A Revisionist View of Roman Money*

W. V. HARRIS

> In the definition of *pecunia* is included not only coinage but everything else both immovable and movable, and whether it is an object or a claim. — Hermogenianus[1]

> There are several different sorts of paper money ... — *The Wealth of Nations*, Book II, ch. II

All Roman money consisted of coins. Such has been the consensus view, but it is mistaken and gravely misleading. In this paper I shall suggest that at the very least the entire question of the Roman Empire's money supply must be seen from a perspective different from the usual one.

Here is a recent historian of the late republican economy: as in all pre-industrial economies, there was, he says, 'a very inelastic money supply, consisting almost exclusively of state minted coins with a chronic[2] lack of small denominations, supplemented by a limited supply of bullion, most of which was tied up in decorative objects ...'.[3] That is the conventional opinion, except that some would probably baulk at the chronic lack of small denominations. A representative Roman numismatist, though aware of other means of making payments, holds in practice that the only money that mattered in the Roman Empire was coinage.[4] For Michael Crawford and Richard Duncan-Jones, Britain's leading authorities on the monetary history of the Roman Republic and the Roman Empire respectively, money supply has always been synonymous with coinage. For Lo Cascio, years ago at least, '[Roman] money was coinage'.[5] Finley — more intent, as usual, on the Greeks than on the Romans — was simply adding his authority to a long-established doctrine when he wrote that 'money was hard coin, mostly silver'.[6] Voices of protest have

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[1] '"pecuniae" nomine non solum numerata pecunia sed omnes res tam soli quam mobiles et tam corpora quam iura continentur', *Dig.* 50.16.222. See further below, p. 7. The collection edited by E. Lo Cascio (ed.), *Credito e moneta nel mondo romano* (2003), is referred to in what follows as *CM*.

[2] 'chronical' in the original.

[3] K. Verboven, *The Economy of Friends: Economic Aspects of* amicitia *and Patronage in the Late Republic* (2002), 116; yet this author recognizes that 'purchases of property were commonly made on credit or were financed by borrowing' ('54–44 BCE: financial or monetary crisis?', in *CM*, 49–68: 53).

[4] C. Howgego, *Ancient History from Coins* (1995), 22, etc. Cf. F. Beyer, *Geldpolitik in der römischen Kaiserzeit* (1995), 43 'The supply and use of money in the Roman world 200 B.C. to A.D. 300', *JRS* 82 (1992), 1–31: 13–15, Howgego wrote two very useful pages on the role of credit in the Roman economy, noting that 'purchases on credit could allow many monetary transactions to take place with little actual use of coin' (13), but taking the problem no further.

[5] E. Lo Cascio, 'State and coinage in the late Republic and early Empire', *JRS* 71 (1981), 76–86: 76. The introduction to *CM*, however, shows (10, 13) that by 2003 he was more inclined to make credit a major element in the Roman financial system.

[6] M. I. Finley, *The Ancient Economy* (2nd edn, 1985), 141; he wrote this before R. P. Duncan-Jones brought out the massive importance of gold in the Roman imperial stock of coins. Later on the same page Finley wrote that 'all lenders were rigidly bound by the actual amount of cash on hand; there was not, in other words, any machinery for the *creation of credit*'; not so, as we shall see. E. E. Cohen, *Athenian Economy and Society: a Banking Perspective* (1992), 11, amusingly contrasts this tone with the more diffident one employed by modern monetary theorists.

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occasionally been heard (e.g. Mrozek),[7] but they were generally dismissed.[8] In recent years there have, I think, been growing signs of disquiet,[9] but the existing edifice has yet to be demolished.

In the first part of this article (I) I shall briefly set out and discuss some Roman texts, together with some material facts, that seem to undermine the conventional view. I shall then ask how we can expect to recognize Roman money when we encounter it, taking into account what economists say about money's defining properties (II). I shall then come to the central question, the role of credit in creating Roman money (III). It will be necessary to size up the importance of fiduciary coinage and of commodities-used-as-money in Roman monetary history (IV), before offering some guesses as to how much non-coinage money may have added to the money supply; but it will be maintained that the concept 'the money supply of the Roman Empire' is an imperfect instrument for analysing the actual Roman economy (V).[10] There will be some brief notes on how matters changed in the third century (VI), and in the conclusion it will be suggested that the prevailing view of classical Greek money is one of the reasons why the complexities of the Roman monetary system have often been underestimated.

The chronological frame is more limited than it might be, roughly 100 B.C. to the Severans. The earlier republican part of the story, prior to 100 B.C., is quite speculative (though not difficult to construct in outline). The later imperial period presents a different set of problems, and my comments will scarcely be more than an appendix.

I CONGRUENT INCONGRUITIES

Many Roman texts seem to suggest that there is something wrong with the conventional account, and these texts all fit together.

How did Cicero transfer the 3½ million sesterces he paid for his famous house on the Palatine (*Fam.* 5.6.2 — this was by no means the largest property price we know of in the

[7] S. Mrozek, 'Zum Kreditgeld in der frühen römischen Kaiserzeit', *Historia* 34 (1985), 310–23. His book *Faenus: Studien zu Zinsproblemen zur Zeit des Prinzipats*, Historia Einzelschriften 139 (2001) does not strengthen his case. Concerning the important paper P. Temin, 'Financial intermediation in the early Roman Empire', *Journal of Economic History* 64 (2004), 705–33, see below, p. 8.

[8] Partly, it will be admitted, because of the use of some weak or fallacious arguments. H.-U. von Freyberg, *Kapitalverkehr und Handel im römischen Kaiserreich* (1989), 93, devoted a paragraph to upholding the consensus view ('Der Staat besass also mit dem Münzmonopol auch das Geldmonopol'), even though he recognized that payments were sometimes made without coinage or commodities (his arguments will be considered below). J. Andreau (*Banking and Business in the Roman World* (1999), 1) holds to the traditional view, even though he knows that payments were sometimes made without coin, because 'coins constituted the only organized system of monetary instruments', thereby contradicting his own earlier definition of money. But see the following note.

[9] K. Hopkins, 'Rome, taxes, rents and trade', *Kodai* 6–7 (1995–6), 41–75: 53 (repr. in W. Scheidel and S. von Reden (eds), *The Ancient Economy* (2002), 190–230: 212) treated the silver coinage of the Republic as virtually synonymous with the money supply, but then interestingly observed (63 = 228) that 'the volume of coins in circulation [in the Roman Empire] was increased by the operation of credit', without building on this. Andreau, in 'Commerce and finance', in *CAH* XI² (2000), 769–86: 785, admits that 'banks created additional purchasing power'. D. Foraboschi notes ('*Free Coinage* e scarsezza di moneta', in *CM*, 231–44: 237–8) that the loans of the Sulpicii (on which see below) added to the money supply, and detects 'credit money' at work in the Roman economy, but draws no large conclusion except that there was a *chronic* shortage of coinage, which is not in fact attested; debt on the other hand was as old as Rome. D. Rathbone, in the same volume, speaks, correctly as I think, of 'paper transactions [that] free[d] monetised exchange from the heavy constraint of the supply of coinage' ('The financing of maritime commerce in the Roman Empire, I–II A.D.', *CM*, 197–229: 226). I made some comments along the same lines in 'Between archaic and modern: some current problems in the history of the Roman economy', in W. V. Harris (ed.), *The Inscribed Economy*, JRA Suppl. 6 (1993), 11–29: 21.

[10] I should say at once that my doubts on this score are not of the Polanyi type discussed and rejected by P. Temin, 'A market economy in the early Roman Empire', *JRS* 91 (2001), 169–81: 173–4. This paper aims to emulate Temin (170) in producing a model that is (simply) better than its alternative.

classical city of Rome),[11] at a time when Rome had practically no gold coinage? It seems singularly unlikely that his slaves counted out and loaded 3½ tons of silver coins[12] and transported this cargo through the streets of Rome (not that Roman ideas of inconvenience were necessarily the same as ours). When a certain C. Albanius bought an estate from a certain C. Pilius for 11½ million sesterces (Cic., *Att.* 13.31.4), did he physically send him this sum in silver coins?[13] Without much doubt, these were at least for the most part paper, or rather documentary, transactions (the crucial documents will have been waxed tablets). The commonest procedure for large property purchases in this period was probably the one casually alluded to by Cicero elsewhere: a Roman knight becomes enamoured of a certain property at Syracuse, and 'nomina facit, negotium conficit', 'he provides the credits [or "bonds"], <and so> completes the purchase' (*De off.* 3.59).[14] This practice is reflected in Cicero's letters.[15] And when in *Pro Caecina* Aebutius' bid for a rural property being sold at auction is successful, he concludes the affair by 'promising money to the *argentarius*' (*Caec.* 16), and about that at least there was nothing in the least irregular: no one denied that the property had really been sold — the only question about the sale was whether Aebutius was acting for someone else.[16] And you might buy in instalments: when Cicero bought out the share of the *horti Cluviani* that had gone to another legatee (*Att.* 13.46.3), he did so in three payments spread out over nearly a year (*Att.* 16.2.1), in effect taking a loan from the seller. None of which is to deny that coins might sometimes play considerable roles in major property transactions (see below).[17]

But what about bullion? It is frequently imagined that, under the Republic at least, large payments were made in gold bullion, and there was indeed bullion in circulation; but there is no evidence in Cicero's extensive writings or elsewhere that gold was a regular means of payment before the minting of gold under Caesar's dictatorship. Expert scholars have sought for evidence that individuals bought things with gold or silver bullion under the Republic, and have found none. Crawford catalogued 335 republican coin hoards for the years 150 to 27 B.C.: exactly two of these 335 can be considered to have had a serious bullion component.[18] And as Andreau points out,[19] the archaeology of the Vesuvian cities, which has produced every imaginable kind of find, has never produced a single ingot of gold or silver.[20] Of course we do have *some* explicit evidence of gold bullion in private hands under the Republic (Cic., *Cluent.* 179), but it was apparently a store of wealth, to

[11] Clodius paid Scaurus 14.8 million; for this and other cases see I. Shatzman, *Senatorial Wealth and Roman Politics* (1975), 22–4. My question does not concern the origins of Cicero's payment — he may possibly have been joking when he said (loc. cit.) that he had borrowed a large part of it — but the mode of payment.

[12] 875,000 x (say) 3.86gr (see M. H. Crawford, *Roman Republican Coinage* (1974), 594) = 3377.5kg.

[13] 2,875,000 x 3.86gr = 11097.5kg. Cf. Rathbone, op. cit. (n. 9), 224.

[14] The fact that the purchaser was being royally swindled is irrelevant here. The lawyers have made very heavy weather out of this passage: cf. A. Watson, *The Law of Obligations in the Later Roman Republic* (1965), 30–2.

[15] e.g. *Att.* 12.47.1 (he contemplates a purchase but cannot do it without a particular *nomen*); 13.29.1–2 (where 'ut etiam repraesentatione confidam' might be taken to imply that cash payment might suit the purchaser better, presumably because *nomina* were not worth quite their face value even in the best of circumstances; both the *natura* and the resources of the debtor could affect their acceptability: *Att.* 12.5a).

[16] The text does not exclude that what Aebutius was promising to do was to pay coin.

[17] It is evident from Lex Agraria, l. 74 (see M. H. Crawford *et al.*, *Roman Statutes* (1996), I, 175, for discussion of the text) that Romans with property were already in 111 B.C. familiar with means of paying for real property *other than* by means of ready money (*praesens pecunia*), and they probably had been for some considerable time. The *aerarium* dealt in cash whenever possible (or it required a special kind of security known as a *praes*: see A. Berger, *Encyclopedic Dictionary of Roman Law* (1953), s.v.), and here the law insisted on it.

[18] M. H. Crawford, *Roman Republican Coin Hoards* (1969), nos 259 (an unspecified number of gold bars, from a war period in Spain) and 357 (similar, from civil-war Italy). Nos 193 and 331 scarcely help. Nonetheless Verboven, op. cit. (n. 3, 2003), 63, cites Crawford no. 357 as evidence for his assertion that (in the late Republic) 'large payments' were made 'in gold bullion' (62). The original reports on which such lists are partly based are admittedly sometimes defective.

[19] J. Andreau, 'Usage et conservation des monnaies et des objets d'or et d'argent dans les villes du Vésuve', in W. V. Harris (ed.), *The Nature of Ancient Money* (forthcoming).

[20] Many assets were removed before and after the eruption, but 'an enormous cross-section of money in personal hands has remained' (R. P. Duncan-Jones, 'Roman coin circulation and the cities of Vesuvius', in *CM*, 161–80: 162).

be exchanged against more spendable assets in times of emergency.[21] 'Gold' was what a very rich man such as Rabirius gave to a friend such as Cicero who was scurrying into exile (*Rab.Post.* 47), his credit shot — letters of credit might not be honoured if presented by a man in Cicero's position, and coins once again were bulky — but this has nothing to do with ordinary business life.[22] In imperial times, once again, we sometimes find gold bullion in private hands (e.g. Ulpian in *Dig.* 12.1.11.pr.),[23] but it is implicitly *not* counted as *pecunia*, and seldom used in business or property transactions, as far as we know.[24] There was an important exception, which does not invalidate the general conclusion: bullion sometimes had to be used to buy things from across the frontier, the eastern frontier at least: hence it was sometimes on sale at Coptos and Alexandria.[25]

Proof positive that the traditional understanding of Roman money is mistaken appears, I think, in 49 B.C. when the credit system tottered under the impact of civil war. Nervous creditors began to seek payment *even* of the principal 'in silver', i.e. silver coin, and one part of Caesar's reaction was to 'forbid anyone to hold more than 15,000 drachmas in silver or gold' (Dio 41.38.1), which would have meant a Maoist revolution — most emphatically not Caesar's purpose — if gold and silver coins had really been the only form of money. Quite obviously, his purpose was that the rich should lend, which would leave them with negotiable *nomina*.[26]

Further: Parker's catalogue lists about 674, mostly commercial, shipwrecks of the period 200 B.C. to A.D. 200, and in about 150 cases we have extensive information about the ship's contents (though never, presumably, information of guaranteed completeness). Not one of these wrecks, unlike some late antique ones, has ever so far produced 'hoards' of coins large enough to suggest that big cargoes were paid for in cash.[27]

To complete this overture: *amicae* require gifts, so many gifts, and Ovid, discussing this disagreeable fact, reveals incidentally that it was no use saying that you happened to be out of cash — a 'littera', that is to say *litterae*, a letter, was enough (*Ars Am.* 1.426).[28] You could pay with *littera*e in Augustan Rome, if of course your credit was good. Which is interesting above all because it is likely to refer to goods sold for hundreds not millions of sesterces.

By now the adherents of the traditional view should be worried, but their inner defences have not been properly breached.

[21] In Cic., *Att.* 13.45.3 *argentum* may well be plate. The gold with which Clodia was supposed to have bribed slaves to carry out a murder (*Cael.* 30–1, 51–2) may well have been in the form of *ornamenta* (52), as R. G. Austin supposed. Verboven, op. cit. (n. 3, 2003), 62, is tendentious. Gold gave the air of luxury and corruption: hence Antony weighed it out to his followers in 44 B.C., Cicero says (*Phil.* 3.10), once again nothing to do with regular commerce. Lucilius 428–429 Marx is irrelevant. The gold Cicero refers to cryptically in several letters of May 45 B.C. (*Att.* 12.6.1, etc.) may have been bullion, plate, or coin.

[22] This is a complete review of the texts that are supposed to support the conventional view of this matter. For Cicero's attempt to prevent the export of gold and silver from Puteoli in 63 B.C., see below, p. 18.

[23] 'Rogasti me ut tibi pecuniam crederem; ego cum non haberem lancem tibi dedi vel massam auri, ut eam venderes et nummis utereris ...'

[24] D. W. Rathbone, 'The imperial finances', *CAH* X^2 (1996), 309–23: 319, says that 'any lump of gold or silver ... could be used for exchange', but gives no examples.

[25] See Rathbone, op. cit. (n. 9), 223. But it seems to me that *Periplous Maris Erythraei* 24 and 28 do not refer to bullion in the ordinary sense but to manufactures.

[26] It is curious that a scholar as precise as Andreau should have passed over this provision in his account of the crisis of 49 B.C. (op. cit. (n. 8), 103–5). Neither he nor any other scholar I know of has suggested that Dio was mistaken.

[27] See A. J. Parker, *Ancient Shipwrecks of the Mediterranean and the Roman Provinces*, BAR Int. Ser. 580 (1992), 30, who lists three counter-examples from the fourth century; two intermediate cases date from after A.D. 290 (ibid.). All of this may reasonably be seen as a consequence of a change in the monetary system.

[28] Mrozek, op. cit. (n. 7, 1985), 311 n. 8, noticed the relevance of this before I did.

II THE FINANCIAL SECTION

Money, to adopt the standard definition, is anything that serves as a means of making a payment (whether in exchange or otherwise), a store of value, or a unit of account.[29] Let us look more closely at the work of those who have studied how money has historically behaved and now behaves.[30] Text-books of macroeconomics expect money to perform all of the above functions, but since economists are interested above all in markets, they tend to emphasize the exchange function:[31] thus 'the distinguishing feature of money among all assets ... is its role as the medium of exchange',[32] and money is 'the stock of assets that can be readily used to make transactions'.[33] It is 'anything that serves as a commonly accepted medium of exchange or means of payment'.[34] Roman units of account are certainly of interest (they referred to sesterces much more often than they passed them from hand to hand), but they will not concern us directly. We can agree, I think, not to treat things that were regarded as stores of value as money unless they could also be used for making payments (so jewellery will not be treated as part of the money supply).[35]

In a modern economy the money supply is not limited to the volume of specie issued by the central bank, or to that amount plus the obligations (bonds, notes) issued by the government: matters are more complicated than that, for there is a multiplier effect, created by loans.[36] In other words, a modern nation is normally well supplied with what is sometimes referred to as IOU money,[37] loans extended by banks or bank-like institutions. As soon as a partial-reserve or 'fractional reserve' banking system came into being,[38] the money supply began to exceed the quantity of currency.

This does not of course mean that a monetary system has become 'modern'. By 1776, bank money in Britain already exceeded metallic money. At that time, however, — and here the high Roman Empire may possibly have been similar — 'coins and tokens remained the only currency handled by the vast majority of the population'.[39]

[29] On the latter function see D. Kessler and P. Temin, 'Money and prices in the early Roman Empire', in W. V. Harris (ed.), *The Nature of Ancient Money* (forthcoming).

[30] According to a revealing remark by S. von Reden, 'Money in the ancient economy: a survey of recent research', *Klio* 84 (2002), 141–74: 142, 'modern economic and monetary theory is now regarded by most scholars as unhelpful for understanding money in the ancient world' (however, the attached footnote lists only scholars who disagree). Not all ancient historians are so cloistered; for a more balanced view see J. Andreau (scarcely a 'modernizer'), 'L'Italie impériale et les provinces: déséquilibre des échanges et flux monétaires', in *L'Italie d'Auguste à Dioclétien* (1994), 175–204: 177–9, repr. in *Patrimoines, échanges et prêts d'argent: l'économie romaine* (1997), 335–69: 337–40. We shall continue to be vigilant for anachronisms.

[31] But J. Hicks, for example, was very interested in 'partial money' (*Critical Essays in Monetary Theory* (1967), 2).

[32] S. Fischer, R. Dornbusch and R. Schmalensee, *Introduction to Macroeconomics* (2nd edn, 1988), 141.

[33] N. G. Mankiw, *Macroeconomics* (5th edn, 2002), 76.

[34] P. A. Samuelson and W. D. Nordhaus, *Macroeconomics* (16th edn, 1998), 158.

[35] It should be noticed that in the United States at least it has become much more difficult since the early 1990s to distinguish between monetary and non-monetary assets, and near-money has become more liquid, because of such practices as writing cheques against mutual-fund accounts (see Mankiw, op. cit. (n. 33), 496–7). In a sense, this change is paradoxically making the current system more like the more sophisticated part of the Roman system.

[36] Technically the money multiplier in a modern economy is the ratio of the money created by banks to the volume of their reserves (cf. Samuelson and Nordhaus, op. cit. (n. 34), 172). It is 'a ratio that relates the change in the money supply to a given change in the monetary base', F. S. Mishkin, *The Economics of Money, Banking, and Financial Markets* (1986), G-8.

[37] Fischer *et al.*, op. cit. (n. 32), 143.

[38] ibid., 146–7, 153; Mankiw, op. cit. (n. 33), 484–5.

[39] G. Davies, *A History of Money from Ancient Times to the Present Day* (1994), 238. Braudel quotes estimates of still higher ratios of paper to metallic money in the eighteenth century; and 'sages at the time said that [paper money] should not be three or more times the value of the mass of metal money' (*Civilization and Capitalism, 15th–18th Century, vol. II: The Wheels of Commerce*, trans. S. Reynolds (1982) [original edn: *Les Jeux de l'échange*, (1979)], 113, with references).

What is it, though, that determines that some lending adds to the money supply while some does not? One still current macroeconomics text-book even says, eccentrically, that credit cannot be money at all. We are told that 'when you lend a friend $50, the amount of *credit* in the economy is increased by $50. However, the amount of *money* is not altered one iota . . .'.[40] And on the authors' terms, which are presentist not historical, they might be right — for they have defined money in a relatively restricted fashion,[41] so that even M-3, their most inclusive concept of money, consists of currency and deposits in banks plus money-market mutual fund shares and what are called repurchase agreements. But there is a fallacy here, for some loans create the substance with which you can buy things without diminishing anyone's assets. It is the latter phrase that counts, obviously, since all loans by definition increase the *borrower*'s capacity to pay.

'Credit money is just a part of a whole credit structure that extends outside money; it is closely interwoven with a whole system of debts and credits, of claims and obligations, some of which are money, some of which are not, and some of which are on the edge of being money' — so Hicks once wrote,[42] and with appropriate caution this can be applied to the Roman economy too. Which lenders, then, can carry the loans they have made as assets? To take a Roman example, the *coactor argentarius* mentioned by the jurist Scaevola who 'paene totam fortunam in nominibus [habebat]' (*Dig.* 40.7.40.8): what entitled him to count these *nomina* as part of his *fortuna*? The answer is reasonably clear and once again is set out in the economics text-books: it is essentially the legal — and we should add, the social — capacity of the lender to recover from the debtor (and that helps to explain why the $50 I lent to my friend did not add to the money supply — if he does not repay me I am not going to sue him, and indeed it would be disproportionately expensive to do so).[43] Now, no one will need convincing that Roman law provided creditors with robust means of protecting themselves,[44] which were of course much stronger if a loan was secured.[45]

Yet this account is excessively simple, in two respects. Firstly, in a modern economy, loans made by corporations or individuals are not normally considered to add to the money supply, even when they are legally recoverable.[46] And that makes sense, since a modern banking system controls, or at least attempts to control, the quantity of money, and furthermore such loans are not used as a medium of exchange. In the Roman economy, on the other hand, with no central bank, what determines whether something is money or not has to be the primary characteristic (referred to at the beginning of this section) — whether it is readily used as a means of making payments.

Secondly, the history of debt in early modern England suggests that the *moral* obligation of the debtor, combined with his need to maintain his creditworthiness in the eyes of the community, will also have carried weight.[47] The Roman debtor's greatest danger

[40] L. S. Ritter and W. L. Silber, *Principles of Money, Banking, and Financial Markets* (6th edn, 1989), 319.

[41] ibid., 6. According to other definitions (e.g. Fischer *et al.*, op. cit. (n. 32), 154), M-3 includes other forms of near-money such as liquid treasury securities and even commercial 'paper'. M-3 has now (March 2006) been abolished.

[42] Hicks, op. cit. (n. 31), 157–8.

[43] As L. von Mises succinctly wrote, credit money 'is that sort of money which constitutes a claim against any physical or legal person' (*The Theory of Money and Credit* (1953), 61). Cf. Temin, op. cit. (n. 10), 174 end.

[44] Well, hardly anyone: Freyberg, op. cit. (n. 8), 93, actually claims that one of the reasons why Roman lenders could not, in his view, increase the money supply was 'the lack of legal and technical standardization'. The sanctions on insolvent debtors in the Republican period are described M. W. Frederiksen, 'Caesar, Cicero and the problem of debt', *JRS* 56 (1966), 128–41: 128–30. For the Empire, briefly, J. A. Crook, *Law and Life of Rome, 90 B.C–A.D. 212* (1967), 175–8. Lo Cascio, op. cit. (n. 5), seems to me to have confused two issues when he wrote that credit-money can be left out of a discussion of the Roman money supply because there were 'no measures aimed at influencing the economic function of banks of deposit and credit' (76 n. 3); there only had to be effective laws about debt, which there were.

[45] For a borrower's differential treatment of secured and unsecured debts see for instance Cic., *Att.* 16.6.3.

[46] Mankiw, op. cit. (n. 33), 485: 'only banks have the legal authority to create assets . . . that are part of the money supply.'

[47] C. Muldrew, *The Economy of Obligation: the Culture of Credit and Social Relations in Early Modern England* (1998), 121–72. *De officiis* was of course a favourite text.

continued to be *infamia* (Papinian in *Dig.* 46.3.97). *Fides* was not of course to be treated lightly.[48]

Economists are not surprisingly in a certain amount of disaccord about the nature of money. And current debates should have some interest for Roman historians. The mainstream view is that central banks, or central banks plus individual banks, create money, which is thus 'exogenous' to the economic system.[49] Others hold that it is 'endogenous', meaning that it is entirely created, by lenders of all kinds, 'in response to the needs of the economic system'.[50] So one of the proponents of a view of this kind writes that 'modern money is bank money or [bank] credit issued for the purpose of production'.[51] The traditional view is that Roman money was official coinage, hence all in a sense exogenous; I argue that we should include many (not all) recoverable loans, and hence a lot of endogenous money.

When economists define credit-money, they sometimes, admittedly, make matters more complicated than I have made them in this account, but that is because they quite naturally have recent and current conditions in mind, and not the world that existed before the invention of clearing banks. 'A credit money system presupposes the existence of the institutions of private property, contracts, enforcement, and clearing', says one.[52] But historically speaking, as we shall see, the last of these four elements is a wonderful convenience but not in fact a necessity.

In the Roman scheme of things what you paid with was commonly *pecunia*, though other words such as *nummi* were also standard. It is therefore quite important that *pecunia* could have a very wide meaning. Naturally one ought not to press individual texts too hard. Gaius, for instance, remarks that 'the term *pecunia* in this law [Sulla's Lex Cornelia de sponsu, if that was its real name] means everything; and so if we stipulate for wine or wheat or a farm or a slave, this law must be observed'.[53] But in texts such as this, it is hard to be sure *a priori* whether the author is arguing in harmony with or against the general understanding of the term *pecunia*, which is what matters most. In a passage already quoted, Ulpian (*Dig.* 12.1.11.pr.) seems to reveal that plate and bullion are not *pecunia* in the ordinary sense of the term, but Hermogenianus' definition, quoted as an epigraph above, included them. In another passage Ulpian claims that 'the term *pecunia* includes not only coinage but every kind of money whatsoever, that is, every substance (*omnia corpora*); for no one doubts that substances are also included in the definition of money' (*Dig.* 50.16.178).[54] Clearly it is not Ulpian's intention here to deny that documents could represent money but simply to assert that such things as wine and wheat *could* indeed count.

The important point for us in any case is that *pecunia* could include loans. And in fact Cicero in a published speech simply takes it for granted that *nomina* were a form of *pecunia*, that is to say that credit, at least in a certain form, was money (*II Verr.* 5.17),[55] though in this case rather illiquid money (Verres' victim had an interest in asserting that he could not pay because his assets were mainly in *nomina*). For Tacitus, it is reasonably

[48] And it was by *consuetudo* not statute that you could recover a bank deposit from the banker's *socius: Rhet. ad Herennium* 2.13.19. See further M. Ioannatou, 'Le code de l'honneur des paiements: créanciers et débiteurs à la fin de la République romaine', in J. Andreau, J. France and S. Pittia (eds), *Mentalités et choix économiques des romains* (2004), 87–107.

[49] L.-P. Rochon, 'On money and endogenous money: post-Keynesian and circulation approaches', in L.-P. Rochon and S. Rossi (eds), *Modern Theories of Money: the Nature and Role of Money in Capitalist Economies* (2003), 115–41, can lead one into this debate.

[50] ibid., 126.

[51] ibid., 116.

[52] B. J. Moore, *Horizontalists and Verticalists: the Macroeconomics of Credit Money* (1988), 20.

[53] *Inst.* 3.124. The law limited the amount of *credita pecunia* that an individual might 'sponsor' to the same lender for the same borrower in any given year.

[54] See also Ulpian in *Dig.* 27.9.5.9.

[55] Verres' victim Apollonius protested 'pecuniam sibi esse in nominibus, numeratam in praesentia non habere'.

clear that *pecunia* included credit.[56] Hermogenianus ought really to have said that *pecunia could* include objects and legal claims, on certain conditions; but he was certainly not expressing an extreme or eccentric opinion — Justinian's lawyers chose just these two definitions of money, Ulpian's and Hermogenianus', and no others.

χρήματα was an equally broad concept, notoriously capable of meaning either 'money' or 'goods'.[57] Aristotle defines the term as 'everything of which the value is measured by currency' (*nomismati*) (*EN* 4.1.1119b26–27), and this usage continued into Roman times (Dio Chrysostom 13.20, for example).[58] None of this means that what was referred to as *pecunia* or χρήματα necessarily satisfies a modern definition of money, but it makes it less likely that Roman money was made up exclusively of coinage.

III THE USE OF CREDIT

It is often intriguing to compare the financial world of Rome to that of an early modern economy.[59] Take the case of England between the late sixteenth century and the early eighteenth, as described by Craig Muldrew in *The Economy of Obligation: the Culture of Credit and Social Relations in Early Modern England.* (His sources are of course vastly better than ours.) Credit and debt were fantastically pervasive: 'every household in the country', our eminently sober author writes, 'from those of paupers to the royal household, was to some degree enmeshed within the increasingly complicated webs of credit and obligation . . .'. 'Various instruments of credit were in use by the late sixteenth century . . ., but most credit extended for sales or services seems to have been remarkably informal'.[60] Merchants, shopkeepers, peerage, gentry were all heavily involved.[61] Muldrew goes on to argue for the very great financial importance of all this credit in relation to the rather limited supply of coinage money.[62] None of this proves anything about the Roman Empire: but at least we can see how a pre-industrial economy in reasonably good shape could in effect vastly increase its money supply without a central bank or a clearing house for financial obligations.

Credit is the centre of this inquiry, but to write the history of credit in the Roman Empire would be a large task indeed.[63] Such a history might start with a typology, which would resemble the list of different kinds of debt mentioned in the Ephesian Debt Law of 85 B.C. (*SIG*[3] 742),[64] according to which creditors forgave, as it seems, virtually all types of debt, except that as far as bankers were concerned there was merely to be a moratorium on their loans (and also on the repayment of their deposits).[65] Cancelled debts included (ll. 50–2) maritime loans, *cheirographa* (unsecured loans, presumably), *parathekai* (loans secured by portable objects), first and second mortgages, and, most interestingly of all,

[56] *Ann.* 6.16: 'magna vis accusatorum in eos inrupit qui pecunias faenore auctitabant'.

[57] For recent comment see R. Seaford, *Money and the Early Greek Mind: Homer, Philosophy, Tragedy* (2004), 287–8.

[58] The history of this term offered by M. Caccamo Caltabiano and P. Radici Colace, *Dalla premoneta alla moneta* (1992), 185–6, is a fantasy.

[59] Temin, op. cit. (n. 7), performed this exercise with respect to early modern Holland, Britain, and France.

[60] Muldrew, op. cit. (n. 47), 95, 96.

[61] See Muldrew, op. cit. (n. 47), 96–8 and *passim* for vivid det J. H. Munro, 'The medieval origins of the financial revolution: usury, *rentes*, and negotiability', *International History Review* 25 (2003), 505–62, describes and explains the evolution of credit instruments in Britain.

[62] Muldrew, op. cit. (n. 47), 98–103.

[63] Temin, op. cit. (n. 7), has now shown the crucial economic importance of the Roman credit market.

[64] = *IGSK* XI (*Die Inschriften von Ephesos* Ia) no. 8.

[65] The first historically attested bank moratorium, as R. Bogaert, *Banques et banquiers dans les cités grecques* (1968), 252, points out.

debts concerning sales (*kat'onas*) that were in the form of a *homologia* (a legal document acknowledging the receipt of a loan).[66]

The main question, however — impossible to answer except in order-of-magnitude terms (see the next section) — is the *extent* of credit-money,[67] and so it seems best to proceed by examining various different social milieux one by one, even though it will soon become evident that there was more vertical integration in the credit market than has sometimes been realized. I will distinguish the very well-to-do, the decurion class, and the poor but solvent masses, without pretending that these are clear labels.[68] All the testimony is fairly well known, but there are some significant details to clarify. At the end of this section I shall ask how much evidence there is that people actually made payments by means of documents.

Before we even come to private lenders, it will be remembered that cities too sometimes made loans — no reason to think this was at all new at the time of our earliest evidence, which appears to be the Lex Irnitana (ch. 79).[69] We never get any clear idea of scale, except that Pliny thought the matter worth referring to Trajan (*Ep.* 10.54–5).[70] Foundations also seem to have lent their capital,[71] as did temples, at least in Greek cities.[72]

But these are probably minor phenomena, whereas debt was in fact the life-blood of the Roman economy, at all levels. The normality of *nomina* (i.e. outstanding loans) among the assets of the *rentier* class has already been commented on: *nomina* were a completely standard part of the lives of people of property, as well as being an everyday fact of life for great numbers of others.[73] Nothing could be further from the truth than a scholar's contention that it was only *under extraordinary circumstances* that the creation of credit-money took place.[74] In a modern economy the standard cautious investment for the well-to-do is, or at least used to be, government bonds; in the virtual absence of bonds, governmental or otherwise,[75] the Roman well-to-do relied heavily on *nomina*. Describing the credit crisis of A.D. 33, Tacitus (*Ann.* 6.16.3) remarks that *all* senators were more extensively involved in money-lending than the law allowed ('neque enim quisquam tali culpa vacuus').[76] We

[66] For this meaning of the word see Bogaert, op. cit. (n. 65), 251 n. 129. In Italy such a law would also have had to take into account the very widespread practice by which *coactores* gave credit to purchasers at auction sales (see Andreau, op. cit. (n. 8), 38–9, etc.). M. I. Finley, *Studies in Land and Credit in Ancient Athens, 500–200 B.C.* (1951), 269, says that this text 'need not be interpreted' as a reference to sale on credit (which, however, was widespread in Greek practice: F. Pringsheim, *The Greek Law of Sale* (1950), 266), but does not reveal how he thinks it ought to be interpreted. The best translation of these lines seems to be the one by D. Asheri, 'Leggi greche sul problema dei debiti', *SCO* 18 (1969), 5–122: 117 (into Italian).

[67] I shall not consider directly the question, important in other contexts, whether there was much lending for productive investment rather than consumption. For some recent comments see Andreau, op. cit. (n. 8), 147–8; G. Camodeca, 'Il credito negli archivi campani: il caso di Puteoli e di Herculaneum', in *CM*, 69–98: 81, 83. My purpose here is merely to discuss the money supply.

[68] The possible relevance of other fundamental distinctions, urban/rural and Graeco-Roman/'peripheral', hardly needs emphasizing.

[69] Tablet VIII C, l. 48 (J. Gonzalez, 'The *Lex Irnitana*', *JRS* 76 (1986), 174).

[70] Howgego, op. cit. (n. 4, 1992), 14 n. 124, has some references to this phenomenon.

[71] This is argued by R. P. Duncan-Jones, *The Economy of the Roman Empire: Quantitative Studies* (1974), 133, on the grounds that this was the only way to obtain attested rates of 12 per cent per annum — attested at Bergomum, Opitergium, Ostia, Theveste, and Rome itself, always, however, for small foundations.

[72] Howgego, op. cit. (n. 4, 1992), 14 n. 125.

[73] cf. Howgego, op. cit. (n. 4, 1992), 13–15; R. P. Duncan-Jones, *Money and Government in the Roman Empire* (1994), 24; A. Tchernia, 'Remarques sur la crise de 33', in *CM*, 131–46: 134. For money-lending by *equites* and *publicani* under the Republic see P. A. Brunt, *The Fall of the Roman Republic and Other Essays* (1988), 169.

[74] Freyberg, op. cit. (n. 8), 93. He should not incidentally have cited Frederiksen, op. cit. (n. 44), on this point, since the latter says practically the opposite: 'there is no reason to think that the complex monetary deals in Cicero's letters were at all unusual' (131).

[75] Though cities did sometimes borrow: L. Migeotte, *L'emprunt public dans les cités grecques* (1984), 359; Andreau, op. cit. (n. 8), 124–5.

[76] The law had of course been put through by Caesar in special circumstances, and according to Tacitus had long been a dead letter.

know that by the late Republic virtually every aristocrat whose affairs are attested in the sources lent money, and it was normal for the less illustrious senators to do so too.[77] Augustus was evidently regarded as something of a stickler for having tried to keep the *equites* up to old-fashioned aristocratic standards by punishing those among them who borrowed money at lower rates of interest in order to lend it at higher ones (Suet. 39).

There is no reason to think that this pattern changed much, if at all. Seneca was simply the most conspicuous of those who lent to the provincials under the early emperors.[78] Since Augustan times, at least, one assumed that a Roman of means divided his or her investments between land and *faenus*: 'dives agris, dives positis in faenore nummis' (Horace, *A.P.* 421). This is too well known to need exhaustive documentation.[79] Tacitus describes the assets of the Romans who had benefited from the largesse of Nero, people of various social ranks no doubt, as consisting of *agri* and *faenus* (*Hist.* 1.20.1). 'Sum quidem prope totus in praediis, aliquid tamen faenero, nec molestum erit mutuari', says Pliny the Younger (*Ep.* 3.19.8).[80] Well-to-do Greeks may have been less inhibited than senatorial Romans: according to Dio Chrysostom (7.104), the rich support themselves by means of tenements, leasing slaves and by ships, as well as by usury, but in any case they engage in noteworthy quantities of money-lending.[81] Looking back, a law of Constantine remarked with understandable hyperbole that the *veteres*, that is those of much earlier times, had entrusted 'the whole strength of their patrimonies' to lending money — something that was clearly no longer advisable (*C.J.* 5.37.22.5a).[82] Conversely the rich also borrowed heavily, especially but not only in the late Republic; once again the phenomenon is too well known in outline to need documentation.[83]

Some even of those scholars who know how economists define money continue to criticize Mrozek for failing to make a distinction between *nomina* and money.[84] But it is the critics who are wrong, for they take no account of the ways in which a system with partial-reserve banking and an extensive system of legally recoverable loans can bring into existence assets that can be used for making payments.

Capital markets certainly depended much more on personal ties than modern ones do (usually you borrowed from your acquaintances, not institutions)[85] — as indeed was inevitable in any pre-print or early-print culture in which economic information was scarce and unreliable. (Early industrial England was similar in this respect.)[86] How could you judge a stranger's creditworthiness? But Seneca, who knew what he was talking about where high finance was concerned, assumes as a matter of course (*Ep.* 119.1) that anyone who wants to go into commerce will borrow, and will do so through people he calls

[77] Shatzman, op. cit. (n. 11), 75–9, summarized the evidence effectively.

[78] Tac., *Ann.* 13.42. The famous loans to the Britons amounting to 40 million (nice round sum): Dio 62.2.1. Vespasian's father T. Flavius Sabinus is another well-known example (he made loans to the Helvetii: Suet. 1).

[79] Besides the references in the text see also Petr., *Sat.* 37, 117.8; Martial 3.31, 4.37 (and see further Duncan-Jones, op. cit. (n. 71), 21 n. 4; Andreau, op. cit. (n. 9), 770). For land and loans as the two forms of investment, this time in Bithynia, see Plin., *Ep.* 10.54.1. J. H. D'Arms, *Commerce and Social Standing in Ancient Rome* (1981), 105, demonstrated that in such locutions as *agri et nomina* it is quite wrong to think of the loans as being primarily agricultural (though that would not affect my central argument).

[80] These words show that 'no stigma attached to money-lending' for senators of Pliny's time (Duncan-Jones, op. cit. (n. 71), 21).

[81] Compare Ps.-Plu., *De lib.educ.* 7 = *Mor.* 4b; H. W. Pleket, 'Urban elites and the economy in the Greek cities of the Roman Empire', *Münstersche Beiträge zur antiken Handelsgeschichte* 3,1 (1984), 3–36: 14–15. One could encounter such combinations at Ostia and Puteoli; cf. D'Arms, op. cit. (n. 79), 102.

[82] The date of this comment was A.D. 329. Cf. J.-M. Carrié, '*Solidus* et crédit: qu'est-ce que l'or a pu changer?', in *CM*, 265–79: 277.

[83] Aristocrats as debtors 'to an extraordinary degree': Duncan-Jones, op. cit. (n. 73), 24.

[84] Verboven, op. cit. (n. 3, 2002), 116 n. 1; similarly Howgego, op. cit. (n. 4, 1995), e.g. 123.

[85] For a recent discussion of how this worked in Cicero's time see J. Andreau, 'Markets, fairs and monetary loans', in P. Cartledge, E. E. Cohen and L. Foxhall (eds), *Money, Labour and Land: Approaches to the Economies of Ancient Greece* (2002), 113–29: 122–8.

[86] K. Pomeranz, *The Great Divergence* (2000), 179–80.

intercessores and/or *proxenetae*, financial agents (it is a sign of the serious limitations of our sources that we have little information about how such people operated).[87] And loans could cross social boundaries: Cn. Sentius Saturninus, for example, *cos.ord.* A.D. 41, lent money to the landowner and money-lender L. Cominius Primus of Herculaneum.[88]

We inevitably come to the problem of banks.[89] It will not be necessary to spend time discussing who counts as a banker in the Roman world, for Andreau has dealt satisfactorily with this complex matter and we are merely concerned with who made loans, with what, and to whom. The orthodox view is that Roman bankers seldom if ever had many partners, if any, that they possessed little capital, and that they had little to do with the upper social élite, the wealthiest five or ten thousand let us say.

This orthodoxy probably needs to be modified, if not rejected, in every respect. First, however, it is worth repeating that Roman bankers did indeed lend — much of the extensive evidence was gathered by Andreau.[90] It can also be demonstrated, in case it needs to be, that classical banks practised fractional reserve banking — for otherwise there would have been no need in the crisis of 85 B.C. to give the bankers of Ephesus ten years to pay back their depositors.[91] We have no evidence as to how large their reserves were normally: according to De Roover, medieval bankers typically maintained a reserve ratio as high as 29–30 per cent.[92]

It has recently been asserted that 'any interest gained on [bank] clients' deposits had to be credited to the account of the client',[93] with the implication that it would have been pointless, most of the time, for them to loan such funds. But that is extremely misleading: the writer in question failed to notice that what was technically known as a *depositum* was only one kind of bank-deposit, generally non-interest-bearing, whereas if you wanted interest, the form of your bank-deposit would be a loan (there are exceptions and complications that need not concern us in this context).[94] Bankers were also able to make payments at a distance,[95] in other words without the direct use of coins, which meant that other people (bankers too, presumably) afforded them credit. And though it used to be said that bankers did not in any case make *maritime* loans, presumably because of the high risks,[96] more recently we have learned from a large-scale contract analysed by Lionel Casson that even this limitation could be partly circumvented,[97] and presumably it often was.[98]

[87] See *Dig.* 50.14, however (where the translator in A. Watson (ed.), *The Digest of Justinian* (1985), bizarrely takes *proxenetae* to mean slave-dealers). Columella simply assumes that interest will be among the expenses of a vineyard owner (3.3.9).

[88] Camodeca, op. cit. (n. 67), 95.

[89] Andreau above all has taught us (in *La vie financière dans le monde romain: les métiers de manieurs d'argent [IV^e^ siècle av. J.-C.–III^e^ siècle ap. J.-C.]* (1987)) that Roman banking institutions varied by time and place. These differences are not brought out here, but in a longer account they would need to be.

[90] op. cit. (n. 89), 550–1, 583–8. But there is considerably more: for Ephesus in 85 B.C., for instance, see *SIG*^{3} 742, ll. 55–61.

[91] *SIG*^{3} 742, ll. 60–1.

[92] R. De Roover, *Money, Banking, and Credit in Mediaeval Bruges* (1948), 318.

[93] Von Reden, op. cit. (n. 30), 145, apparently misled by A. Bürge, *Gnomon* 61 (1989), 318–25: 322.

[94] See Andreau, op. cit. (n. 8), 42.

[95] See, e.g., Cic., *Fam.* 2.17.4. In Cic., *II Verr.* 1.102 it is implicit that the banker P. Tadius at Athens can make payments at Rome. *Att.* 7.18.4 shows that in ordinary circumstances it was possible to make payments from Italy to Greece.

[96] Andreau, op. cit. (n. 89), 603–4; cf. Bogaert, op. cit. (n. 65), 355.

[97] A banker (a Roman citizen based in the village/modest town of Theadelphia) was involved as an intermediary: see the revised text of *P.Vindob.*Gr. G 19792 in A. Biscardi, *Actio pecuniae traiecticiae* (2nd edn, 1974), 211–14, and in L. Casson, 'New light on maritime loans: P.Vindob. G 19792 (= SB VI 9571)', in *Studies in Roman Law in Memory of A. Arthur Schiller* (1986), 11–17 (= *SB* xiv.11850) (A.D. 149). The archive of the Sulpicii, however, contains no maritime loans (Camodeca, op. cit. (n. 67), 88).

[98] We do not know who provided the very large maritime loan in the 'Muziris' papyrus (*P.Vindob.* G 40822 = *SB* xviii.13167). On maritime loans more generally see Andreau, op. cit. (n. 8), 55–6.

The Roman banking system operated in a largely unregulated fashion,[99] and many banks apparently consisted of a single principal, usually — one must suppose — with quite limited capital. But our increased knowledge of the operations of the bank of the Sulpicii at Puteoli has led to the conclusion that it had between six and fifteen principal members, or even more, a 'respectable scale' indeed for a preindustrial economy (it is not of course suggested that Puteoli was a typical Roman town).[100]

As far as the élite are concerned, they obviously used banks less than is normally the case in a modern economy. But the current view is seriously misleading. As early as 162 B.C., Scipio Aemilianus had a notable sum (perhaps much in excess of 1.2 million HS) on deposit with a banker (*trapezites*) (Polyb. 31.27.6),[101] and though this may surprise some scholars, it did not seem at all remarkable to Polybius. There is more, for when on a particular occasion the banker made payments on Aemilianus' behalf to two other leading Romans (Ti. Sempronius Gracchus the Elder and P. Scipio Nasica Corculum), 'he made each of them a *diagraphe* for twenty-five talents' (31.27.7). Liddell and Scott invent a meaning: '*crossing out*, *cancelling* of a debt' — 'hence', they say more correctly, 'payment'.[102] And obviously it would have made no sense for the banker to *cancel a debt* for Gracchus and Nasica — what he did for them was to make them payments, on 'paper' I suggest, into *their* accounts.[103] If that sounds a little unlike the world of Cicero,[104] there are several possible explanations: it may be, for example, that professional bankers actually lost some of their importance later with the spread of the system of easily transferred debts, in other words the system of *delegatio*.

It is often claimed that bankers did not in any case have much to do with the upper élite,[105] but the evidence, such as it is, suggests that *some* of them at least certainly did: the credit crisis of A.D. 33 concerned initially and above all senators, and when Tiberius decided to rescue the credit market, he did so by providing 100 million sesterces of loans, not directly, however, but through *mensae* (Tac., *Ann.* 6.17.3), which are not, as many interpreters have claimed, 'specially established' or 'temporary' banks (nothing of that in the sources), but just 'banks'. It is entirely unsurprising, therefore, that under Claudius, as we now know, slaves of the emperor — for entirely different reasons — lent five- and even six-figure sums to the bank of the Sulpicii.[106] When Herodes Atticus distributed the five *minai* which he had agreed to pay to each citizen of Athens in virtue of his father's will, he

[99] There were, however, certain rules that an economist would have to approve of, such as the banker's obligation to produce his *rationes* in court, if required (Ulpian in *Dig.* 2.13.4), which was an additional protection for the depositor (see Andreau, op. cit. (n. 89), 618, for limitations on this right).

[100] K. Verboven, 'L'organisation des affaires financières des C. Sulpicii de Pouzzoles', *Cahiers du Centre Gustave-Glotz* 11 (2000), 161–71: 164 end; see also Camodeca, op. cit. (n. 67), 78–9. In favour of calling the Sulpicius firm a 'bank' see Camodeca, 74.

[101] See F. W. Walbank ad loc. for a significant improvement in the text. This was the well-known occasion when Scipio paid the balance of his two aunts' dowries in advance. But when Walbank says (note on 27.7) that 'Scipio had deposited the money with the banker', he may imply that Scipio would not normally have had money, or at least a sum of this size, on deposit at a bank, which there is no reason to believe at all. This was a routine transaction, in a sense, between aristocrats who were well known to each other.

[102] διαγράφειν can of course mean 'to draw a line through', 'cancel', but for διαγραφή as '(an order of) payment' in financial contexts see the references given by Liddell and Scott themselves and many others, e.g., *P.Col.* IV.89, *P.Dublin* 10, *P.Dryton* 31. P. Drewes, *Die Bankdiagraphe in den gräko-ägyptischen Papyri* (1970), maintained that the *diagraphe* was not a 'cashless' payment, as F. Preisigke thought, but this runs counter to the natural reading of the documents.

[103] A. Mauersberger, *Polybios-Lexicon*, 471, has this right: 'Zahlungsleistung durch Anweisung'. So too C. T. Barlow, *Bankers, Moneylenders, and Interest Rates in the Roman Republic* (diss. North Carolina, 1978), 78. The fullest discussion is Bogaert's (op. cit. (n. 65), 50–9): the relevant meaning is a *notification de crédit* (59) (Bogaert thinks that Polybius' use of the word *komizesthai* means that the creditors were paid in cash, but the term can be used quite abstractly).

[104] cf. Andreau, op. cit. (n. 89), 661.

[105] So, e.g., W. Jongman, 'A golden age. Death, money supply and social succession in the Roman Empire', in *CM*, 181–96: 196.

[106] See Camodeca, op. cit. (n. 65), 87, for references.

did so through bankers, who were in possession of IOUs (*xumbolaia*) that the citizens' fathers and grandfathers had not paid off to Herodes' family (they were told to deduct these sums from Herodes' gift).[107]

It remains most unclear, of course, how large this banking sector really was — not even a useful guess is possible. The geographical distribution of bankers, though it is of course all urban (as it has always been!), was really quite wide.[108] The consensus view, at least in some versions, finds itself in the awkward position of denying that most Roman banking added to the money supply, while asserting that the banks of Graeco-Roman Egypt did exactly that — for that is the conclusion of some at least of the scholars who have studied the operations of the banks in Egypt.[109] 'Payments received from lessees and from larger-scale buyers of produce such as the *oinopolai* sometimes came in cash and sometimes through a credit transfer through a local bank' — that was in the Arsinoite nome in the mid-third century A.D.[110] It might be presumed that this was also the case in most, if not all, provinces with an inheritance of Hellenistic business practices, and the wide scatter of bankers throughout Italy supports the notion that it too should be included.

But let us return to credit more generally. The comfortably-off — the members of the decurion class[111] and their economic equivalents among the freedmen — were they too part of the debt economy? If they lived in commercial towns like Puteoli (Ostia, Aquileia, and so on — we are speaking here of at least twenty or thirty places all across the Empire), the answer is plainly yes.[112] I take it that all the mechanisms visible in the Murécine documents were employed in all such places, if not on the same scale. These documents are not about small change: the usual scale of a Murécine loan is in the range 10,000 to 30,000 sesterces. Note that very often the security for such loans was provided by other documents: the commonest kind of security was a *fideiussio*, which therefore had to have a market-value just like more concrete forms of security — so here we have negotiable 'paper' once again. The chief expert on the Murécine texts, Camodeca, has come round to the view that the house of the Sulpicii 'played a part in the productive and commercial activities of Puteoli'.[113] Be it noted, however, that the argument here is not that credit had the same role in the Roman economy as it did in, say, industrializing countries in the nineteenth century, but simply that it was pervasive and institutionalized and added enormously to the money supply.[114]

The complexity and sophistication of late republican and high imperial finance has been ignored by the Finley school, no doubt partly for the innocent reason that the sources often allude to procedures which they do not explain. And there are many real obscurities, for instance about the full range of activities of the *coactores* (auction financiers).[115] We have

[107] Philostratus, *Vit.soph.* 2.1.549, with Bogaert, op. cit. (n. 65), 84–5.

[108] Andreau, op. cit. (n. 89), 325, had epigraphical documentation of nineteen towns in the western provinces showing that *argentarii, nummularii, coactores argentarii* or *coactores* were active there; for the eastern provinces see Bogaert, op. cit. (n. 65), esp. 409–10, and idem, 'Liste géographique des banques et des banquiers de l'Égypte romaine', *ZPE* 109 (1995), 133–73.

[109] Von Reden, op. cit. (n. 30), 147, relying on R. S. Bagnall and R. Bogaert, 'Orders for payment from a banker's archive', *Ancient Society* 6 (1975), 79–108, and R. Bogaert, 'Note sur l'emploi du chèque dans l'Égypte ptolémaïque', *Chronique d'Égypte* 58 (1983), 245–52, both repr. in R. Bogaert, *Trapezitica Aegyptiaca. Recueil de recherches sur la banque en Égypte gréco-romaine* (1994).

[110] D. W. Rathbone, *Economic Rationalism and Rural Society in Third-century A.D. Egypt* (1991), 324.

[111] In using this label, I have in mind the decurion class as it was before the evasion of office became a large-scale phenomenon.

[112] It should be remembered how little we know about the financial lives of such places. Even Alexandria is largely a mystery in this respect: cf. J. Rowlandson, 'Money use among the peasantry of Ptolemaic and Roman Egypt', in A. Meadows and K. Shipton (eds), *Money and its Uses in the Ancient Greek World* (2001), 145–55: 146.

[113] Camodeca, op. cit. (n. 65), 80.

[114] Finley, op. cit. (n. 6), 197, insisted that ancient lending was hardly ever aimed at increasing production, but he did not weigh the Roman evidence or consider the real comparanda, such as England on the eve of the Industrial Revolution. My point in any case is simply that credit-money existed, and in ample amounts.

[115] Concerning these see N. K. Rauh, 'Finance and estate sales in republican Rome', *Aevum* 63 (1989), 45–76: 52–4.

seen signs of an extensive credit system in the provinces, but how easy was it, really, for a Spanish or Macedonian estate-owner to borrow? And how much were non-cash payments the rule among, say, the wool-producers of Patavium or the ship-builders of Gades?

Let us turn to more modest people, craftsmen and farmers, those with enough assets to survive, but not much if anything in the way of surplus. Their use of credit is not crucial to my argument, but a brief detour may be worthwhile. The widespread indebtedness of such people is convincingly attested by late republican writers, as far as Italy is concerned.[116] We can probably take it, *a fortiori*, that the provincials were at least as indebted,[117] even though our evidence is very fragmentary. Under the Principate, the evidence seems to be even more fragmentary, except in Egypt. There we have documents, and what they suggest to us is something not unlike Muldrew's early modern England — a world profoundly dependent on credit. This is where Howgego's review leads us, and there is no need to repeat all his details.[118] Rathbone, as is well-known, extrapolated from his analysis of the accounts of a large estate in third-century Egypt as follows: 'the use of credit arrangements [there] ... extended the monetisation of the rural economy beyond the limit of the quantity of coin in circulation.'[119] But much of the credit referred to here did not add to the money supply,[120] for the loans in question did not meet the criteria set out in the previous section: though they were legally recoverable, the costs of recovering them would have been prohibitive, hence they could not possibly be used for making payments. The only way in which non-cash payments added to the money-supply in this milieu seems to have been through the kind of bank transaction mentioned earlier.

Were other provinces more or less the same in this respect? This is inevitably a matter for conjecture. One might suppose that provinces with sophisticated Hellenistic or Punic traditions would be quite similar, and the combined effects of Roman taxation and periodic bad harvests, combined with a certain amount of entrepreneurial spirit, may have spread the shadow of debt over most of the Latin provinces in Europe as well, but the appropriate evidentiary base is simply not there.

It can be said, however, that the inhabitants of the Roman Empire had multifarious ways of extending and obtaining credit, and that throughout the period under consideration there is no sign of anything worse than one brief and partly artificial shortage of credit, the well-known crisis of A.D. 33.[121] In fact nothing we know about Roman interest rates — a subject which admittedly needs some new research — suggests that a shortage of capital was ever one of the economic system's serious weaknesses. The rates available to good-quality borrowers never seem to have been strikingly high.[122] It is no argument against the model outlined in this section that interest rates varied from place to place

[116] The secondary accounts do not pay enough attention to the rhetorical nature of most of the texts, but popular agitation for *novae tabulae* is reasonably well attested (Caes., *BC* 3.21; Dio 42.32; cf. Cic., *Att.* 7.11.1, 10.8.2; Vell. 2.68); see also Cic., *Att.*7.3.5, etc.

[117] See Sall., *Cat.* 40.1, 41.1, etc. For the contrast between Italian and generally much worse provincial conditions see my chapter on the late republican economy in the forthcoming *Cambridge Economic History of the Greco-Roman World*.

[118] Howgego, op. cit. (n. 4, 1992), 14–15. He appositely alludes to the Tebtunis contracts analysed by L. R. Toepel, *Studies in the Administrative and Economic History of Tebtunis in the First Century A.D.* (diss. Duke, 1973), according to whom 308 out of 928 contracts registered there in A.D. 45–46 were 'certainly loans or potentially loans' (312).

[119] Rathbone, op. cit. (n. 110), 327. See further A. K. Bowman, *Egypt after the Pharaohs* (1986), 113–17.

[120] See the important discussion by J. Andreau and J. Maucourant, 'À propos de la "rationalité économique" dans l'antiquité gréco-romaine', *Topoi* 9 (1999), 47–102: 68–71.

[121] This was caused by delation not deflation. It has been suggested to me that the substantial sums lent by Augustus show that he believed that there was a serious shortage of credit, and that is possible, but the loans in question (Suet., *Aug.* 41; Dio 55.12.3a) can be explained even better as acts of enlightened self-interest quite natural for an aristocratic Roman used to dealing with *nomina*. It is hard to see how Nero's contribution of 40 million HS to the *aerarium* in A.D. 57 (Tac., *Ann.* 13.31.2) can have helped the credit market.

[122] cf. Andreau, op. cit. (n. 8), 94–8, and also R. W. Goldsmith, *Premodern Financial Systems* (1987), 44.

(Gaius in *Dig.* 13.4.3):[123] in fact that is just what we ought to expect in a system characterized by social lending and slow long-distance communication. Even if interest rates were by some standards high, it may not have been because the system was incapable of creating enough money.

So credit did add to the money supply. Keynes once asserted that 'the destruction of the inducement to invest by an excessive liquidity-preference was the outstanding evil [*sic*], the prime impediment to the growth of wealth, in the ancient and medieval worlds'.[124] In other words, the 'ancients' were reluctant to lend.[125] Such matters are relative, but as far as Rome is concerned, the assertion seems more wrong than right (and the 'failure' of the Romans to develop an industrial economy has quite other causes).

In Section I we saw a fair amount of evidence for non-coinage payments of sums large and not-so-large. *Nomina* were transferable, and by the second century B.C., if not earlier, were routinely used as a means of payment for other assets.[126] This fact is recognized in a simple statement by the jurist Pomponius.[127] The Latin term for the procedure by which the payer transferred a *nomen* that was owed to him to the seller was *delegatio*.[128] There was in fact a market in *nomina*.[129]

Clearly it is of considerable importance here, if we are to evaluate the importance of the multiplier effect, to know whether there was commonly serial *delegatio*. In other words, did people commonly make payments by means of *nomina* that had originated not in loans they had made themselves, but in loans made by others which they had accepted as payment?[130] We do in fact have evidence that by the mid-second century A.D. (and this may also have been true much earlier) this procedure was entirely standard, for it is referred to in Latin documents from both Egypt (A.D. 153) and Dacia (A.D. 162)[131] — and it was so routine that it is referred to in the Dacian document by a mere abbreviation, 'e.a.q.e.r.p.'.[132]

Private citizens could probably make payments at a distance by means of a *permutatio*, without making a payment with coins.[133] Commentators will continue to dispute exactly what was going on when Cicero telegraphically pointed out to Atticus the three possible methods of realizing a *nomen* which was in some way due to him from Caesar in 46 B.C. (*Att.* 12.3.2),[134] but the two main points are that he had a choice, and that we do not fully

[123] There seems to have been a customary rate of interest in some or all provinces (Ulpian in *Dig.* 26.7.7.10 end; cf. 27.4.3.1). It has been suggested to me that this passage of Gaius refers to *coined* money and attributes to the volume of coined money a crucial role in determining interest rates, but none of this is in the text.

[124] *The General Theory of Employment, Interest and Money* (1936), 351; more on the meaning of liquidity-preference, 166–8.

[125] As to what Keynes meant by liquidity-preference, and whether his views are still viable, there is a large literature, which can be approached through V. Monvoisin and C. Pastoret, 'Endogenous money, banks and the revival of the liquidity preference', in Rochon and Rossi, op. cit. (n. 49), 18–40.

[126] The earliest mention is in Cato, *De agr.* 149.2.

[127] 'quod vendidi non aliter fit accipientis quam si aut pretium nobis solutum sit aut satis eo nomine factum vel etiam fidem habuerimus emptori sine ulla satisfactione [i.e. security]', *Dig.* 18.1.19. Cf. Ulpian in *Dig.* 50.16.187: 'verbum "exactae pecuniae" non solum ad solutionem referendum est, verum etiam ad delegationem.'

[128] 'The term covers various transactions serving different purposes. The most practical form occurs when a creditor orders his debtor to pay the debt to a third party of whom he himself is a debtor', Berger, op. cit. (n. 17), s.v. The most relevant chapter of the *Digest* is 46.2, *De novationibus et delegationibus*. The exact meaning of *attributio* in financial contexts need not be debated here. Cf. Rauh, op. cit. (n. 115), 55, 65–6.

[129] Cic., *Att.* 12.31.2, Ulpian in *Dig.* 30.1.44.5 ('cum chirographa veneunt, nomen venisse videtur').

[130] J. Andreau answers this question negatively when he claims that 'there was never any circulation of instruments of credit', op. cit. (n. 9), 778 n. 56.

[131] *P. Fouad* I.45 = *FIRA* III no. 121 = *Ch.L.A.* XLII.1207; *CIL* III, pp. 934–5 (no. V) = *FIRA* no. 122 = *IDR* I.35.

[132] 'eive ad quem ea res pertinebit'. What this means is that the lender, one Iulius Alexander, required that the borrower repay the debt (the interestingly modest sum of HS 240) to whoever happened to own the debt on the due date. I am grateful to Elio Lo Cascio for insisting on the importance of the question which these texts seem to answer. Cf. Temin, op. cit. (n. 7), 721. *Dig.* 46.2, by itself, does not seem to settle the question.

[133] When Atticus sent the younger M. Cicero in Athens a certain sum, it was larger than the 80,000 HS of rental income which Cicero senior had transferred to him, quite likely in cash (*Att.* 16.1.5). The difference was a non-cash payment by one Cicero to the other via *permutatio*.

[134] See especially D. R. Shackleton Bailey in vol. 5 of his edition (1966), Appendix 1; Rauh, op. cit. (n. 115), 72–3.

understand the mechanisms in question.[135] In these circumstances, it does not seem to make sense to say that in the financial world of Rome 'there was no negotiable paper'.[136]

We can add the following material to our dossier:

(1) Plautus' audience could understand the lines in the *Asinaria* in which Exaerambus the wine-merchant pays a debt by 'writing *nummi*' ('scribit nummos', 440), but what matters more is that Leonida the seller considered that the sale had taken place when Exaerambus had promised to pay, evidently with the help of a banker (436–8).[137]

(2) The reference to sales in the Ephesian Debt Law[138] must mean that a considerable number of Ephesians could make purchases on credit — using money-lenders? — and this is much more likely to have been a normal part of their economy than a result of the Mithridatic War.

(3) In Horace, *Satires* 2.3 (64–76), Damasippus buys old statues, by means of credits naturally.[139] What the poet finds extraordinary is not the procedure but that anyone trusts this particular (representative) debtor.

(4) To confirm how far credit could extend into the world of everyday commerce we can cite the funerary monument of a first-century A.D. *argentarius*, L. Calpurnius Daphnus,[140] which has been acutely analysed by Andreau.[141] Daphnus was intimately involved in fish-mongering auctions in the capital, no doubt a very profitable business at the luxury and wholesale ends of the trade. How could an *argentarius* be concerned in such a mundane business? Obviously he provided credit for big-ticket purchasers.[142] He was a kind of living credit card, and it follows that some of the buyers bought on credit.[143]

(5) Thür and Rathbone seem to have demonstrated decisively that the commercial loan referred to in the 'Muziris' papyrus[144] was made in Alexandria, and Rathbone has argued that the lender himself purchased the merchant's shipment (which came from India), paying the equivalent of slightly less than seven million HS: 'this, or most of this, was probably paid through a bank as a paper transaction'.[145]

Scholars have sometimes been distracted by hunting for exact ancient equivalents of modern institutions. In his early works Raymond Bogaert argued that there was no such thing as a cheque in the Greek world, but further study led him to change his opinion, and it is now generally agreed that some such documents were used in Ptolemaic Egypt and in Palestine, although the evidence from Roman Egypt is very slight.[146] It is not crucial: we

135 There are quite a lot of texts that deserve further commentary (e.g. Paulus in *Dig.* 46.3.54), but do not need it here.

136 Howgego, op. cit. (n. 4, 1992), 3. Andreau, op. cit. (n. 8), 132, similarly says that there were 'no negotiable bills'; von Reden, op. cit. (n. 30), 146, that the Romans possessed 'nothing comparable to ... negotiable bills'.

137 cf. Barlow, op. cit. (n. 103), 77.

138 Above, p. 8.

139 'scribe decem a Nerio: non est satis; adde Cicutae/ nodosi tabulas, centum, mille adde catenas' (69–70). For legal commentary see G. Sacconi, *Ricerche sulla delegazione in diritto romano* (1971), 175–6.

140 *CIL* VI.9183 (*ILS* 7501); the monument is illustrated in J. Andreau, *Les affaires de Monsieur Jucundus* (1974), figs 11 and 12.

141 Andreau, op. cit. (n. 89), 111–16.

142 cf. ibid., 114. For another *argentarius* in cahoots with fishermen see Cic., *De off.* 3.58.

143 Suet., *Nero* 5 provides further evidence of purchasing through bankers.

144 See above, n. 98; G. Thür, 'Zum Darlehen *kata Mouzeirin* P. Vindob. G 40822', *Tyche* 3 (1988), 229–33; D. Rathbone, 'The "Muziris" papyrus (SB XVIII 13167): financing Roman trade with India', *Bulletin/Societé archéologique d'Alexandrie* 46 (2001), 39–50.

145 Rathbone, op. cit. (n. 144), 49.

146 Andreau, op. cit. (n. 9), 778, relying on the works cited above, n. 109. The argument from silence is probably enough to show that such things were not known in Italy. Andreau, op. cit. (n. 8), 42, is concerned that the Romans did not use cheques 'transmissible by endorsement', unaware apparently that these are not permitted in some advanced economies (they have not been allowed in New York State for some years now). But he observes (49) that the cheques analysed by Bogaert and Bagnall extend into fairly ordinary social strata.

are not seeking for anticipations of modern institutions. Scholars now agree that bankers in Graeco-Roman Egypt made 'virements', transfers of money by means of paper transactions,[147] and rather surprisingly, in a sense, we know that bankers made transfers between accounts *inside* their banks (*P.Tebt.* 890),[148] but the total sums of money involved in any given year cannot have been great. That is of little import, however: the point is that it was normal to ask your bank to make a payment for you.[149]

Nothing in the evidence suggests that any of these non-coinage payments were abnormal, at least for urban residents with a certain amount of property.

IV COMMODITY-MONEY, COINS, FIDUCIARY MONEY

To measure the significance of all this, we must briefly review the use of other kinds of money and near-money. We may as well do this in the order of their first historical occurrence.

The expression 'commodity-money' is sometimes used now to refer to money consisting of coined precious metals, but I shall keep that category separate and say something first about the use of other commodities as money.[150] Definition is not easy. Presumably we should exclude commodities used in barter, but perhaps we should include commodities used to make payments in kind. Text-books say that commodity-money 'is used as a medium of exchange and is also bought and sold as an ordinary good', and tend to offer gold as an example.[151] That seems to exclude the common types of payments in kind we know about in the Roman Empire, which were taxes and rents and not purchases.[152] We need not take a position here in the controversy over the relative importance of taxes in kind and taxes paid in money,[153] and no one doubts that there was plenty of taxation in kind.[154] In some current work on land leases in Roman Egypt, Peter van Minnen points out, in effect, that in the first and second centuries A.D. the lessees paid wholly or partly in kind in all cases (n=10) and in 68 per cent of all cases (n=44), respectively.[155] But payment in kind will not raise any eyebrows or define the system. What matters in the present context is whether commodity-money adds to the money supply. I suppose that the answer is yes, but in a particularly limited and useless way, since the recipient cannot spend it without converting it into some more liquid form (and often cannot even store it permanently, since it may be perishable).[156]

[147] See R. Bogaert, 'Les κολλυβιστικαὶ τράπεζαι dans l'Égypte gréco-romaine', *Anagennesis* 3 (1983), 21–64: 22–3 (repr. in *Trapezitica Aegyptiaca. Recueil de recherches sur la banque en Égypte gréco-romaine* (1994), 95–120: 96).

[148] cf. Andreau, op. cit. (n. 89), 564 n. 133.

[149] Andreau, op. cit. (n. 8), 39. The quite numerous surviving sales-contracts concerning land and buildings in Egypt tell us less than might be hoped about the relative importance of credit: all are of modest or very modest dimensions (cf. O. Montevecchi, *Aegyptus* 23 (1943), 45–6), and some are disguised loan arrangements (eadem, *Aegyptus* 21 (1941), 106). In the high Roman Empire, banks were often involved, but the majority of these small-ish payments are said to have been made in cash.

[150] This topic deserves further study: some new research will soon be published by David Hollander, to whose book manuscript I am much indebted. On bankers and commodity-money see J. Andreau, 'Les comptes bancaires en nature', *Index* 15 (1987), 413–22, repr. in *Patrimoines, échanges et prêts d'argent: l'économie romaine* (1997), 189–201; R. Bogaert, 'Les opérations en nature des banques en Égypte gréco-romaine', *Ancient Society* 19 (1988), 213–24 (repr. in *Trapezitica Aegyptiaca. Recueil de recherches sur la banque en Égypte gréco-romaine* (1994), 397–406); R. A. Coles in *P.Oxy.* 67 (2001), p. 152 (there was a regular system of transfers).

[151] Fischer *et al.*, op. cit. (n. 32), 142. But Mankiw, op. cit. (n. 33), 77, differs somewhat.

[152] For borrowing and lending in kind in Graeco-Roman Egypt see D. Foraboschi and A. Gara, 'L'economia dei crediti in natura (Egitto)', *Athenaeum* 60 (1982), 69–83.

[153] On this matter see among others Duncan-Jones, op. cit. (n. 73), 21, etc.; Hopkins, op. cit. (n. 9), 55–7 = 215–17; Rathbone, op. cit. (n. 9), 224.

[154] For taxation in kind in Roman Egypt see most recently Rowlandson, op. cit. (n. 112), 147–9.

[155] P. van Minnen, forthcoming.

[156] Yet some of the Egyptian bank transfers were probably private payments.

As for coinage, it is not my intent to deny that coinage was much more important in making payments than it ever is in a modern industrial economy.[157] It has already been suggested that a large segment of the population may never have had occasion to use money except in kind or in coin. Even if we confine ourselves to large-scale payments, coins were of course of great importance. Real property was sometimes paid for in cash (more on this below). Many provincials paid their taxes in this fashion, and provincial governors evidently received their substantial local allowances in coins (Cic., *Att.* 2.6.2 end), just as soldiers always had to be paid, or at least promised their pay, in the same way. However when Cicero, in syntony with the Senate, wanted to intervene in the credit market in 63 B.C. to stem the flow of funds out of Italy, and banned the export of gold and silver, sending a quaestor to Puteoli to put the regulation into effect,[158] this was partly, I suppose, political theatre, and partly an attempt to prevent the export of the kind of 'emergency gold' referred to earlier (but he may also have been trying to prevent the export of coins).

What is most interesting about the aggregate stock of silver coinage in the late Republic is that it apparently starts to decrease after about 79 B.C., having previously risen steadily for generations,[159] though there is no reason to think that there was any major decline in economic activity. Whatever exact motives led the authorities to mint coins, we may presume that this decrease would not have taken place if it had caused serious inconvenience to the well-to-do. The reason why it did not have this effect, I suggest, was that a large, and probably increasing, proportion of their sizeable financial transactions was being carried out wholly or mainly by means of documents.

It may have been normal in large transactions to pay some percentage in coin, according to the circumstances: thus when Cicero, some fifteen years after the purchase of his house on the Palatine, was contemplating another purchase on roughly the same scale (the 'Silius property'), he told Atticus that he wanted to pay in cash (*numeratum*) and not by *aestimatio* (12.25.1), a procedure which would have permitted the seller to choose any property of Cicero's that he liked, up to the agreed value (the valuation of that property having been carried out by a third party). 'You will squeeze 600,000 out of Hermogenes', he says, cryptically; 'and I see that I have 600,000 at home'. For the rest, he will borrow at interest from the seller, 'until', cryptically again, 'we pay by means of Faberius or with someone who is in debt to Faberius'.[160] Why did Cicero not simply pay with *nomina* in this case? Probably because he could not at this juncture afford to reduce his income (see *Att.* 12.25.1), and the Horti Silaniani were to be a convenient residence (12.29.2, cf. 27.3) not a productive property (see 12.31.2: 'sed mihi utrivis . . .').[161]

157 But the role of gold and silver coins was still considerable even in advanced countries until the First World War.

158 Cic., *Vat.* 12; cf. *Flacc.* 66.

159 K. Hopkins, 'Taxes and trade in the Roman Empire', *JRS* 70 (1980), 101–25: 109, who was necessarily puzzled (111). The numbers have been disputed (T. V. Buttrey, 'Calculating ancient coin production', *Numismatic Chronicle* 153 (1993), 335–51; 154 (1994), 341–52; *contra* Hopkins, op. cit. (n. 9), 53 = 212). For further discussion see among others D. Backendorf, *Römische Münzschätze des zweiten und ersten Jahrhunderts* (1998), 200–3; Verboven, op. cit. (n. 3, 2003), 57–62. K. Lockyear, 'Hoard structure and coin production in antiquity — an empirical investigation', *Numismatic Chronicle* 159 (1999), 215–43 (see esp. fig. 13), seems to have put the fact beyond reasonable doubt.

160 'dum a Faberio vel cum aliquo qui Faberio debet repraesentabimus', and, he adds, 'erit etiam aliquid alicunde'. Shackleton Bailey (who deleted *cum*) translated 'until we *pay cash* with what comes from Faberius or some debtor . . .', asserting that this is the normal meaning of *repraesentare*. It is clear in any case that, whatever Faberius' obligation to Cicero consisted of (*illud Faberianum* was a serious problem for Cicero: *Att.* 12.29.2), it was not a *nomen* that could be used in payment, even though it could be sold (12.31.2), presumably at a steep discount; it is equally clear that if and when Faberius paid off this obligation he might do so by means of a *nomen* ('aliquo qui Faberio debet'). Faberius was of course an assistant of the dictator. As for the meaning of *repraesentare, praesens pecunia* means 'ready money', but matters are, I suspect, more complicated than Shackleton Bailey allows (his claim that in *Dig.* 35.1.36 *repraesentare* means 'pay cash' cannot be right): the *OLD* understandably hedges a little with 'pay (a sum) in ready money, pay at once', and it might be better to translate 'settle an obligation', *vel sim.*; there is never, as far as I can see, any clear implication of coins.

One underlying reason for this growth in documentary transactions was clearly that in a Mediterranean-wide empire it was dangerous as well as inconvenient to send large sums of specie backwards and forwards over long distances. It was, of course, known to be risky to transport large sums of coin by sea,[162] and both officials and private citizens probably tried to avoid it whenever they could.[163] We have noticed that shipwrecked trading ships seldom seem to have carried many coins in high classical times. And when a numismatic scholar set out to list evidence that shows that 'coin might on occasion be carried from one region to another to purchase goods',[164] his harvest was remarkably meagre. It amounted to two texts concerning the Indian Ocean trade, and a single fragment of the republican dramatist Pomponius.[165]

How did all this change when Rome began to produce a regular gold coinage in 48 B.C., or at least in 46? It was now much easier to pay large bills in coin, if one wanted to, and few people would now doubt that gold coins took on a major role. One scholar has guessed that 'gold soon made up more than 25% of the money supply'.[166] The long-term effects can be judged to some extent from the finds at Pompeii, where gold coins, in terms of value, make up 69 per cent of all the coins found.[167] When substantial amounts of gold arrived in Rome as booty after republican wars, it did not quickly or directly turn into money. But the first major annexation of a new province after the introduction of gold coinage at Rome, the annexation of Egypt, resulted in a great increase in *res nummaria* and this drove down interest rates for a time (Suet., *Div.Aug.* 41).[168] It may be fortuitous that we hear of this, but it may also be the case that Egyptian gold found its way on to the Roman credit market more quickly and directly than precious-metal booty had under the Republic. Be that as it may, the availability of gold coins probably reduced the importance of documentary transactions, but not by much, for physical convenience was in fact no more than a subordinate reason for most kinds of non-cash payments. A large proportion of the texts I have cited to show the importance of non-cash payments belong in fact to this new period. Incidentally, my thesis will solve one of the problems posed by a leading authority, Richard Duncan-Jones: why were members of the Roman upper class so little aware of and so little interested in the changes in Roman imperial coinage that so interest numismatists?[169] The answer is that these changes mattered to them much less than we usually think.[170]

When the earliest Greek and Roman coins were minted, they presumably had the same value in the market-place as the equivalent quantity of metal. From very early on, however, states from time to time attempted to establish a conventional value for coins that, as metal, were worth less than their 'fiat' or 'fiduciary' value.[171] They could do this by debasement or by lowering the weight standard.[172] I refer to this matter here solely because

[162] Cic., *Fam.* 2.17.4, Plu., *Cat.Min.* 38.

[163] Sometimes of course it was necessary to ship large quantities of coin, especially in emergencies (e.g. Plu., *Brut.* 24, 25).

[164] C. Howgego, 'Coin circulation and the integration of the Roman economy', *JRA* 7 (1994), 5–21: 7.

[165] Lines 115–16 (*Scaen.Rom.Frag.* ed. Ribbeck, II, p.292). Plin., *NH* 33.46 is irrelevant.

[166] Verboven, op. cit. (n. 3, 2003), 62.

[167] Duncan-Jones, op. cit. (n. 73), 71, following L. Breglia and E. Pozzi. Yet some caution is needed: there were more rich people in Pompeii than in the average Roman town.

[168] For some useful commentary on this passage see J. Andreau, 'L'État romain face au monde de la banque et du crédit', in *État, fiscalités, économies. Actes du Ve Congrès de l'Association Française des Historiens Économistes* (1985), 3–11, repr. in *Patrimoines, échanges et prêts d'argent: l'économie romaine* (1997), 203–16: 212–14.

[169] Duncan-Jones, op. cit. (n. 73), 29, 198.

[170] I do not see how the *tesserae nummulariae* could be used against the main thesis of this paper. The most plausible way of explaining them, in my view, is that they were produced by assayers working for the *societates publicanorum*: Andreau, op. cit. (n. 8), 80–9.

[171] See now Seaford, op. cit. (n. 57), 136–46. Finley, op. cit. (n. 6), 196, simply asserted otherwise with no discussion.

[172] Also in theory by decreeing that coins of pure metal had more value than they would have had as bullion (Seaford, op. cit. (n. 57), 139–43).

the Roman state *may* by this means have increased the money supply without having had to find and process new supplies of gold, silver, and bronze. Under the Republic, public worrying about the purity of the coinage (as in the praetorship of Marius Gratidianus in 85 B.C.) suggests that the value of that coinage in the market-place had not up to that point departed very far from its value as metal. But in the high Empire Romans counted out coins, they did not weigh them out,[173] and while there is naturally some evidence that the purity of the coinage was still a concern under the Principate,[174] it may be that the *nummularii* who tested coins were mainly on guard against outright forgery.

The obvious possibility is that the gradual but in the end severe debasement of the silver coinage that took place from Nero's time onwards, together with the decline in the weight of the denarius,[175] radically increased the fiduciary element in the coinage's value, as scholars have from time to time supposed.[176] The antoninianus in any case was probably fiduciary coinage.[177] The only place one can really be sure one way or the other (because it is the only place where prices can be correlated with the purity of the coinage) is Egypt, and there it is quite certain that prices did not track debasement.[178] Fiduciary coinage would not of course have increased the money supply if the value of the coinage in circulation remained approximately the same (or increased less than the percentage of the debasement), with the government simply using less silver. But that is not what happened:[179] the (nominal) value of the coinage in circulation continued to increase throughout the period under consideration here. At the same time it is clear that after about A.D. 200, if not before, well-informed people had to some extent become suspicious of debased coins.[180]

V QUANTIFICATION

The financial system of the Roman Empire is only loosely comparable with that of a modern state, but to some extent the same causes have the same effects. The credit system of a modern state brings into effect a money multiplier, as was mentioned earlier (p. 5):[181] for every dollar of reserves, there are several dollars of extra money. Freyberg, aware of some of the evidence for Roman credit-money, had at least the merit of asking whether the Roman credit system too can have had a multiplier effect. 'Wahrscheinlich kaum', he says,[182] but on quite insufficient grounds — there were no clearing centres. The Wisselbank of Amsterdam, founded in 1609, was somewhat precocious;[183] London had no

[173] K. Strobel, 'Geldwesen und Währungsgeschichte des Imperium Romanum im Spiegel der Entwicklung des 3. Jahrhunderts n.Chr.', in K. Strobel (ed.), *Die Ökonomie des Imperium Romanum* (2002), 86–168: 97.

[174] Tertullian, *De paenitentia* 6.5 is not much to go on. But see Petr., *Sat.* 56; Martial 12.57.7 (Neronian coins under suspicion).

[175] See Duncan-Jones, op. cit. (n. 73), fig. 15.4 (cf. 15.7), for the former effect, down to the reign of Severus Alexander, fig. 15.2 for the latter. Occasionally these processes were reversed for a time. Coins also became more variable within emperors' reigns.

[176] See, for example, Freyberg, op. cit. (n. 8), 87–9. Cf. Lo Cascio, op. cit. (n. 5), 79.

[177] Not all agree: see E. Lo Cascio, 'Dinamiche economiche e politiche fiscali fra i Severi e Aureliano', in *Storia di Roma* III, 1 (1993), 247–82: 261–7.

[178] See for example Lo Cascio, op. cit. (n. 177), 275.

[179] See especially Duncan-Jones, op. cit. (n. 73), 103–5.

[180] Evidence was gathered by Duncan-Jones, op. cit. (n. 73), 218 n. 25.

[181] For a fuller account see Fischer *et al.*, op. cit. (n. 32), 173–5.

[182] op. cit. (n. 8), 93. Freyberg's other complaint is that Roman finance lacked 'legal and technical standardization', which could also be said about modern capitalism. E. Lo Cascio also argues that there was no multiplier effect, or none that mattered ('How did the Romans view their coinage and its function?', in C. E. King and D. G. Wigg (eds), *Coin Finds and Coin Use in the Roman World* (1996), 273–87: 279–80), on the grounds that this would require 'the possibility of a direct transfer of credit', but (a) practitioners of *delegatio*, and probably bankers too, did effect such transfers, and (b) standard accounts of the money multiplier do not in any case make it depend on *how* the bank or bank-like lender conveys funds to the borrower.

[183] See J. de Vries and A. van der Woude, *The First Modern Economy* (1997; original edn, 1995), 131.

clearing bank until 1770,[184] and the United States' first clearing house was established in New York in 1853.[185] In other words, Freyberg too fell into the trap of looking for modern institutions in antiquity. What matters here is not whether there were clearing centres (which would no doubt have been a considerable convenience in Rome or Alexandria), but whether lenders had more recoverable debt than they had state-issued money, i.e. coin, in reserve — and the answer to that is obviously that most of the time they did.[186]

But how much did credit-money add to the money supply of the Roman Empire? Some will respond to the argumentation of the previous sections by claiming that the addition was small. My view is that (a) we cannot know this, and (b) even if the addition was limited, that would not greatly diminish the strategic importance of credit-money in the Roman economy.

In this context 'small' must mean 'small' in relation to GDP and/or to the stock of coinage. Since we do not seem to possess any clear information as to the normal ratio of the money supply to GDP in any early modern economy (our best type of comparison), and we have in any case only the most general notion of the size of the GDP of the Roman Empire,[187] we should turn our attention to the stock of coinage. But here too there is a marked lack of scholarly consensus. Duncan-Jones's detailed argumentation led him to the conclusion that the value of the gold and silver coins in circulation in the second-century Roman Empire was in the order of 19 billion HS, and that there was probably an additional 2 billion HS of bronze coinage.[188] This would mean that there existed something close to 350 to 420 HS of coinage per person (depending on one's estimate of the whole population). I at first found these figures implausibly high, but comparisons with pre-industrial Holland and England, which I do not reproduce here, convinced me that they are at least possible. Other scholars, however, have on the whole rejected them.[189] (Duncan-Jones's proposals for the volume of coin production have also been criticized,[190] though the critics have not, as far as I know, dared to say what levels of production they would find more plausible.) This is not a problem to be solved here. Duncan-Jones was, of course, fully aware in principle that from Nero's reign onwards the government commonly had strong motives to re-mint coins,[191] but he perhaps underestimates the likely tendency of hoarders to prefer old coins to new — for many undoubtedly knew that the older a coin was the purer it was likely to be (this tendency could easily co-exist with a partially fiduciary coinage). The claim that 'hoards normally represent cross-sections of coin in circulation at a particular date'[192] is probably to a significant degree false. No need to debate here the contention, which has found very little favour,[193] that precious-metal hoards represent military donatives. Re-minting probably had a much greater effect than Duncan-Jones allows.

Most scholars probably still prefer an estimate of money stock in the range 6 to 8 billion HS — which (paradoxically, since he did not know the evidence even at second hand) appears to derive from R. W. Goldsmith[194] — while they recognize that these figures are

[184] Davies, op. cit. (n. 39), 321–2 (even then its function was quite limited).

[185] G. Gorton, 'Clearinghouses and the origin of central banking in the United States', *Journal of Economic History* 45 (1985), 277–83: 278.

[186] I have already cited the evidence of the Ephesus Debt Law and of Scaevola in *Dig.* 40.7.40.8.

[187] Hopkins argued rather cogently that 'as a metaphor' we might conclude that Roman GDP was greater, perhaps much greater, than 9 billion HS p.a. in the High Empire (150 HS per person): op. cit. (n. 9), 44–6 = 197–9.

[188] op. cit. (n. 73), 168–70 (12.012 billion HS of gold, 6.864 billion of silver).

[189] Jongman, op. cit. (n. 105), 186, accepts it and then professes to be surprised by the consequences.

[190] For example by W. E. Metcalf in *Schweizerische Numismatische Rundschau* 74 (1995), 145–59: 156, and C. Howgego, *JRS* 86 (1996), 208–9.

[191] op. cit. (n. 73), 104, 197–200.

[192] Duncan-Jones, op. cit. (n. 73), 115; for the arguments that support this see 77–85. C. Howgego makes a similar assumption ('The circulation of silver coins, models of the Roman economy', in King and Wigg, op. cit. (n. 182), 219–36: 220–1), even though he knows that it can sometimes be falsified (221 n. 12).

[193] See, against, C. Howgego, *JRS* 86 (1996), 208.

[194] op. cit. (n. 122), 40–1. This would have been in A.D. 14.

very hypothetical.[195] Goldsmith, incidentally, who imagined a financially primitive Roman Empire, was nonetheless content to imagine that the value of financial instruments was not much less than 10 billion sesterces.[196] Needless to say, these figures are not robust enough to support an argument. But the reader will see, I trust, that there are no data of any kind that should make us suppose that credit-money was relatively small in quantity.

But it does not really matter. The concept 'money supply' is in a sense too modern to apply to the Roman Empire. What matters, after all, if we are thinking about the rate of development that was possible in the Roman economy, is not (as it might be in a mass-market modern economy) whether the consumer has money and credit at his/her disposal, but whether the decurion-class buyer and the small entrepreneur can find money to borrow when they need to (at a reasonable price — that is another avenue of enquiry). And the evidence combines to suggest that they could. As Andreau has pointed out, we hear of capital unable to find borrowers (Petr., *Sat.* 53, Plin., *Ep.*10.54 and 55 — admittedly a special kind of case), not the reverse.[197] The likelihood is that the big borrowers, and those who needed funds for business or agricultural purposes, usually found lenders at tolerable rates unless they were recognized credit risks. That leaves plenty of room for bankruptcy and impoverishment, but it does mean that the economic failures of the Roman Empire, in the period in question, are unlikely to be traceable in the main to a shortage of money.

VI THE THIRD-CENTURY MONETARY CRISIS: AN OVERVIEW

To round out this picture, we should ask what happened to the money supply after the Severans, down to A.D. 301. The system I have described eventually underwent fundamental changes, indeed largely ceased to function, and it is essential to suggest how and why.

After about A.D. 260 *argentarii* disappear from the sources, and after A.D. 300 *nummularii* too;[198] there is every reason to think that they had succumbed to a deteriorating economy. This does not mean that banking had wholly died out (we know it had not), and we know from the Currency Edict what we could not in any case have doubted, that lending and borrowing continued,[199] but the disappearance of bankers from the evidence does suggest that, by A.D. 300 at least, the volume of credit-money had drastically shrunk. The unexpected burst of inflation under Commodus must have hurt creditors severely, and the obvious problems of the mid-third-century economy, in particular political uncertainty, decreased agricultural production, and greatly diminished long-distance trade, did further damage. One wonders how much of the credit structure was left by the time of the new inflation under Aurelian.[200]

Why was there a viciously sharp acceleration in prices in the A.D. 270s, a roughly tenfold increase in A.D. 274/275?[201] (No need to quibble here as to how closely the rise in Egyptian prices corresponded to an empire-wide phenomenon.) A conventional Fisher explanation

[195] cf. Lo Cascio, *CM*, 6. Hopkins, op. cit. (n. 9), 75 = 227 n. 90, judged 21 billion much too high an estimate, drawing attention to what it would mean for individuals, especially since 'significant sectors of the rural economy were non-monetized or under-monetized' (an assertion about which I have some reservations).

[196] op. cit. (n. 122), 57.

[197] op. cit. (n. 8), 93. For further evidence see D. P. Kehoe, *Investment, Profit, and Tenancy: the Jurists and the Roman Agrarian Economy* (1997), 52 (where, however, the dates of the texts quoted may have some relevance).

[198] J. Andreau, e.g. 'Declino e morte dei mestieri bancari nel Mediterraneo occidentale (II–IV d.C.)', in A. Giardina (ed.), *Società romana e impero tardoantico* (1986), I, 601–15 (repr. in *Patrimoines, échanges et prêts d'argent: l'économie romaine* (1997), 133–55); op. cit. (n. 89), 46, 49; op. cit. (n. 8), 33–4.

[199] See K. T. Erim, J. Reynolds and M. H. Crawford, 'Diocletian's currency reform: a new inscription', *JRS* 61 (1971), 171–7: 173 (fragment b, ll. 3–10).

[200] For a number of relevant considerations see Carrié, op. cit. (n. 82), 266–7.

[201] For the scale and chronology see above all D. W. Rathbone, 'Monetisation, not price-inflation, in third-century A.D. Egypt?', in King and Wigg, op. cit. (n. 182), 321–39, and 'Prices and price-formation in Roman Egypt', in J. Andreau (ed.), *Prix et formation des prix dans les économies antiques* (1997), 183–244.

would link the event to an abrupt increase in the money supply. But the two phenomena seem so vastly disproportionate — in fact we do not know that money supply in the Roman Empire increased at all in the period directly prior to the rise in prices (as distinct from earlier decades). There was a greatly increased production of Alexandrian tetradrachms from A.D. 265 onwards, but not enough to multiply the money supply eight to ten times — and in any case we are looking for an empire-wide cause.[202]

Neither can we simply attribute the inflation of the A.D. 270s to the lighter weight of the *aureus* or to the debasement of the silver coinage, because they had already been marked tendencies long before. Those on the other hand who have denied that debasement had anything to do with the matter[203] in effect ignore an event of a kind unknown to Fisher, namely an abrupt loss of confidence in the silver coinage,[204] leading to what we might call a post-fiduciary coinage, in which the government was obliged to improve the coinage's precious-metal value. The cup of debasement had finally run over (and it is tempting to think that the remarkable revolt of the Roman mint officials, about which we know very little,[205] reflects an unprecedented crisis). It was a matter of panic, in all probability, certainly not of cold reasoning (so it scarcely matters that Aurelian's coins were not visibly much worse than his predecessor's). Egyptian bankers were already sceptical about the value of the coinage in circulation in A.D. 260 (*Sel.Pap.* II.230). We can see references to 'old' and 'new' money in Egyptian documents of the A.D. 260s and later[206] as signs of anxiety about the viability of the coinage. Under Claudius Gothicus and under Aurelian the tetradrachm once again shrank and lost more of its already minute silver content.[207] All it needed was the bankers' refusal to accept legitimate coins; then, as in A.D. 260, tax-gatherers, and presumably borrowers too, would soon be in trouble and have to follow suit. What is most remarkable about all this is that the loss of confidence was apparently Empire-wide, which may have something to teach us about the nature of the imperial economy's 'integration'.

This was by no means the final end of all attempts at fiduciary coinage, but it was in effect the end of a period. We know that Diocletian intended his silver coinage to have some fiduciary value, 60 per cent above its bullion value;[208] whether his wishes were fulfilled and for how long is another matter.

As Carrié has observed,[209] one might have expected that after Diocletian introduced the *solidus* credit markets would have re-established themselves, but apparently they failed to do so on any large scale. This non-event and its explanation deserve further enquiry. Can the disappearance of specialized personnel be a sufficient explanation? Had it become significantly more difficult to recover loans at law?

[202] Increased coin production in Alexandria: J. E. Lendon, 'The face on the coins and inflation in Roman Egypt', *Klio* 72 (1990), 106–34: 111. But there is no confirmation of this in E. Christiansen, *Coinage in Roman Egypt: the Hoard Evidence* (2004).
[203] Von Reden, op. cit. (n. 30), 158.
[204] cf. J. Schwartz, 'La monnaie et l'évolution des prix en Égypte romaine', in *Les "Dévaluations" à Rome* (1978), 169–79: 178.
[205] The sources are listed in *PIR*² F 140.
[206] For the fullest list of references see Rathbone, op. cit. (n. 201), 336.
[207] Rathbone, op. cit. (n. 201), 326–8. The Palmyrene occupation of Egypt between A.D. 270 and 272 presumably diminished confidence in the central government.
[208] Lo Cascio, op. cit. (n. 5), 79 n. 22, showed that Diocletian wished his silver coinage to be fiduciary; see further Lo Cascio, op. cit. (n. 182), 284–5. Cf. J.-J. Aubert, 'Monetary policy and Gresham's Law in the late third century A.D.', in *CM*, 245–63: 253.
[209] op. cit. (n. 82), 267.

VII CONCLUSION

Greek historians have frequently argued, Edward Cohen demurring, that classical Greece depended for its money exclusively on coins. By an extraordinary glissando they have often included the Roman Empire in their generalizations as well, as if it were some sort of appendage.[210] We have seen that there is every reason to think that credit-money in particular enabled the Romans to extend their money supply far beyond the limits of their monetized metal. The real connection with the earlier Greek world, not explored in this article, is through the borrowing of financial practices from the Hellenistic kingdoms and cities.

The purpose of this article has not been to demonstrate that *per capita* growth occurred in the late Republic or under the Principate (though such growth probably did occur in the second of these periods), but rather that shortage of money was not to any important extent a brake on growth. What impeded sustained economic growth in Roman antiquity was not a shortage of money, but mainly the failure to adopt technologies, especially a fuel technology, that would have allowed the Romans to escape from the Malthusian impasse.

Nonetheless it is worth clearing some cobwebs out of the attic. Hitchner has recently maintained that a monetary system that consisted purely of coinage would have been no impediment to economic growth,[211] but it is unlikely that many scholars agree with him. Most will continue to think that the nature of the monetary system had at least some impact on the possibility of growth. What this article has attempted to demonstrate is that the Roman monetary system was far indeed from relying entirely on coinage. Romans, especially those whose credit was good, frequently made payments without coinage. It is difficult to define money and the money supply (and the strategy here has not been to import ready-made definitions from contemporary economics but rather to work out, with the assistance of contemporary economics, definitions that are appropriate to the Roman economy), but we may reasonably think that credit-money added very significantly to the Roman Empire's money supply. Perhaps the case set forth here can be disproved, but there is a lot to explain away.

Columbia University
wvh1@columbia.edu

[210] An extreme example is S. Meikle, 'Modernism, economics and the ancient economy', *Proceedings of the Cambridge Philological Society* 41 (1995), 174–91, repr. in Scheidel and Von Reden, op. cit. (n. 9), 233–50, who sways dizzily backwards and forwards between classical Athens, 'the Greeks', and the ancient world in general.

[211] R. B. Hitchner, '"The advantages of wealth and luxury": the case for economic growth in the Roman Empire', in J. G. Manning and I. Morris (eds), *The Ancient Economy: Evidence and Models* (2005), 207–22: 211.