

MONEY AND EXCHANGE IN THE ROMAN WORLD ¹

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A wide variety of objects may function as money in the different uses which this possesses—for payment, for storing wealth, for measuring value and as a means of exchange.² In the Roman world coined money was clearly dominant over other forms of money in the first three uses, and I want here to explore the extent to which it served as a means of exchange, partly because this is the most distinctive function of money and one for which coined money or a token substitute is essential to achieve any great versatility, partly because the problems involved seem particularly complex. It is not sufficient simply to discuss how coined money was used as a means of exchange. Attitudes to the process are equally relevant. Nor should the absence of ancient discussions of monetary theory mislead us into minimizing the practical importance of coined money in the ancient world.

The evidence for how coinage was used as a means of exchange is of course partly literary and documentary, but comes also from finds. Most finds fall into one of two categories, hoards or stray finds (the latter may be finds either of single coins or of several coins from the same locality). A hoard can be regarded, more often than not, as deposited soon after the date of the latest coin in it.³ But it does not necessarily reflect normal circulation. A man could select from circulation certain coins to hoard, although the many hoards which I have examined do not suggest that this practice was common. But he could and clearly sometimes did sort his coins into types and bury each type separately in the same area.⁴ A pot of coins recovered now may thus only be part of a hoard. A stray coin, a coin which was lost, is excellent evidence of normal circulation (unless an intruder from a different monetary area). But its loss is almost undatable. A coin in the ancient world could have a very long life⁵ and the degree of wear of a single coin is not a reliable index of its age. Groups of coins from well-excavated and well-recorded strata are sadly infrequent.

The period I should like to consider is roughly that of the late Republic and High Empire, from about 200 B.C. to about A.D. 200. I have chosen it mainly because it is in one respect very simple. It was a period in which the Roman coinage-system underwent no sudden, major changes. In dealing with the period I shall look first at the cities of the Empire and shall try to answer the question which seems important to me, how coinage functioned there as a means of exchange. I shall then look at the rest of the Empire and shall try to see how far the pattern found in the cities is repeated outside them. I shall conclude that an economic and social system in which coined money played a major rôle as a means of exchange, although it existed in the Roman world, was not common.

The Roman coinage system which came into being during the Second Punic War⁶ consisted essentially of a bronze unit, the as, with a set of smaller denominations in bronze, and of a silver unit, the denarius, with a set of smaller denominations in silver. The as was a tenth of a denarius; the smallest bronze piece produced in significant quantities, the sextans, was a sixth of an as and therefore a sixtieth of a denarius. During the next four centuries only four changes occurred which need be borne in mind.

In the course of the second century B.C. the value of the bronze coinage fell in relation to that of the silver coinage, with the result that the as was re-tariffed at a sixteenth of a denarius.⁷ In due course the sextans ceased to be struck and the quadrans, a quarter of an as, became the smallest bronze piece to be produced. But because of the drop in value of the

¹ Earlier versions of this paper were read to seminars in Cambridge and London and to the Oxford Philological Society. I should like to thank all those, too many to cite individually, who have helped to alter and, I hope, improve it. All remaining errors of fact or judgment are my own. It would be possible to expand this paper more or less indefinitely, but I suspect that it would suffer in the process. Documentation and references to earlier literature are therefore kept to a minimum.

² See K. Polanyi, 'The semantics of money-uses', *Primitive, archaic and modern economies* (New York,

1968), 175-203; M. M. Postan, *Econ. Hist. Rev.* 1944-5, 123.

³ For a full-scale discussion of coin hoards and coin hoarding see *PBSR* 1969, 76.

⁴ M. Thirion, *Les Trésors monétaires gaulois et romains trouvés en Belgique* (Brussels, 1967), 24-6.

⁵ The coins buried with the defenders of Alesia (see below) cover a period of a century.

⁶ *JRS* 1964, 29.

⁷ T. V. Buttrey, *The American Numismatic Society Museum Notes* 1957, 57.

bronze coinage, the relationship between the denarius and the smallest bronze piece remained almost the same, 1 : 64 instead of 1 : 60. The position of the quadrans as the smallest coin in normal use rapidly found its way into the literature of the Roman world and appears as such, for instance, in Cicero's gibe at the *permutatio quadrantaria* of Clodia, who sold herself for a quadrans; Plutarch specifically described the quadrans as the smallest Roman bronze coin.⁸ The semis replaced it in this position in the second century A.D.⁹

With the end of the Republic the regular production of a gold piece, the aureus worth 25 denarii, began. The silver fractions of the denarius, which had filled the gap between the denarius and the as, were largely replaced under Augustus by *orichalcum* multiples of the as, the sestertii¹⁰ and dupondii, which are among the most familiar components of the Roman Imperial coinage.

In the period under consideration, then, there existed in the Roman world a coinage-system with two properties which were absolutely essential if it was to function as a means of exchange. It was stable and it consisted of a wide range of denominations. Most of these denominations turn up in hoards in sizeable, if varying, quantities. But it is still necessary to know whether the denominations struck included some which were suitable for day-to-day transactions. For a coinage-system which is only suitable for major transactions such as buying a house or paying over a dowry can hardly be regarded as a widely useful means of exchange.

The evidence of prices is never very good, but for present purposes it does not matter much that the record is as erratic as it is, provided that it is possible to show that the coins available to a Roman were suitable for the purchase of day-to-day necessities. Two examples from the middle of our period may be taken as typical. A confused passage of Pliny on the different kinds of flour suggests a price of just over two asses for enough *similago* to make a pound of bread.¹¹ This perhaps involves, when allowance is made for Pliny's confusion, a price of rather more than 30 asses for a modius of wheat. An inscription from Pompeii records a price for wheat of exactly 30 asses a modius.¹² At about the same time Columella states that he can sell wine for 60 asses an amphora, Martial, towards the end of the first century A.D., mentions that wine sells for 20 asses an amphora.¹³ The cost of a litre thus ranges from a little over two asses to a little under one as. An inscription, again from Pompeii, records a price of one as for a measure of ordinary wine, two asses for a measure of good wine, four asses for a measure of Falernian wine.¹⁴ Whatever a measure of wine was, we are dealing with the same general price range. It thus seems clear that for such necessities as bread and wine the prices in Italy in the first century A.D. were well above the bottom of the range of denominations available. In the period to which the prices belong both the half-piece of the as, the semis, and the quarter-piece, the quadrans, were struck; both were necessary to prevent inflexibility and therefore high prices.¹⁵

We can now turn to consider the different kinds of evidence for the way in which money was used in the cities. We know for at least one figure of classical antiquity that he

⁸ Cicero, *pro Cael.* 62, with commentary by R. G. Austin; Plutarch, *Cic.* 29, 4; note *terruncius* at Cicero, *ad Att.* v, 17, 2; 20, 6; see G. Elmer, 'Die Kleinkupferprägung von Augustus bis Nero', *Num. Zeit.* 1934, 18.

⁹ Note the replacement of the quadrans as the charge for the men's bath (Horace, *Sat.* i, 3, 137; Seneca, *Ep.* 86, 9; Juvenal 6, 447) by the semis in *FIRA* 1, 106 (*Lex metalli Vipascensis*, mid-second century A.D.), 22-3.

¹⁰ The reasons for the adoption (under the Republic) of the sestertius as a unit of account are still mysterious (see article cited above, n. 7). If Buttrey is right in associating it with the (downward) re-tariffing of the as, a deliberate attempt to obscure the change may be involved. The practice never caught on at all in the Greek East and even in the West tended not to be used in recording small payments (see, for instance, R. Duncan-Jones, *PBSR* 1965, 305, on *sportulae* calculated in denarii).

¹¹ Pliny, *NH* xviii, 89, with L. A. Moritz, *Grain-mills and Flour in Classical Antiquity* (Oxford, 1958), 145-215.

¹² *CIL* iv, 4811 (*triticum*); compare 1858 + p. 213 + p. 464, 12 asses for a modius of grain (*frumentum*); Tacitus, *Ann.* xv, 39, 2, the same price, in this case artificially low. The prices recorded by A. H. M. Jones, *Econ. Hist. Rev.* 1952-3, 295, are perhaps on the low side.

¹³ Columella III, 3, 8; Martial XII, 76, where also an extraordinarily low price of four asses for a modius of grain is mentioned. Pliny's amphora of good wine (*NH* xiv, 56) has an exceptionally high price.

¹⁴ *CIL* iv, 1679 with p. 463.

¹⁵ Some flexibility in pricing could be achieved by varying the quantity for a given price (J. Keil, *Forschungen in Ephesos* III, 102, no. 10).

could acquire the necessities of life entirely by purchase. According to Plutarch, Pericles sold all the yearly produce of his estate *en bloc* and then bought what he needed in the market-place.¹⁶ A city could of course function without this possibility, as in the ancient Near East. But if Pericles' way of life was possible in Athens in the fifth century B.C. a similar existence was probably possible in the far richer and more sophisticated cities of the Roman Empire. The fact that Trimalchio chose to live entirely off his estates does not prove that a household economy was normal for any class.¹⁷ Taken as a whole, the literary and documentary sources seem to show that coined money came to be essential to the life of the cities at all social levels. The picture is inevitably composite, but its validity is strikingly confirmed by the evidence of coin finds.

It hardly needs demonstrating that for the aristocracy of the Ciceronian period money in the form of coin was a vital necessity. It was needed to meet the expenses of politics as well as of daily life.¹⁸ The whole economic activity of Cicero and his correspondents is carried on in monetary terms. The same seems to be true at the other end of the social scale. At Rome in 85 B.C. the praetor Gratidianus was forced to act to stabilize the exchange rate between the silver and the bronze coinage which was fluctuating wildly, presumably because of the chaotic conditions in 88–86 B.C.¹⁹ His reward was to be almost deified by a grateful populace, presumably because the standing of the bronze coinage, the coinage of everyday transactions, was crucially important to it. A similar situation recurred at the other end of the Empire two centuries later. A Hadrianic inscription from Pergamum records a petition from the traders, retailers and fishmongers to the Emperor to prevent the bankers charging more than the established rate for changing asses and denarii.²⁰ We are presented with a picture of a society in which monetary transactions at a very humble level were central to its well-being. The same impression is conveyed by the inscriptions from Pompeii, of which I have already mentioned two. There is a whole group, some recording the prices of various wares, corn, wine, oil, soup, clothing, etc., some giving the prices of businesses to let, some offering rewards for the recovery of stolen property.²¹

The evidence of coin finds suggests that similar conditions prevailed throughout the cities of the Empire. All those which have been excavated have produced a rich crop of coins, so rich that the excavators are usually too embarrassed to publish them in detail. At the same time there are few cities, excavated or not, from which the discovery of one or more hoards is not recorded. In view of the consistent pattern of stray finds from excavated city sites hoards are for the moment less important.

In interpreting the coin finds from the excavations of city sites we are extremely fortunate in having Pompeii as a model to work from. The life of the city was simply stopped and almost everything preserved as it was when the eruption of Vesuvius happened. The most striking feature of the coin finds is the way in which all metals and denominations are jumbled together. A typical find, associated with three corpses, consisted of 1 aureus, 6 denarii and 10 assorted bronzes.²² Naturally some of the finds are very rich; it is worth recalling in this context the contemporary treasure of coins and silver plate from the villa of Boscoreale close by. But, taken as a whole, the coin finds from Pompeii show a far greater proportion of bronze coins, particularly bronze fractional coins, than is to be found in the Italian hoard material of the first century A.D. and it is legitimate to conclude that we have a record of the money circulating in Pompeii in A.D. 79.

Given this, it is possible to make certain inferences from the coin finds of other excavated city sites. If bronze coins and particularly bronze fractional coins are present in large numbers we can argue that coinage played there a significant rôle as a means of

¹⁶ Plutarch, *Per.* 16.

¹⁷ Petronius, *Satyricon* 38.

¹⁸ See, for instance, W. Kroll, *Die Kultur der Ciceronischen Zeit* (Leipzig, 1933 = Darmstadt, 1963), 98–9.

¹⁹ *Proc. Camb. Phil. Soc.* 1968, 1.

²⁰ OGIS 484 = E. M. Smallwood, *Documents illustrating the Principates of Nerva, Trajan and Hadrian* (Cambridge, 1966), no. 451.

²¹ L. Breglia, 'Circolazione monetale ed aspetti di vita economica a Pompei', *Pompeiana* (Naples, 1950), 50–63.

²² *Not. Scav.* 1881, 28. Compare the Republican hoard from Pompeii, M. H. Crawford, *Roman Republican Coin Hoards* (London, 1969), no. 245—1 denarius, 2 asses, 4 semisses, 9 trientes, 7 quadrantes, 1 uncia; and the group from a *dolium* in a shop-counter of 374 asses and 1237 quadrantes, L. Breglia, 'Circolazione monetale', 69. There is a hoard of denarii, sestertii and asses from Herculaneum in the museum at Chantilly.

exchange. If the coins cover roughly the period covered by the site we can argue that they played this rôle throughout. An example is provided by Rome itself where we have already seen evidence of the widespread use of coinage as a means of exchange. The Forum, when excavated, turned out to be littered with coins, about 11,000 in all, mostly bronze and including small denominations.²³ The same picture is presented by the finds from the Tiber, nearly all bronze and including many bronze fractions.²⁴ The excavations of Pergamum and of the other great Eastern sites whose coins have been published show the same pattern, large numbers of bronze coins of all denominations.²⁵ Nor is the pattern confined to large sites. Excavations at the small town of Morgantina have produced several hundred coins, mostly bronze,²⁶ at Cosa they have produced one hoard of about 2,000 denarii and the familiar run of bronze coins from stray finds.²⁷

But even in the cities some surprising disadvantages attended the use of coinage as a means of exchange and outside the cities coinage seems to have had this use hardly at all. Cicero held that *collybus*, bankers' commission, was inadmissible in transactions involving only one coinage²⁸ and the people of Rome who forced M. Marius Gratidianus to act to stabilize the exchange rate between the denarius and the as (see above) presumably held that the exchange rate should be constant. But the reality was otherwise. Not only were bankers entitled to charge commission for changing bronze for silver,²⁹ but the exchange-rate varied quite markedly from place to place and time to time.

At Cibra in A.D. 74 the denarius was worth 16 asses, the official rate; at Ephesus and Pergamum in the early second century A.D. it was worth 18 asses; while on Syros in the late second century A.D. it was worth 16 asses again.³⁰ The range of variation in Egypt was about the same.³¹ One of the Transylvanian tablets recording the adventures of the money-lending business of Cassius Frontinus and Julius Alexander mentions a penalty for fraud of one denarius per as, twenty denarii per denarius. The implication is that the denarius was here worth 20 asses. Another Transylvanian tablet records payments actually made in denarii, half-denarii, twelfth-denarii and twenty-fourth-denarii. The denarius must here have been reckoned as 12 or 24 asses, surely the latter.³²

The evidence of coin-finds provides striking evidence for rural conditions. It seems fairly clear that high value coins travelled fast. A group of the defenders of Alesia, killed in the capture of the town in 52 B.C., were buried in a communal grave. The coins found with them, which are all silver, reach in a continuous sequence from 150 down to 55 B.C.³³ But I do not believe that even in Italy small change normally travelled fast to country areas or was present there in particularly large quantities. There is some evidence that the enormous bronze issues associated with the new denarius coinage during and after the Second Punic War spread fairly fast.³⁴ But a picture which may be more typical is presented by a recently excavated villa at Francolise near Capua. It was occupied for a short time in the late Republic and the Julio-Claudian period and produced about 30 coins from the occupation levels. But of these, only one dated from the period of occupation. The rest were all struck 50 to 100 years before occupation began.³⁵ And yet the villa was in occupation

²³ *Antichità* II, 1950, 3, 3.

²⁴ Unpublished; in the Museo Nazionale di Roma.

²⁵ *Altertümer von Pergamon* I, 355 and 329 = *Blätter für Münzfreunde* 1914, 56 and 67. For a select bibliography of coin finds from excavations, see P. Grierson, *Bibliographie numismatique* (Brussels, 1966), 39-40.

²⁶ T. V. Buttrey, K. Erim, R. Ross Holloway, *Morgantina. The Coins* (Princeton, 1970), forthcoming.

²⁷ For the hoard see M. H. Crawford, o.c. (note 22), no. 313. This and the stray finds are in the American Academy in Rome.

²⁸ Cicero, *in Verr.* II, 3, 181.

²⁹ *OGIS* 484 (cited in n. 20).

³⁰ Cibra—*IGRR* IV, 915; Ephesus—*The collection of ancient Greek inscriptions in the British Museum* III, 481; Pergamum—*OGIS* 484; Syros—*IG* XII, 5, 659 and 663-5.

³¹ L. C. West and A. C. Johnson, *Currency in Roman and Byzantine Egypt* (Princeton, 1944), 7-12.

³² *FIRA* III, 157 (A.D. 167); *CIL* III, p. 953, no. xv. On reasons for the low value of the as in relation to the denarius see *JRS* 1969, 292. For fluctuating exchange rates between coins of the same monetary system compare the state of affairs described in K. Baedeker, *Konstantinopel und das westliche Kleinasien* (Leipzig, 1905), 75—at Constantinople, in dealings with the government, a 20-piastre piece will only buy 19 piastres and there is a premium of gold over silver; 194—at Smyrna the reckoning is in 'schlechten Piaster', of which $1\frac{2}{3}$ = 1 actual piastre (reference from P. Grierson).

³³ M. H. Crawford, o.c. (n. 22), no. 565.

³⁴ *AA* 1968, 281.

³⁵ For a preliminary report on the excavations at Francolise see *PBSR* 1965, 55. I am very grateful to Mrs. M. A. Cotton for showing me the coins. For the excavations of a villa which produced only one coin see G. A. Mansuelli, *La villa romana di Russi* (Faenza, 1962), 30.

when Augustus' enormous issues of *orichalcum* and copper were pouring out of the mint of Rome 120 or so miles away. This does not suggest that coinage played in the life of the occupants of the villa the sort of rôle that a rapid turnover of coins would suggest, the sort of rôle that is suggested by the occurrence at Pompeii of coins of every denomination struck within a few years before the destruction of the town. It can of course be argued that a countryman would go into town to purchase his wants and that he could partake of a market economy as much as a town dweller. But the emphasis of Cato's *de agri cultura* is on producing what was needed and buying only what was absolutely necessary; it is summed up in the phrase *patrem familias vendacem, non emacem esse oportet*,³⁶ the head of a household should be a seller, not a buyer. Small, recurrent purchases do not form part of the picture. If this was true of a farm run for profit it was probably even more true of peasant farms. Cicero's claim that ordinary farmers had no spare cash undoubtedly rang true.³⁷

But at least Francolise had coins, including small denominations. A different picture is presented by the Northern provinces. Before interpreting this picture three preliminary observations must be made. To take the problem of halved coins first, the pieces so treated are mostly early Republican asses, asses of Sextus Pompey and asses of Augustus struck at Nemausus. The first two bear the double head of Janus on the obverse, the last the heads of Augustus and Agrippa. The coins were almost always halved in a neat line between the heads. Since the phenomenon seems to be almost entirely Augustan, T. V. Buttrey suggests,³⁸ I think rightly, that when Augustus began to produce at Rome his issues of asses with the single head of the Emperor on the obverse, the old asses, all much heavier than the new asses, were revalued as dupondii, probably unofficially. Thus, when these coins were halved, no denomination smaller than the as was produced. Only when Augustan asses were halved, a less frequent occurrence, could semisses be produced.³⁹ Imitations were likewise common, but did not include many small denominations either. They were mostly copies of asses of Nemausus, which were presumably revalued as dupondii along with the originals, and of the new asses of Augustus and later Emperors.⁴⁰ Finally a problem of method must be considered. I have as far as possible used the evidence of site-finds as more faithfully reflecting the nature of monetary circulation. But in Italy the wide range of denominations down to the smallest, which are the most important feature of site-finds, do also occur in hoards.⁴¹ Although their occurrence in hoards is not as compelling evidence as their occurrence in site-finds, we may argue that, unless an area shows at least some hoards including small denominations of bronze, its use of money differed markedly from that of Pompeii and the other cities of the Empire.

This appears to be the situation, for instance, in Belgium. Of 36 hoards datable to the first two centuries A.D. not one contains a denomination of any period smaller than the as.⁴² For Germany we have the evidence of hoards and of site-finds and it is noticeable that the availability of small denominations contrasts unfavourably with the position in, for instance, Pompeii or Dura-Europos.⁴³ It is difficult to believe that the large bronze coins present in such large numbers in the army camps were not used in some way, despite the paucity of small denominations. But it is also difficult to believe that the price level

³⁶ Cato, *de agri cultura* 2, 7; cf. Columella, *de re rustica* IV, 30, 1.

³⁷ Cicero, *in Verr.* II, 3, 192–200. Note the absence of money-changers from small towns and villages in Palestine. E. Lambert, *Revue des études juives* LI, 1906, 220. See also the important article of J. Bingen, *CE* 1951, 378, showing that some third-century A.D. accounts from the Fayum, which give at first sight the impression of a flourishing money economy, record in fact only notional translations and that actual money almost never changed hands.

³⁸ *AJA* 1967, 184.

³⁹ Since the halving of Augustan asses occurred at the same time as the halving of older asses, it was probably in fact an attempt at fraud. C. M. Kraay argues (*Die Münzfunde von Vindonissa* (Basel, 1962), 8, followed by H. Chantraine, *Novaesium* III (Berlin, 1968), 11) on wholly insufficient grounds that the

halving of (Augustan) asses ended when a rise in prices removed the need for semisses.

⁴⁰ For some rare unofficial semisses, see *Schweizer Münzblätter* 1965, 90.

⁴¹ See M. H. Crawford, o.c. (n. 22), no. 133 (Rochetta a Voltorno), no. 148 (Veroli), no. 183 (Strongoli) and the hoards cited in n. 22.

⁴² M. Thirion, *Les Trésors monétaires* 184–5. See M. I. Rostovtzeff, *SEHRE*² 633, n. 38, for the absence of Roman cities from the territory of present-day Belgium.

⁴³ Compare the diminishing stock of small Gallic bronze on the Rhine, reported by H. Chantraine, *Novaesium* III, 11, with the continuing supply at Dura-Europos discussed by A. R. Bellinger, *Dura-Europos VI* (New Haven, 1949), 203 and 205. The article 'Quadrans' in *RE* adds nothing to our knowledge.

throughout the Northern provinces was higher than that in Italy.⁴⁴ So if it is true that denominations smaller than the as were scarce in the Northern provinces it seems to follow that coinage was little used there as a means of exchange. For the soldiers basic necessities were provided and all their spending was in a sense luxury spending.⁴⁵ They may well have been charged extortionate prices for what they did buy. Vegetius certainly implied that the legionaries were not thrifty.⁴⁶ For the civilian population, both in Germany and in Belgium, coinage will have served mainly as a store of wealth and as a (compulsory) method of paying taxes. The existence in the Northern provinces of imitations and halved coins may readily be explained by the profit to be drawn from passing them and the ease of doing so in an area relatively unfamiliar with coined money. Provincial imitations of Imperial bronze coins are usually of light weight or poor quality metal or both; the profit from making them is evident. And the profit from creating two 'Augustan' asses out of one pre-Augustan as by halving it is 100 per cent.

If, therefore, the use of coined money as a means of exchange was largely limited to the cities of the Empire, its use there was probably an accidental consequence of its existence and not the result of government policy. Certainly a city did not *need* coined money, as the history of Babylon and other Eastern cities shows. The view that the cities of the Roman Empire came only by accident to adopt coined money as their means of exchange is corroborated by the absence of government reaction to the forms and structures individually created.

Wealthy Romans were capable of performing and taking for granted monetary operations of some sophistication and complexity. The stabilization of the exchange rate between denarii and asses by the praetor Gratidianus, which I have already mentioned, also established a procedure for the settlement of debts incurred in the period of instability. When Cicero referred to this procedure in the *pro Quinctio* he did so in a brief, allusive sentence which assumed that his hearers knew exactly what he was talking about.⁴⁷ Similarly in the field of foreign exchange elaborate banking facilities were available, whether for a private transaction or for the payment of a proconsul's allowance.⁴⁸ In a pamphlet intended for public consumption, the *in Pisonem*, Cicero can allude to the facilities without explanation.⁴⁹

The *nummularii*,⁵⁰ who performed the two functions of changing money and testing coins to see if they were genuine, are also worth looking at. Their emergence as the people responsible for testing coins occurred in response to the growing number of plated coins put into circulation by forgers from the second century B.C. onwards.⁵¹ The most extensive evidence for the activities of the *nummularii* comes from their *tesserae*, the labels which they seem to have attached to the bags of money whose contents they had inspected. These *tesserae* come in large quantities from Rome, but also from a number of Italian towns: Pompeii, Capua, Terracina, Tusculum, Tarquinii, Faesulae, Mutina and Parma, and from three places outside Italy, Virunum, Arelate and Tolosa.⁵² In addition Cicero talks of *spectatio*, precisely the activity of the *nummularii*, in connection with the extortions of Verres in Sicily.⁵³ A *collegium* of *nummularii*, who may have been either money-testers or money-changers or both, is attested at Praeneste by an inscription of Republican date.⁵⁴

It is also significant that, although ancient coinage never freed itself from its dependence

⁴⁴ Cicero, *de rep.* III, 9, 16 (on which see now E. Badian, *Roman imperialism* (Blackwell, 1968), 20-1) implies that wine from Transalpine Gaul was cheaper than Italian wine. See Polybius II, 15, 1, for low prices in Cisalpine Gaul, not yet Romanized; also xxxiv, 8, 7, for low Spanish prices. Apuleius, *Met.* XI, 28 ('erogationes urticae pristinis illis provincialibus antistabant plurimum') perhaps indicates a higher price-level in Rome than in the provinces.

⁴⁵ P. A. Brunt, *PBSR* 1950, 60-1.

⁴⁶ Vegetius 2, 20; compare the wishful thinking of SHA, *Aurelian* 7, 6, '(miles) stipendium in balteo, non in popina habet'.

⁴⁷ Cicero, *pro Quinct.* 17.

⁴⁸ See, for instance, Cicero, *ad Att.* v, 13, 2; xv, 15, 4; *ad Fam.* III, 5, 4.

⁴⁹ Cicero, *in Pis.* 48.

⁵⁰ *RE* xvii, 1441.

⁵¹ *Num. Chron.* 1968, 55.

⁵² Pompeii—*ILLRP* 1055; Capua—*ILLRP* 993, 996, 1004, 1013; Terracina—*ILLRP* 991, 1003; Tusculum—F. Ritschl, *Opuscula Philologica* IV, 572-656, no. 64a; Tarquinii—*ILLRP* 994; Faesulae—*ILLRP* 1008, 1040; Mutina—F. Ritschl, no. 35; Parma (Tannetum)—*ILLRP* 1042; Virunum (Magdalensburg)—*ILLRP* 988, 992; Arelate—*ILLRP* 1023 (cf. Cicero, *pro Font.* 11); Tolosa—*CIL* XII, 5695, 2.

Note also *nummularii* at Antium (*ILS* 7262), in the *ager Pomptinus* (*ILS* 7463) and at Cereatae (*CIL* x, 5689).

⁵³ Cicero, *in Verr.* II, 3, 181.

⁵⁴ *ILLRP* 106a.

on its metallic content, quite wide variations in weight were tolerated before the face value was affected. Worn coins were normally hoarded as readily as fresh ones and it was held against Nero, presumably as being something exceptional, that he demanded *nummum asperum*, fresh coin.⁵⁵ The Roman monetary system also showed itself capable in practice of absorbing extraneous coins and treating them as those coins of the system which they most resembled.⁵⁶

It is said on the evidence of Statius that the Emperors took thought for the supply of coinage to the whole Empire.⁵⁷ It is also said that coined money had in the ancient world an economic reason for existence.⁵⁸ Neither statement is true. Coinage was probably invented in order that a large number of state payments might be made in a convenient form⁵⁹ and there is no reason to suppose that it was ever issued by Rome for any other purpose than to enable the state to make payments, that is, for financial reasons. During the Republic, for which a fairly close chronology and a very accurate estimate of the relative size of issues are now available,⁶⁰ the volume of coinage struck fluctuated as the number of legions in the field went up or down and as other state expenses rose or fell.⁶¹ For example, the only large issue of the 70's B.C. is to be dated to 74 B.C. and related to the help sent to Pompey in Spain.⁶² Once issued coinage was demanded back by the state in payment of taxes. It was also specified in legislation involving payments, as in the Caesarian *lex de Gallia Cisalpina*.⁶³ And we have seen that in the cities of the Roman Empire, in striking contrast to the cities of the pre-Greek East, it acquired an important rôle as a means of exchange. But this monetary, economic function, like the other monetary functions of coinage, was an accidental consequence of the existence of coinage, not the reason for it.⁶⁴

We are accustomed to a system in which the amount and nature of the money in circulation is to a very large extent controlled by public demand. The amount goes up enormously at Christmas and over Bank Holidays; the banks estimate at regular intervals how much of each denomination is required. But in Rome, on the only known occasion on which money was supplied at public demand, it was supplied not for economic reasons, but, as we might expect, in order to preserve social status. In A.D. 33 the moneylenders of Rome, accused of irregularities, tried to turn the tables on their accusers and attempted to call in all their debts.⁶⁵ The debtors were threatened with the necessity of selling off their land on a rapidly falling market to the evident profit of the usurers. But Tiberius intervened with an interest-free loan of 100,000,000 sesterces to those whose *dignitas* and *fama* were threatened. There are no grounds for the old view of the story as evidence for a general currency shortage and its remedy. On occasions of what appear to have been general currency shortages in 63, 49 and 44 B.C. no comparable intervention took place.⁶⁶ No action

⁵⁵ Suetonius, *Ner.* 44, 2; compare Martial IV, 28, 5—pieces *novae monetae*.

⁵⁶ For instance, a bronze coin of Ptolemy VI Philometor, of the same size and weight as an as, in the Rocchetta a Volturno hoard of asses and fractions (M. H. Crawford, *Roman Republican Coin Hoards*, no. 133). Lead *tesserae* seem also to have been absorbed into circulation in the cities as small change, M. Rostovtzeff, *SEHRE*² 182, with n. 48.

⁵⁷ Statius, *Silvae* III, 3, 85–105; C. H. V. Sutherland, *Coinage in Roman Imperial policy* (London, 1951), 173; the notion recurs in *Proceedings of the International Numismatic Convention, Jerusalem, 27–31 December 1963* (Tel-Aviv, 1967), 104–5.

⁵⁸ L. C. West, *The American Numismatic Society Museum Notes* 1954, 2. Economic and financial reasons must be kept distinct.

⁵⁹ C. M. Kraay, *JHS* 1964, 76; not refuted by J. P. Barron's careless argument in *NC* 1966, 338—'This transference (of coin) could only take place through trade' (my italics).

⁶⁰ M. H. Crawford, *The Roman Republican coinage* (Cambridge, forthcoming), Introduction and Ch. 7.

⁶¹ For the dominating position of military expenses in the Imperial budget see Dio LII, 6, 1; 28–9; LXXVII, 9–10; Herodian VII, 3, 1; Tacitus, *Hist.* II, 95; SHA, *Prob.* 20–3; Anonymus, *de rebus bellis* 5, 1.

The rhetorical remark of Macrinus, Dio LXXVIII, 17, 3, cannot be taken as evidence that military expenses were not the largest single item in the Imperial budget (*contra* Th. Pékary, *Historia* 1959, 472).

⁶² *Num. Chron.* 1969, 84.

⁶³ *FIRA* I, no. 19, xxii—'pecuniam . . . signatam forma p(ublica) p(opulei) R(omanei)'; cf. *OGIS* 629, III, 153 = Smallwood (o.c., n. 20) no. 458, 181.

⁶⁴ For the profit motive behind city coinages see *OGIS* 339 (Sestos, second century B.C.).

⁶⁵ Tacitus, *Ann.* VI, 16; Suetonius, *Tib.* 48, 1; Dio LVIII, 21, 5; compare the action by Augustus, Dio LV, 12, 3a; Suetonius, *Aug.* 41, 1. For the phrases *difficultas nummaria*, *difficultas rei nummariae* referring to purely personal shortage see Cicero, *in Verr.* II, 2, 69; 4, 11.

⁶⁶ For 63, see the story about Q. Considius' refusal to call in his loans (Val. Max. IV, 8, 3; cf. Cicero, *ad Att.* I, 12, 1) with P. A. Brunt, 'The equites in the late Republic', *Second Int. Conf. of Econ. Hist.* (Aix-en-Provence, 1962), 126, n. 7, together with Dio XXXVII, 25, 4; Cicero, *in Cat.* II, 18; *de off.* II, 84; *ad Q. Fr.* I, 1, 6; *ad Fam.* V, 6, 2 (to P. Sestius); in 49, note Cicero's worries over a *viaticum* (Cicero, *ad Att.* VIII, 7, 3; XI, 2, 4) and his problems over the money left in Asia (2,200,000 sesterces, initially made inaccessible by Pompey's declaration of war,

at all is recorded in 63 and 44; in 49 Caesar's only monetary measure, a ban on hoarding sums over 60,000 sesterces, could only have been enforced by informers, something which Caesar refused to countenance unlike Tiberius.⁶⁷

The fields in which the government tried its hand at monetary management can be defined as two, the prevention of forgery and the enforcement of the official values of the coins, or something approaching them. The attitude of the government to the forgery of gold and silver coins was quite simple. From the time of Sulla's *lex Cornelia de falsis* it was illegal and was punished with increasingly savage penalties as the notion of treason came to be uppermost in the definition of the offence.⁶⁸ A decree of Valentinian II, Theodosius I and Arcadius (12 July, A.D. 393) forbade the production of bronze coins by private people,⁶⁹ and for pseudo-Asconius, writing in the fifth century A.D., the law against forgery covered the production of *privata pecunia* of any kind.⁷⁰ Certain ancillary offences, such as attempting to extract the precious metal from a coin or melting a coin down, are also mentioned occasionally but do not seem to have been thought important. The defence of the coinage by appeal to the concept of treason, however, had some curious and unfortunate consequences. Tiberius was held to have regarded it as a capital offence to take a coin with the image of Augustus into a brothel or lavatory.⁷¹ And according to Arrian a coin of Nero could be rejected as σαπρός, rotten, while one of Trajan was accepted, despite the fact that the coin of Nero was intrinsically more valuable.⁷²

Enforcement of the official values of the coins had a chequered history. In the early days of the Republican coinage no attempt at this seems to have been made. The earliest coinage of the Republic had to be replaced by the denarius coinage because it had been so debased that it was not acceptable. When the relationship of the denarius to the as was changed in the middle of the second century B.C., this was done to bring the official rate into line with the unofficial rate. The first attempt to enforce the official rate was that of Gratidianus, repeated by Hadrian for the city of Pergamum.⁷³ Despite this, a variety of rates remained in existence with its attendant disadvantages.

One question has still to be answered, what led Rome, in common with other ancient states, to issue a wide range of denominations. The answer, for Rome, seems to be twofold. Under the Republic the army was originally paid in bronze.⁷⁴ By the middle of the second century B.C., when the relationship between the denarius and the as was altered, they seem to have been paid in silver.⁷⁵ Shortly before this the massive issues of bronze which characterize the earlier Roman coinage ended and massive issues of silver began.⁷⁶ It thus seems clear that the changeover in the method of paying the army occurred shortly before the change in the relationship between the denarius and the as. But the changeover does not seem to have been complete. The extensive countermarking of bronze coins in the army camps in the early years of the empire seems sometimes to have been the preliminary to paying the coins to the troops.⁷⁷ At least some bronze coinage was thus produced for the

ad Fam. v, 20, 9 (to Caelius); available in Jan. 48 to Cicero to protect his *fides* in Italy, *ad Att.* xi, 1, 2; half loaned to Pompey, *ad Att.* xi, 2, 3 and 3, 3; perhaps all eventually used by Pompey, *ad Att.* xi, 13, 4); there are also mentions in 49 of *nummorum caritas* (*ad Att.* ix, 9, 4) and the financial troubles of Q. Cicero and others (*ad Att.* vii, 18, 4; x, 11, 2); for 44, note *δυσχερησια propter metum armorum* (*ad Att.* xvi, 7, 6). For debt in the late Republic see M. W. Frederiksen, *JRS* 1966, 128-141.

⁶⁷ Dio xli, 38; Suetonius, *Tib.* 49, 2. An attractive conjecture by D. R. Shackleton Bailey at Cicero, *ad Att.* xv, 15, 1, has the effect of removing such evidence as there is for the possibility of individuals having bullion coined by the mint. For *apud* † *me item* † *puto depositum* he proposes (*Cicero's letters to Atticus* vi (Cambridge, 1967), 262) *apud Monetam puto depositum*. It follows that the *viaticum a Moneta* of *ad Att.* viii, 7, 3, may simply be a previous deposit of Cicero. See *CTh* ix, 21, 7-8, for the practice of the fourth century A.D. and (on the whole problem) T. V. Buttrey's important and destructive review of S. Bolin, *State and Currency in the Roman Empire to 300 A.D.* (Stockholm, 1958) in *AJA* 1961, 84; see, for an earlier period, E. Will, *Korinthiaka* 497.

⁶⁸ P. Grierson, *Essays in Roman Coinage presented to Harold Mattingly* 255.

⁶⁹ *CTh* ix, 21, 10.

⁷⁰ Pseudo-Asconius 189.

⁷¹ Suetonius, *Tib.* 58; Philostratus, *Apoll. Tyan.* I, 15.

⁷² Arrian, *Epictet.* iv, 5, 17; for the intrinsic values of the coins see H. Mattingly, *Coins of the Roman Empire in the British Museum* II (London, 1923), liv-lvii; III (London, 1936), xiv-xvi; xxi-xxii. T. O. Mabbott's view (*CP* 1941, 398) that there was a local suppression of Nero's coinage at Nicopolis in Epirus is implausible.

⁷³ See nn. 19-20 and compare *Forma Idiologi* 106, νόμισμα πλέον οὐ[[κ]] ἰσχύει οὐκ ἐξὸν κερματίζειν.

⁷⁴ Varro, *de vita populi Romani* (cited by Nonius, p. 853 L).

⁷⁵ Pliny, *NH* xxxiii, 45.

⁷⁶ M. H. Crawford, o.c. (n. 22), Tables iii and x.

⁷⁷ C. M. Kraay, 'The behaviour of early Imperial countermarks', *Essays in Roman coinage presented to Harold Mattingly* 113. The notion of Roman Imperial countermarks systematically validating the coins to which they were applied seems misplaced.

benefit of the army, probably from convention.⁷⁸ It is certainly very noticeable that in the last century of the Republic, when the number of soldiers under arms fluctuated enormously, bronze was only struck in large quantities when the number was exceptionally high. In the intervening periods old coins were presumably used for that part of the soldiers' pay which was still in bronze.⁷⁹

But we have seen that the coinage in circulation in the army camps hardly included denominations smaller than the as and the production of the semis and the quadrans has therefore still to be explained. I do not think we need look beyond the financial transactions of the state. The epigraphical evidence for Athens shows frequent payment and receipt of sums involving fractions of obols⁸⁰ and, although the evidence for Rome is less good, the position seems to have been similar. After 150 B.C. bronze fractional pieces were struck by the Republic only at irregular intervals, presumably to create the possibility of making up sums of money including odd fractions of the as. And the price of corn supplied by the government in 123 and 100 B.C. presupposed the existence of these fractional coins.⁸¹ We may, indeed must, believe on the evidence of Statius that the *a rationibus* calculated how much coinage was to be struck.⁸² The evidence does not show that he made his calculation on any other basis than the fiscal needs of the government.⁸³

I conclude therefore that in the period I have been considering the Roman government had no policy concerning supply of coinage and no monetary policy except in matters which directly affected its own interest or standing or the interest or standing of those who could get its ear.⁸⁴ It was always to the government's interest to prevent forgeries because they might be paid in taxes, and when it was to the Emperor's interest to debase the coinage, beginning with Nero, he did so without thought for the economic consequences.⁸⁵

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⁷⁸ See Tacitus, *Ann.* I, 17, 6, for soldiers reckoning their pay in asses; Anne S. Robertson, *Num. Chron.* 1968, 61, for delivery of asses in bulk to Roman troops in Britain.

⁷⁹ It is worth noting that the coinage of Augustus in *orichalcum* and copper from the mint of Rome probably did not begin till well after 19 B.C., K. Kraft, *Mainzer Zeitschrift* 1951-2, 28 (not refuted by J.-P. Callu and F. Panvini Rosati, *MEFR* 1964, 65), M. H. Crawford, o.c. (n. 22), Table xviii. There is still no satisfactory arrangement of the moneyers' issues of Augustus.

⁸⁰ R. Meiggs, D. Lewis, *Greek historical inscriptions* (Oxford, 1969), nos. 53, 54, 59, 72, 77, etc.

⁸¹ Livy, *Epit.* LX, and Schol. Bob., p. 135 St.; [Cicero], *ad Her.* I, 12, 21.

⁸² See n. 57.

⁸³ L. A. Losada's belief, *Phoenix* 1965, 129, that 'the Romans were not oblivious to the value of economic and monetary policies in power politics' is based on mistranslation of the texts he discusses and is wholly unsupported by the evidence which he adduces.

⁸⁴ Compare the judgment of A. H. M. Jones, *Econ. Hist. Rev.* 1952-3, 317, on the monetary policy of the Empire during the fourth and fifth centuries. For a general interpretation of monetary history in terms of public finance see J. Hicks, *A Theory of Economic History* (Oxford, 1969), 92, n. 2.

⁸⁵ The problems touched on in nn. 66-7 are also to be discussed by Professor Nicolet and myself at the Economic History Congress in Leningrad, August 1970.