

NOTES

Boeotian Silver, Theban *Agio* and
Bronze Drachmas

JOSHUA D. SOSIN

IN 1995 C. Grandjean re-edited with copious and learned commentary a well-known account left by the Theban hipparch Pompidas around the mid-second century BC (*IG VII 2426*).¹ Grandjean has advanced a novel solution to the long-standing problem of the nature and date of the so-called *argyriion symmachikon* attested in the account; she suggests that the symmachic silver was issued not by one of the better known leagues, alliances or amphictionies of the fourth, third and second centuries, but by the Hellenic alliance that Antigonos Dosón constituted in c.224/3 from the old Hellenic league of Philip II and Demetrios Poliorketes.² Whether this ingenious suggestion will hold true, time and perhaps new inscriptions and coins will tell. But two important puzzles remain. First, the account mentions both 'Boeotian' drachmas and *argyriion symmachikon*, and appears to reckon them interchangeably. While Grandjean has proposed a highly plausible identification of the latter, the 'Boeotian' silver still lacks satisfactory explanation. Second, the account records a purchase of silver, for which Pompidas appears to have been charged *agio* at the astronomical rate of 25 per cent. This paper proposes a new interpretation of the 'Boeotian' drachmas and argues that the high rate is a mirage.

BOEOTIAN SILVER

Pompidas first declares that he received 2100 Boeotian drachmas from the city (2): λήμμα τὸ παρὰ τῆς πόλεως Βοιωτίου XXH. The rest of the account is rendered either in bronze or in *argyriion symmachikon*. Transactions in silver tally without conversion from Boeotian to *symmachikon*. This prompted the conclusion that the two terms were simply synonyms.³ But the conclusion,

¹ C. Grandjean, 'Les comptes de Pompidas (*IG VII 2426*): Drachmes d'argent symmachique et drachmes de bronze', *BCH* 119 (1995), pp. 1–26; date 8–21.

² Grandjean, *BCH* 119 (1995), pp. 11–17; *Staatsv.* III 507; J.A.O. Larsen, *Greek Federal States* (Oxford, 1968), pp. 326–58 and idem, 'The Aetolian-Achaean alliance of ca. 238–220 B.C.', *CP* 70 (1975), pp. 159–72.

³ B.V. Head, 'On the chronological sequence of the coins of Boeotia', *NC* 1881, pp. 177–275, at 267–8 = *The Coins of Ancient Boeotia: A Chronological Sequence* (London, 1881), pp. 90–1; S. Accame, *Il Dominio Romano in Grecia dalla Guerra Acaica ad Augusto* (Rome, 1946), pp. 117–18.

though reasonable, is not compelled by logic. It is possible that one type of silver was a subset of the other. Thus, Giovannini's ingenious suggestion:⁴

[L]'argent symmachique est un système monétaire auquel se rattache, entre autres, le monnayage béotien, mais auquel appartiennent aussi d'autres monnaies qui ont cours légal en Béotie, et qui doivent donc avoir la même valeur que l'argent béotien.

Bousquet observed that Pompidas' initial allotment of 2100 drachmas is half an Aeginetan talent and that Pompidas paid his cavalymen in multiples of 35 or 70, *i.e.* in Aeginetan half-minas and minas. So Bousquet concluded, 'Il semble bien que béotien = symmachique = ancien étalon éginétique, selon lequel 70 dr. éginétiques = 100 dr. attiques'.⁵ The impasse is serious. Grandjean has demonstrated that the *argyriion symmachikon* was struck not on the 'ancien étalon éginétique', but on a reduced Aeginetan standard, which we know was issued at five-sixths the weight of the full Aeginetan.⁶ Bousquet's conclusion cannot be correct, but his observations cannot be disputed. How are we to reconcile the two?

Giovannini's suggestion points the way. It is possible that Boeotian and *symmachikon* were neither synonyms, nor sub-set and set, but that one was a means of measuring the other. Pompidas paid his men in *argyriion symmachikon*. But, as Bousquet has observed, payments were disbursed in Aeginetan half-minas and minas. On one efficient solution payments to cavalymen in *argyriion symmachikon* were simply weighed out in Boeotian drachmas, that is, on the standard that had been the default in Boeotia for centuries, the Aeginetan. This, I suggest, is the meaning of 'Boeotian' drachmas; the term flagged local convention.⁷

But the introduction of a new standard for striking coin need not have entailed the demise of the old weight-standard. Locally, *argyriion symmachikon* was overvalued, much as the early Attalid cistophoroi,⁸ with which the symmachic

⁴ A. Giovannini, *Rome et la circulation monétaire en Grèce au IIe siècle avant Jésus-Christ* (Basel, 1978), p. 46.

⁵ J. Bousquet, *Bulletin Epigraphique* 1996, no. 221. Kleon received 280 (8–9), Aischron 210 (9–10), Hermaios 140 (10), Hypatodoros 175 (11), Philleas and Phryniskos 280 (12–13), and Mnesitheos 245 (13–14).

⁶ Grandjean, *BCH* 119 (1995), pp. 8–13, 21; Giovannini, *Rome et la circulation*, pp. 46–51.

⁷ I know no parallel for 'Boeotian' drachmas, but 'local' drachmas are known elsewhere. Didyma: *I.Didyma* 471.5–9: ... Ἀθηναῖοι τοῦ Τ[-ε]ῖως φιάλη Βοηγαία υκίσησαντος, ἐφ' ἧς ἐπιγραφή-ἐπιχωρία ἐνενήκοντα; Ithaca: K. J. Rigsby, *Asylia: Territorial Inviolability in the Hellenistic World* (Berkeley, 1996) no. 86.20 with n. on p. 215. Local bronze: *JG* XI.2 161.B.20: ἀργυρίου ἀττικού καὶ ἀλεξανδρείου δοκίμου καὶ χαλκοῦ ἐπιχωρίου [-ε] δραχμᾶς ϜΔΔΓϜIII. 162.B.16: ἀργυρίου ἀττικού [κα]ὶ ἀλεξανδρείου δοκίμου καὶ [χαλκῶ]ν ἐπιχωρίων δραχμαὶ ϜΔΔΓϜIII. *SEG* XLIV 949.III.79: ἐπιχωρίου δραχμᾶς ἐνενήκ[οντα]; 91: ἐπιχωρίου δραχμᾶς διακ[οιστο]; 101: ἐπιχωρίου δραχμᾶς χυλίας ὀκτακο[σίας]. Perhaps include *I.Iasos* 78.3–4: χρη[μ]ατα πλῆν του πε[ρ]ιγλυμμενο[υ] | --- | μισου του ἐπιχωρίου ἐξ οἰκονο[μ] --- |.

⁸ F.S. Kleiner and S.P. Noe, *The Early Cistophoric Coinage*, ANS NS 14 (New York, 1977). Also O. Mørkholm, 'Some reflections on the production and use of coinage in ancient Greece', *Historia* 31 (1982), pp. 290–305, esp. pp. 300–1; C. Howgego, *Ancient History from Coins* (London and New York, 1995), pp. 54–6; idem, 'Why did ancient states strike coins?' *NC* 1990, pp. 1–25, esp. p. 18. On

coinage was roughly contemporary.⁹ Overvaluation requires an anchor. Just as cistophoroi were overvalued by weight against the Attic tetradrachm, so must the symmachic drachma have been against a drachma on the traditional Aeginetan standard. Once Pompidas and his men rode outside the area in which the overvaluation enjoyed force of law, they would have been left holding sacks of lightweight coin. Thus the new, lighter coin could in some circumstances have been viewed as bringing a massive pay-cut. And this might have been undesirable to all parties. The men will have wanted to keep their money and the state its men.

We must assume that the cavalymen (A) took this cut or else (B) were compensated with a proportionally greater number of the lighter symmachic coins or (C) continued to receive payment as they always had, in Aeginetan drachmas¹⁰ – B and C amount to the same pay. The last (C) would have introduced no changes to accounting, and so may have been especially attractive. Republican Rome furnishes an analogous episode: Pliny the Elder noted that Roman soldiers continued to be paid in denarii that were accounted at 10 asses, even after the denarius was retariffed at 16.¹¹ The date and purpose of this reform have been debated for decades,¹² but one feature of the episode enjoys broad scholarly consensus. It had been convention to reckon military pay in asses. Thus, rather than alter book-keeping practice, the state continued to pay soldiers the same amount of silver, and continued to reckon fractions of it in tenths. The old as became extinct, fossilized as a unit of account in reckoning *stipendium*. '[T]he state took care that the soldiers did not suffer a reduction in pay as a result of the monetary reform.'¹³ I suggest that Thebes acted in analogous fashion, weighing out payment to

Attalid monetary policy, see also: R. Bauslaugh, 'Cistophoric countermarks and the monetary system of Eumenes II', *NC* 1990, pp. 39–65.

⁹ By how many decades the symmachic coinage preceded the cistophoric depends on the date at which one thinks the *cistophoroi* were introduced; opinions differ: Kleiner and Noe, *The Early Cistophoric Coinage*, pp. 16–18; O. Mørkholm, 'Some reflections on the early cistophoric coinage', *ANSMN* 24 (1979), pp. 47–61, esp. pp. 47–50; F.S. Kleiner, 'Further reflections on the early cistophoric coinage', *ANSMN* 25 (1980), pp. 45–52, esp. pp. 45–8; K. Harl, 'Livy and the date of the introduction of the cistophoric coinage', *ClAnt* 10 (1991), pp. 268–97; G. Le Rider, 'La politique monétaire du royaume de Pergame après 188', *Journal des Savants* (1989), pp. 169–72; R.H.J. Ashton, 'The Attalid Poll-Tax', *ZPE* 104 (1994), pp. 57–60; idem, 'The Coinage of Rhodes 408–c.190 BC' in A. Meadows and K. Shipton (eds), *Money and its Uses in the Ancient Greek World*, (Oxford, 2001), pp. 79–115, at p. 94. Also J.P. Adams, 'Aristonikos and the *cistophoroi*', *Historia* 29 (1980), pp. 302–14.

¹⁰ Now expressed in weight, not number – we do not know whether payment ever had been made in number.

¹¹ Pliny, *NH* 33.13.45–6. I am grateful to the anonymous referee for calling this episode to my attention.

¹² See T.V. Buttrey, Jr., 'On the retariffing of the denarius', *ANSMN* 7 (1957), pp. 57–65; R. Thomsen, 'The pay of the Roman soldier and the property qualifications of the Servian classes', in O.S. Due, H.F. Johansen and B.D. Larsen (eds), *Classica et mediaevalia Francisco Blatt septuagenario dedicata* (Copenhagen, 1973), pp. 194–208; idem, *Early Roman Coinage* (Copenhagen, 1961), vol. 2, pp. 207–15; Crawford, *RRC*, vol. 2, pp. 611–15, 621–5; idem, *Coinage and Money under the Roman Republic* (London, 1985), pp. 144–8; P. Marchetti, 'Paie des troupes et dévaluations monétaires au cours de la deuxième guerre punique', in *Les «dévaluations» à Rome: époque républicaine et impériale* (Rome, 1978), vol. 1, pp. 195–216; H. Zehnacker, 'Monnaies de compte et prix à Rome au II^e siècle avant notre ère', in *Les «dévaluations» à Rome* (1980), vol. 2, pp. 31–47.

¹³ Thomsen, *Classica et mediaevalia Francisco Blatt*, p. 202 and n. 38 with references.

cavalrymen on the traditional standard after the reduction in weight was imposed on the drachma-coin. If Pompidas' men were paid by weight not number of symmachic drachmas, then we have a unified theory that accommodates both Grandjean's undisputed thesis and Bousquet's indisputable observations.

Moreover, we would have a scenario that is broadly consistent with ancient monetary and metrological practice. Standards on which cities struck coins tended to vary over time, but local weight-standards, by which things – including money – were measured, tended to be more conservative and long-lived, with the result that many cities struck coins on one (or multiple) standards and weighed things on another.¹⁴ If this suggestion is accepted, then even after Thebes ceased to use coins struck on the Aeginetan standard its hipparchs still paid the troops in multiples and fractions of the old Aeginetan mina. While the sacks of coins delivered to the men no doubt contained *argyria symmachika* those payments were weighed on the Aeginetan standard, which had been traditional in Boeotia for centuries. Thus, Pompidas' allocation of 'Boeotian' drachmas weighed 2100 drachmas on the weight-standard that was typically used in Boeotia, but comprised some larger number of symmachic drachmas.

Overvalued silver coins were similar to fully fiduciary bronze, insofar as both experienced similar constraints on circulation, enjoying full strength locally, but not outside the issuing authority's sphere of legal competence. We might expect the similarities to extend to other aspects of circulation as well. In bimetallic systems of silver and fiduciary bronze some transactions called for one metal and some for the other; the fiduciary bronze was not acceptable for every transaction.¹⁵ Such a division may have obtained with overvalued silver coins, which were acceptable for most transactions, but not for some parties, particularly recipients of standing state payments.¹⁶ Some payees might have preferred to take payment weighed out on the old standard rather than in numbers of new, lighter

¹⁴ On the longevity of local weight-standards and units of account: Giovannini, *Rome et la circulation*, pp. 116–18; J. Tréheux, 'L'unité de pesée et l'unité de compte des hiéropes à Délos', in T. Linders and B. Alroth (eds), *Economics of Cult in the Ancient Greek World* (Uppsala, 1992), pp. 21–3, and idem, 'L'administration financière des ΕΠΙ ΤΑ ΙΕΡΑ à Délos: une théorie nouvelle', *BCH* 115 (1991), pp. 349–52; M.-Ch. Marcellesi, 'Commerce, monnaies locales et monnaies communes dans les états hellénistiques', *REG* 113 (2000), pp. 326–58; also A. Bresson, 'Timón de Syracuse et les drachmes rhodiennes à Délos', *REA* 103 (2001), pp. 131–56, which is ingenious. Especially interesting is an endowed gymnasiarchy from Kibyra, dated to AD 74, whose principal was 400,000 Rhodian drachmas: B. Laum, *Stiftungen in der griechischen und römischen Antike: Ein Beitrag zur antiken Kulturgeschichte* (Leipzig, 1914), vol. 2, no. 162.8–14 = *IGRR* IV 915; with J.R. Melville Jones, 'Denarii, asses and assaria in the early Roman Empire', *BICS* 18 (1971), pp. 99–105, esp. pp. 99–100. Broughton, *ESAR*, vol. 4, p. 889. Athens is the exception that proves the rule, where we find the development of parallel standards, commercial and non-commercial, within a single system: *IG II²* 1013, on which see J. Kroll, 'Coinage as an index of Romanization', in M.C. Hoff and S.I. Rotroff (eds), *The Romanization of Athens: Proceedings of an International Conference held at Lincoln, Nebraska (April 1996)* (Oxford, 1997), pp. 135–50, esp. pp. 147–8.

¹⁵ Perhaps the best known example is a Hadrianic text from Pergamum: *OGIS* 484 with A.D. Macro, 'Imperial provisions for Pergamum: *OGIS* 484', *GRBS* 17 (1976), pp. 169–79; Marcellesi, *REG* 113 (2000), pp. 326–58.

¹⁶ A complaint of Cicero (*ad Quint. fr.* 1.3.7) may underscore the point: K.W. Harl, *Coinage in the Roman Economy: 300 B.C. to A.D. 700* (Baltimore and London, 1996), p. 69.

coins. A cavalryman who had been accustomed to receive, say, 140 drachmas would only be content, after the introduction of the new reduced standard, to receive 140 of the lighter drachmas if he intended to spend the money exclusively in local markets. Just as bronze suited some situations and silver others, so payment in numbers of light silver coin suited some and payment in full weight others.

THEBAN AGIO AND BRONZE DRACHMAS

Wilamowitz more than a century ago adduced the account as evidence for *agio* in the amount of 25 per cent. Subsequent commentators have followed suit.¹⁷ *Agio* at 25 per cent is staggering by ancient standards. In the Hellenistic period, outside Egypt, *agio* hovered around one-twentieth to one-fourteenth, roughly what we would call 5–7 per cent.¹⁸ *Agio* that is four to five times higher than the most commonly attested rates warrants explanation. '[T]he general financial disorganization which prevailed at this time in Boeotia'¹⁹ will not do.

Pompidas' account reports that he paid Kaphisodoros 137 drachmas 3 obols in bronze for 110 drachmas of silver.²⁰ In order to calculate the rate of *agio* we must know the notional relationship between the silver and bronze drachmas. Wilamowitz and Head assumed that the bronze was pegged to silver at a ratio of one-to-one.²¹ Grandjean supports their case with the observation that '[d]ans les comptes des Pompidas, les drachmes de bronze sont comptées avec les drachmes d'argent dans les totaux des recettes, des dépenses et du solde (l. 6–7 et l. 16–19)'.²² This is beyond dispute. But to which silver drachma was the bronze equivalent? Was it the Aeginetan (purely a measure of weight) or the symmachic (the drachma-coin struck on a reduced Aeginetan standard)?

Most probably the bronze drachma was pegged at one-to-one to the symmachic drachma, alongside which it circulated.²³ Thus, since six drachmas of *argyria*

¹⁷ U. Wilamowitz von Moellendorff, 'Abrechnung eines boiotischen Hipparchen', *Hermes* 8 (1874), pp. 431–41, esp. 435; Head, *NC* 1881, p. 267 = *The Coins of Ancient Boeotia*, pp. 91; Grandjean, *BCH* 119 (1995), pp. 7–8, 21; J.R. Melville-Jones, 'Epigraphical notes on Hellenistic bronze coinage', *NC* 1972, pp. 39–43, at 40; R. Bogaert, *Banques et banquiers dans les cités grecques* (Leiden, 1968), pp. 103–4.

¹⁸ J.D. Sosin, 'Agio at Delphi', *NC* 2000, pp. 67–80, esp. p. 79; Bogaert, *Banques et banquiers*, pp. 110–11, 325; *IG XII.5* 817 with Bresson, *REA* 103 (2001) 131–56; Bogaert, pp. 326–9, thought c.5–7 per cent was high – basis for comparison unspecified. T.R. Martin, *Sovereignty and Coinage in Classical Greece* (Princeton, 1985), p. 211, suggests that prices were set in the market by competing changers.

¹⁹ Head, *NC* 1881, p. 267.

²⁰ 15–17: Καφισοδώρου | ἀργυρίου συμμαχικού δραχμῶν ἑκατὸν δέκα πμην | χαλκοῦ ΗΔΔΔΓΓΗΙΙ.

²¹ Wilamowitz von Moellendorff, *Hermes* 8 (1874), p. 435; Head, *NC* 1881, p. 267 = *The Coins of Ancient Boeotia*, p. 91.

²² Grandjean, *BCH* 119 (1995), p. 7; 7–8: κεφ(άλαιον) ΧΧΗΗΗΓΔΔΔΓ. ἐν τούτῳ ἀργυρίου ΧΧΗΗΔ καὶ χαλκ[α]κοῦ ΗΓΔΔΓ; 17–19: κεφαλῆ ἀλώματος Χ[Π]ΗΗΓΔ. ἐν τούτῳ ἀργυρίου Χ[Π]Η[Η]Δ καὶ χαλκοῦ ΗΓ. λοιπὸν | ΗΓΔΔΓ. ἐν τούτῳ ἀργυρίου ΠΗ καὶ χαλκοῦ ΔΔΓ.

²³ If bronze had been pegged at one-to-one to one full-weight Aeginetan drachma bronze would have enjoyed a value higher than the symmachic drachma.

symmachikon were 'worth' (reckoning without *agio*) five Aeginetan (\mathcal{R}), six bronze drachmas were also 'worth' five Aeginetan (\mathcal{R}).²⁴ At a rate of 5:6 Pompidas' payment of 137 drachmas 3 obols in bronze for 110 drachmas of silver breaks down as follows: without *agio* 110 drachmas of silver were 'worth' 132 bronze drachmas. The difference, five bronze drachmas three obols, was Kaphisodoros' commission, or *agio*. He charged one bronze drachma per 20 drachmas of *argyriion symmachikon*, or what we would call five percent. The fee is precisely in line with the majority of attested rates in the Hellenistic period. Thus Wilamowitz was right to think that the bronze drachma was pegged to the silver at one-to-one. But that drachma was, as Grandjean has shown, struck on a reduced Aeginetan standard. When Pompidas' purchase of silver is recalculated accordingly, the high *agio* disappears and a rate that is consistent with the ancient evidence takes its place.

Another detail of the account becomes similarly clear. At 5:6 a mina (Aeginetan) of silver, 70 drachmas, was worth 84 drachmas of bronze. It is, therefore, conspicuous that Pompidas recorded the sale of two horses for 85 and 86 drachmas of bronze.²⁵ Perhaps the horses were sold to the highest bidder, with bids commencing at even minas. Perhaps bidding proceeded in one-drachma steps, or was simply tight.²⁶ The coincidence is striking. If the drachma of *argyriion symmachikon* was related to the bronze by a ratio of 5:6 then we have not only credible *agio*, but also a rationale behind the prices paid for the horses.

Around the time Pompidas rendered his account local monetary policy had undergone two significant changes. Silver coins were no longer being struck on the Aeginetan standard, but on a new standard, at a reduction in weight by one-sixth. And a new bronze coinage was introduced into circulation in Boeotia. Reasons for weight-reduction²⁷ or the introduction of bronze coinage²⁸ could be many and similar. We do not know the reasons for the two changes, but their impact can be seen even in this single account. Bronze and symmachic silver circulated at the same face value, but some occasions called for one over the other. Pompidas could sell a couple of (used?) cavalry mounts for bronze (3–5), but if he had to purchase, say, five new ones, he may well have had to pay in silver.²⁹ And as concerns storage of wealth it may have been preferable to convert excess bronze to silver when possible, especially if fluctuation in the exchange market could be used to one's advantage. Perhaps this explains Pompidas' conversion of

²⁴ Caution with the word 'worth': Melville Jones, *BICS* 18 (1971), pp. 101, 104.

²⁵ 2–5: ἄλλο λήμιμα ἱππων τῶν ἀποπραθέντων· Φιλλέου, ὃν ἐπρίατο Ἱερπώνδης χαλκοῦ δραχμῶν ϜΔΔΔ[Γ]· Φρυσίσκου, ὃν ἐπρίατο Ἐλευνορίδας χαλκοῦ δραχμῶν ϜΔΔΔΓ; the restoration ϜΔΔΔ[Γ] in l. 4 is secured by the tally at 7–8: χί[α]κού ΗϜΔΔΔ.

²⁶ *Syll.*³ 1003 records the auction of a priesthood of Dioŷyos at Priene. A purchase-price of more than 12,000 drachmas brought certain exemptions; the priesthood sold for 12,002 drachmas. Bidding could proceed in small steps whether modest or massive sums of money were at stake.

²⁷ Howgego, *Ancient History from Coins*, pp. 114–15, 54–6.

²⁸ *Ibid.*; Melville Jones, *NC* 1972, pp. 39–43; Mørkholm, *Historia* 31 (1982), pp. 290–305

²⁹ For an excellent later parallel with large and small amounts of fish see *OGIS* 484 with Macro, *GRBS* 17 (1976), pp. 169–79.

the surplus bronze to silver. He ended the year so comfortably in the black (18–19) that it is hard to believe that he *needed* to convert. And one-twentieth is at the low end of attested rates for *agio*; perhaps he took advantage of a bargain.³⁰ Finally, Pompidas' men might have preferred payment in weight, not number of coins. Some transactions called for bronze and others silver. Some called for a number of light silver coins and others weight.

Thus, I suggest, the bronze drachmas and *argyriion symmachikon* of *IG VII* 2426 were related to each other by a ratio of 1:1, but both were related to silver bullion, weighed in Aeginetan drachmas, by a ratio to 5:6. This gives a reasonable *agio* and a rational monetary policy.

In an *agio*-free environment a sack of *argyriion symmachikon* that weighed 110 Aeginetan drachmas carried 132 drachmas of *argyriion symmachikon* and cost 132 drachmas of bronze. But Kaphisodoros' table was not such an environment, and he charged one bronze drachma for every twenty drachmas of silver that he changed. At his table 110 Aeginetan drachmas cost 137 bronze drachmas 3 obols.

It is possible that Boeotia was in such disarray that ruthless Theban money-changers were able to gouge the military machine when it needed to change bronze for silver, charging four to five times the rate we would expect. Economies crumble; businessmen take advantage. But known monetary reform at the time, namely the introduction of both an overvalued silver drachma and a bronze currency, suggests that this transaction was not so dramatic, that private enterprise was not preying on a weakened state, and that the rate of *agio* was not an outrageous 25 percent but a reasonable five.³¹

The Denarii of Septimius Severus and the Mobility of Roman Coin: A Reply

CHRISTOPHER HOWGEGO

IN *NC* 2001 Duncan-Jones published useful new work on Roman coin circulation.¹ He demonstrated that there was a marked tendency for the later and heavier silver denarii of Septimius Severus (from AD 198 to 211 at Rome) to be withdrawn during the course of the third century relative to the earlier and lighter ones (of AD 193–8 at Rome). He shows that the earlier and later eastern issues of Septimius Severus also behaved in the same way. This provides an interesting

³⁰ If *agio* had been 25%, as has been assumed, we might predict Kaphisodoros to have sat on the bronze and waited for rates to fall.

³¹ I am grateful to Richard Ashton, Kent Rigsby and the anonymous referee for helpful criticism.

¹ R. Duncan-Jones, 'The denarii of Septimius Severus and the mobility of Roman coin', *NC* 161 (2001), pp. 75–89. I am grateful to Richard Duncan-Jones for helpful comments on earlier drafts of this reply.