 1661 (not quite accurate).

⁴² Petrie's language (*loc. cit.*) is awkward, but hardly

ambiguous. Some coins from the large deposit were not weighed if they resisted cleaning.

⁴³ For the Jordan Hoard (*IGGH* 1482) see Kraay, *RNum* x (1969) 181–94, 207–10 with pls xix–xxi; Starr (n. 37) 81, 85, 88.

⁴⁴ Petrie noted (*loc. cit.*) that the large deposit had an earlier piece like the typical 'Silversmith's Hoard' specimens. This was hardly the chisel-cut *BM* 43 (Starr n. 205), since its weight could not well be described as 'being less than 263.7'. That fits a coin where some carbonate of lime was still observed after cleaning and weighing; rather than weigh again, clean and weigh yet again (p. 72) Petrie returned his first weight subject to some subtraction. There were then at least two specimens of Starr Group V in the big hoard.

⁴⁵ See *NC* 1886 6, 8; *BMC Attica* (1888) xxiii and 6, nos 41–4 with pl. iii, 2–5 (first of three wreathed, 'full-face' eye classes). *BM* 44 is Starr Group IV, no. 128; 41 is Starr Group VB, no. 178; 43 is Starr Group VB, no. 205 (Naukratis).

⁴⁶ Head, *BMC Attica* xxiii with *Historia Nummorum* (1887) 313 and *HN*² (n. 29) 370: Starr (n. 37) 72 f. with pl. xxii, 1–3 ('post-449') and pp. 59, 61 for Group V, nos 183, 208. The earlier standardised tetradrachms were certainly in circulation by c. 445 B.C., when they were being overstruck by both Rhegion and Messana. See Kraay, *Suppl. Annali* xii–xiv (1969) 143–8 with pl. xii.

Re-examined, all the numismatic evidence in fact suggests that the 'Silversmith's Hoard' should be dated in the early 430s. Such a burial date is very awkward for Barron's Samian chronology. I would propose instead that his Classes VI–VII should be dated from the Samian defeat in 439 B.C. Class V can then be put *c.* 445–440 B.C. and trihemiobol no. 2 will go with it, as the square incuse reverse and the amphora shape seem to demand.⁴⁷ With this version of the Samian 'low chronology' it becomes almost impossible to fit the Athenian Coinage Decree in 449 B.C. If they had imposed so stringent a ban on their allies' coinage, the Athenians are not likely to have allowed Samos—defeated and no longer autonomous—to resume coinage on a showy scale. The ban after all would have been barely a decade old.⁴⁸ There is no difficulty for those who believe that the Coinage Decree was passed only in 425/4 B.C. Precisely then, on my low chronology, Class VII comes to a premature end, and Samian coinage is resumed only with the restoration of autonomy in 412 B.C.⁴⁹

The Coinage Decree also imposed uniformity of standards throughout the Empire and we now have growing evidence on the capacities of fifth- and fourth-century storage containers made by certain allies. This should provide an objective check on the two main rival datings for the decree. Unluckily we have no published Samian capacities of the crucial period and few from Lesbos, though their value is limited. Samos was autonomous till 439 B.C. and Lesbos for a dozen years more.⁵⁰ The evidence for Mende, a clearly subject ally, is rather baffling. There are non-Attic capacities and coin-standard after 405/4 B.C. But in the period 480–405 B.C. the coin-standard is Attic throughout and the known capacities, all of which also appear to be Attic, may be explained by this fact.⁵¹ We need a clear-cut example of an ally changing from a local capacity standard to the Attic at a particular point of time in the fifth century.

III. THASOS AND THE ENFORCEMENT OF ATTIC CAPACITY STANDARDS

Braschinsky has shown that the Thasian amphoras around 450 B.C. were based on the Thasian *chous* of 2.94 litres, which stood in the ratio of 10:9 to the Attic *chous* of 3.20 litres. A fractional jar from the second half of the fifth century that appears to be Thasian holds 14.87 litres (5 *choes*?) and should be based on the same local unit. Certainly that was used for jars in the fourth century and later. Now from the third quarter of the fifth century Braschinsky has produced a Thasian jar whose capacity works out as 25 + litres or 8 Attic *choes* (the standard

⁴⁷ The 430s burial is accepted by Robinson, *Hesp. Suppl.* viii (1948) 330 f. and *NC* 1961 111: Kraay, *JHS* lxxxiv (1964) 83 and *op. cit.* (n. 14) 332 f.: Mørkholm (n. 33) 75: Starr (n. 37) 89 (*c.* 439). For trihemiobol and amphora see above p. 81.

⁴⁸ For a good defence of the still widely accepted 449 dating see *ML* 111–17 (no. 45). The editors (p. 116) found Barron's chronology 'convincing': it removed the snag seen by Robinson (*Hesp. Suppl.* viii) that—on his arrangement—coinage restarted 'surprisingly soon after the crushing of the revolt'.

⁴⁹ For comprehensive recent presentation of the case for 425/4 see E. Erxleben, *ArchivPap.Forsch.* xxi (1971) 145–62. In *Klio* lix (1977) 83–100 I added some new epigraphic and numismatic considerations. For the fifteen letter-years of Classes VI–VII see above p. 82.

⁵⁰ For the weights and measures see *ML* no. 45 12 (addition to Council oath). M. B. Wallace apparently will publish capacity-measurements of Samian jars: see Grace (n. 7) *Fest. Blanck.* 142, *addendum* to n. 12. Some at least should be fifth century. Wallace, however, has kindly assured me by letter that he has not yet enough

capacity measurements for any safe conclusions on the Samian standards. Dr Braschinsky, in a letter of 1972, gave me the capacities of two late fifth-century Lesbian jars as 21 litres (non-Attic?) and Mabel Lang in 1975 informed me of a 'last quarter' Lesbian jar that held 22.87 litres (7 Attic *choes*?).

⁵¹ For Mende's coinage see Head, *HN*² 211 and Price–Waggoner (n. 30) 44 f. For the jars marked '10' and '8' *choes* see Mabel Lang, *Hesp* xvii (1948) 10, no. 44 and 12, no. 57. By letter she kindly gave me one 'third-quarter 5th century' capacity of 32.44 litres (10 Attic *choes*) and four from the same well ranging from 25.98 up to 27.40 litres (all meant as 8 Attic *choes*?); of the same period is a Kerameikos jar (KER. 8973), of whose capacity Ursula Knigge kindly informed me by letter. It measures precisely 27.10 litres. It was published in *AthMitt* lxxxii (1966) 35, no. 62. Dr Braschinsky sent me seven capacities for late fifth-/early fourth-century Mendeian amphoras from Olbia, Tyras and Odessa. They range from 19.10 to 21.10 litres and can hardly be Attic.

Attic *metretres*). Clearly Thasos had by then been forced to conform to Attic standards. The capacity was first calculated mathematically and then checked by actual measurement.⁵²

This method offers great hope for future research. Braschinsky has demonstrated that Hero's formula for constructing *pithoi* can be applied to pithoid-shaped amphoras like the fifth-century series from Thasos and Mende and later the earlier groups from Sinope.⁵³ This leads us straight to a converging piece of evidence from Thasos. Mabel Lang long ago published a Thasian inscription of c. 425 B.C., which evidently transmitted in terse form Hero's formula for *pithoi*. By following the specifications the potters would have produced vessels on the Attic standard, not the local Thasian. Lang connected this with supposed vigorous reinforcement of the Athenian uniformity decree.⁵⁴ It is surely right now to ask whether we should not talk of 'imposition' rather than 'reinforcement' in the 420s. The only way, however, for testing this issue decisively seems to be to obtain measurements of Thasian jars from the period 450–425 B.C. They should in time be available, particularly from the Black Sea area. If they show the Thasian standard, I shall naturally be happy—but not surprised.⁵⁵

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ADDENDUM

Only after I had passed the paper for the printer did I suddenly realise the relevance of some figures which Mabel Lang had given me in the letter cited in my nn. 50 and 52. Referring to a then unidentified 'red ware' group of storage-jars—see *Hesp.* xxii (1953) 105 f. nos 153–6 with Pl. 39—she listed three mid-5th century jars (one from 470–60, two from 460–440) with capacities of 29.390, 29.490 and 29.980 litres. The difference between them was only 2%. She therefore felt that a 'closely similar jar of the third quarter' holding 27.740 litres 'might indicate a reduction to the Athenian standard'. It would be oversize, of course, but potters would probably prefer 'to err on the large side'. If she was right, here would be a most striking case of allied local standards persisting into the 440s and perhaps not yielding to Attic until c. 425.

This ally should presumably be sought in the north Aegean area, not far from Thasos. The capacity standard was probably identical, since Mabel Lang herself noted that her three jars would be twice a fractional jar such as the 'probable Thasian' of 14.870 litres. The fabric and shape, the individual features of these 'red ware' jars, are not unlike those of 'orange fabric', which are now tending to be described as 'Thasian?' at the Agora in Athens. But whether we are dealing with one series or two, the evidence of the jars remains equally valid.

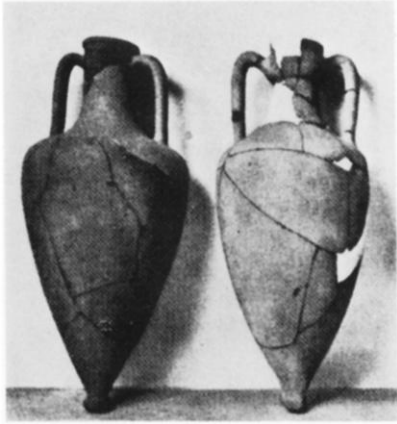
⁵² See *Vestnik Drevni Istorii* cxliv (1978) 135–43 (with photographs and drawing on p. 136 f.). For the local standard c. 450 B.C. at Thasos (jar from a cemetery on the Lower Don) and in the fourth century see *ibid.* 138 with n. 11 and 139 with n. 16. I owe knowledge of the fractional jar to a letter from Mabel Lang; the interpretation—as half a local 10-choes standard amphora—is my own.

⁵³ For the method see *op. cit.* 141 f. and *Sov. Arch.*

1976, fasc. 3, 90–102.

⁵⁴ See *BCH* lxxvi (1953) 18–31.

⁵⁵ The custom of surrounding burials in 'Scythian-type' tumuli with circles of complete amphoras—noted and illustrated by E. Belin de Ballu, *Olbia* (Leiden 1972) 85 and pl. iii—offers hope of ample new material. Another rich single source might be an intact store-chamber such as the fourth-century example found also at Olbia in 1948 (*ibid.* 98 and pl. viii).



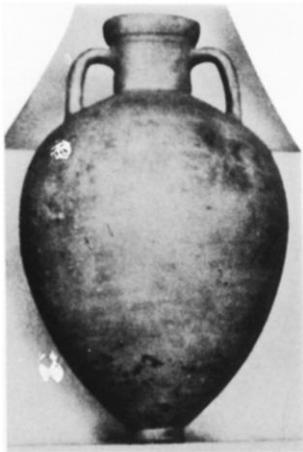
(a)



(b)



(c)



(d)



(f)



(g)



(e)



(h)



(j)



(i)



(k)



(l)