

THE SPANISH MINES AND THE DEVELOPMENT OF PROVINCIAL TAXATION IN THE SECOND CENTURY B.C.*

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Spain was famous for its mineral wealth long before the Romans arrived there. Stesichorus in the sixth century had written of the silver-rich river Tartessos, and the wealth extracted by the Carthaginians was well-known to later writers.¹ The way in which Rome exploited these resources is of special interest. So large a source of profit must have benefited not only the state, but also the men who organized the working of the silver mines; and this in turn may well have led to political and social changes in Rome. Moreover in Spain for the first time the Romans had to evolve financial institutions and methods whereby an overseas province of substantial wealth might be taxed. The two Spanish provinces were not of course Rome's first possessions outside Italy; but Sicily already had a comprehensive set of fiscal institutions, known as the *lex Hieronica*, which the Romans had taken over along with their control of Hiero's kingdom, and which they had copied for the tax system in the rest of the island²; while in the case of Sardinia, though very little indeed is known of the early period of its administration by Rome, the association in Livy's reports of its corn tithe with that of Sicily indicates that an essentially similar system was used there too.³ In the Spanish provinces therefore the Romans had few precedents in their own experience on which to draw.

Recently scholarly opinion has satisfied itself that the exploitation of the Spanish silver mines was placed at an early stage in the hands of the great public-works companies, the *societates publicanorum*, which played such a major role in Roman administration in the provinces, at least from the time of C. Gracchus onwards, and consequently in the political affairs of the capital.⁴ The control of this lucrative business by the *publicani* has been linked to their increasing importance during the second century B.C., and to their emergence into political controversy in 123-2. It is indeed certain that, at a later date, *publicani* were involved in the exploitation of some mineral resources on behalf of the state elsewhere, and particularly in Gallia Cisalpina.⁵ But although the publican companies were to become an indispensable part of the administrative machinery by which the Roman republic exploited her empire, this fact alone does not explain how the Romans gathered and controlled the revenues of Spain at a time when they had no obvious provincial precedents on which to draw. In such a case, the problem which confronts the historian is not how the task could have been, but how it was in fact, achieved.

In order to establish the means used by the Romans during the second century to extract a profit for the *aerarium* from this valuable resource, it will be useful first to see just what our sources tell us about the physical exploitation of Spanish silver during the period and to consider what type of organization is suggested by the picture that these sources give; and secondly to examine the methods employed by the Romans in Spain to extract other forms of fiscal revenue, in order to see whether these different elements give any overall view of Rome's attitude towards the collection of monies for the state.

I

As already mentioned, there was a long tradition of silver mining in Spain before the Roman occupation. Polybius includes the silver and gold of Iberia in the list of well-worn

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¹ Stesichorus fr. 4 (Diehl); Diodorus 5. 38. 2; Pliny, *NH* 33. 6. 97; cf. O. Davies, *Roman Mines in Europe* (1935), 107.

² Cic., 2 *Verr.* 3. 8/20; J. Carcopino, *La loi de Hiéron et les Romains* (1914), 1-75.

³ Livy 32. 27. 2; 36. 2. 13; 37. 2. 12; 37. 50. 10;

42. 31. 8. Sardinia also paid *stipendium* (Cic., *Balb.* 18. 41), though in what sense is uncertain at this date (see below pp. 147 ff.).

⁴ Thus especially P. A. Brunt: 'The Equites in the Late Republic', *Second International Conference of Economic History (Aix-en-Provence, 1962)* 1, 138-41 = *The Crisis of the Roman Republic*, ed. Seager (1962), 104-7, to which all further references will be made; E. Badian, *Publicans and Sinners* (1972), 31-44.

⁵ Strabo 4. 6. 7; Pliny, *NH* 33. 21. 78; M. Besnier, *Rev. Arch.* 10 (1919), 31-50.

historical and geographical topics that he himself does not propose to discuss.⁶ According to Diodorus the Spaniards themselves mined for silver, and embarked on more ambitious mines once they had learned the techniques involved from the Phoenicians, with whom they traded the resulting silver.⁷ The Carthaginians too exploited the area: Diodorus claims that they used the silver to pay their mercenaries, and Pliny reports that the mine at Baebelo (probably near New Carthage) yielded three hundred pounds of silver per day for Hannibal.⁸ Archaeological evidence confirms Diodorus' statement that exploitation of silver in southern Spain was undertaken seriously at least by the time of the Phoenician colonization of the coast-line. Excavation of part of a prehistoric township on the Cerro Salomon at Riotinto has shown that silver was extracted there from the rich ores of the hill in the Phoenician period⁹; and the mining settlement at Cabezo Agudo, near La Union, eleven kilometres north-east of Cartagena, shows signs of continuous occupation from Carthaginian times, through the Roman republican period and into the early imperial period.¹⁰ Although it is not of course possible to deduce from such finds the organization of the silver miners in Phoenician or Carthaginian times, the excavators at the Riotinto site pointed out that slag from which the silver had been extracted was found scattered throughout the houses they uncovered, along with pottery, bones, charcoal and drops of lead.¹¹ This indicates that at this early period, the treating of the ore at least was a small-scale, domestic activity, and that there was not even enough organization among the inhabitants of the settlement to co-ordinate a dumping ground for their waste matter.

The Romans in their turn certainly knew of the mineral wealth. According to the author of the first book of *Maccabees*, Judas Maccabaeus had heard already in the 160s of how the Romans had seized the gold and silver mines in Spain, and our earliest first-hand authority on Roman activities in the peninsula, the elder Cato, talks enthusiastically of 'in his regionibus ferrareae, argentifodinae pulcherrimae'.¹² When the Romans arrived in Spain therefore there was a history of silver mining, and even if they did not know this prior to their arrival, the Romans themselves soon discovered it. What then did they do about it?

I. THE EXPLOITATION OF THE SILVER MINES: RECENT THEORIES

The largest body of evidence on Roman withdrawal of precious metals from Spain is Livy's record of the amounts of silver, gold and minted coin brought back to Rome by various governors.¹³ It was the assumption that these figures included the silver mined in the provinces that led Tenney Frank to believe that the exploitation of these mineral resources was under the direct supervision of the provincial governors, and that they were operated from 179 onwards by *societates publicanorum*, after which date the figures in Livy dwindle appreciably.¹⁴ This interpretation has been challenged quite properly on the grounds that the figures given will not support it.¹⁵ Further it is clear that the sums given by Livy represent the booty brought back to Rome by governors in their military capacity. Although none of these amounts is described as *praeda* by Livy, it is significant that all but one of the eighteen reports of Spanish bullion are in the context of claims for a triumph or *ovatio*.¹⁶ The substantial returns of gold reported also indicate that the metal was not mined by the Romans themselves, for the major gold fields in Spain are in the north-west of

⁶ Polybius 3. 57. 3.

⁷ Diodorus 5. 35. 3-36. 2.

⁸ Diodorus 5. 38. 2; Pliny, *NH* 33. 6. 97, cf. Davies, *op. cit.* (n. 1), 107.

⁹ A. Blanco and J. M. Luzón, *Antiquity* 43 (1969), 124-31.

¹⁰ A. Fernández de Avilés, *Archivo Español de Arqueología* 47 (1942), 136-52.

¹¹ Blanco and Luzón, *loc. cit.* (n. 9), 127. Similar deposits were found at Cabezo Agudo (Fernández de Avilés, *loc. cit.*, 138-9).

¹² *1 Macc.* 8. 2; Cato *ap. Gellius*, *NA* 2. 22. 29. On Roman mining in Spain in general, see also the brief sketch by T. A. Rickard, *JRS* 18 (1928), 129-43.

¹³ Tabulated, with some inaccuracies, by J. J. van

Nostrand, *Economic Survey of Ancient Rome* 3 (1937), 129.

¹⁴ T. Frank, *Economic Survey of Ancient Rome* 1 (1933), 154-5, followed most recently by T. R. S. Broughton, 'Trade and Traders in Roman Spain', in J. A. S. Evans (ed.), *Polis and Imperium* (1974), 12.

¹⁵ Brunt, *op. cit.* (n. 4), 139; Badian, *op. cit.* (n. 4), 31-2.

¹⁶ The exception is M. Marcellus, who had been in charge of both the Spanish provinces, in 168 (Livy 45. 4. 1). The text of Livy 31. 20. 7 states that L. Lentulus in 200 'argenti tulit ex praeda quadraginta tria milia pondo', but the words 'ex praeda' have probably crept in from the following sentence (so A. H. McDonald in the 1965 Oxford text, p. 21).

the peninsula, which was not reached until Augustus' expeditions; the only source nearer the Mediterranean, at Bilbilis, is not mentioned until the imperial period.¹⁷ It is unlikely that the senate would be prepared to allow the returning governor to count the efforts of the slaves in the mines as a reason for granting a triumph; or that they would permit him to include this substantial and regular income among the spoils on which he might make a personal claim.¹⁸

An alternative suggestion, made recently by both Professors Brunt and Badian, is that from the time of Cato's consular governorship of Hispania Citerior in 195 the exploitation of the mines was undertaken on behalf of the state by the *societates publicanorum*.¹⁹ The hypothesis rests on two arguments: that the mines were 'undoubtedly in the hands of publicans' (Brunt) in the time of Polybius, and that, as Cato 'vectigalia magna instituit ex ferrariis argentariisque', he must have used publicans.

The method used by Cato to collect the *vectigalia* is of course the crux of the problem. An attempt will be made later in this paper to show that the involvement of the publican companies was by no means an inevitable corollary of their institution, and it is perhaps worth noting here that there were *vectigalia* collected by the Romans from their provinces in the second century which did not concern the *societates*, most notably the Sicilian corn-tithe. For the particular case of the Spanish mines, therefore, the Brunt-Badian case rests on the account given by Polybius.

Unfortunately Polybius' evidence is far from clear. In his analysis of the strengths of the Roman constitution in book six he certainly includes mines among those public works leased to the 'people' (δημος) by the censors, and this has, surely correctly, been taken to refer to the *ensoria locatio*, the 'people' here being rather curiously equated with the *societates publicanorum*.²⁰ However the context of this passage does not suggest that Polybius is thinking of the Spanish mines. Indeed he states that he is dealing with the position 'throughout Italy', and it is probable that mines in Italy were being worked during the first half of the second century, even though they were later closed.²¹

The passage of Polybius to which both Brunt and Badian refer in particular is a quotation by Strabo during his account of the mines in Spain.²² It is worth considering the context of this quotation, both because Strabo himself gives some interesting additional data about the republican period, and because, as the passage is in Strabo's words, and not Polybius' own, it is important to glean all possible indications of what Strabo thought Polybius was describing. Strabo after all had the advantage over modern scholars, in that he could have read the passage of Polybius in question.²³

In the paragraph before his quotation of Polybius, Strabo mentions the remarks of Posidonius on the mines. These are particularly interesting, because Posidonius' account also forms the basis for the only other description of the early stages of Iberian silver mining, in Diodorus Siculus.²⁴ It is clear from these two reports that Posidonius was describing a situation in which a large number of small-scale operations were involved. So far as silver-mining is concerned, according to Strabo, individuals (τινὲς ἰδιωτῶν) can extract a Euboic talent in three days. Again, it seems that Posidonius applied to the Spanish situation a joke made by Demetrius of Phaleron about Attic silver miners in the late fourth century B.C., which only makes sense if those who have invested capital are themselves involved in the

¹⁷ O. Davies, *op. cit.* (n. 1), 98 ff.; Schulten, *Iberische Landeskunde* (1955-7), 479; C. Domergue, 'Les exploitations aurifères du nord-ouest de la péninsule ibérique sous l'occupation romaine', in *La Minería Hispana e Iberoamericana* (1970) 1, 151-93. See P. R. Lewis and G. B. D. Jones, *JRS* 60 (1970), 169-85 and R. F. J. Jones and D. G. Bird, *JRS* 62 (1972), 59-74 on the exploitation of the north-west.

¹⁸ See I. Shatzman, *Historia* 21 (1972), 177-205.

¹⁹ Brunt, *op. cit.* (n. 4), 105; Badian, *op. cit.* (n. 11), 32 ff.

²⁰ Polybius 6. 17. 2: πολλῶν γὰρ ἔργων ὄντων τῶν ἐκδιδομένων ὑπὸ τῶν τιμητῶν διὰ πάσης Ἰταλίας; cf. Walbank, *Historical Commentary on Polybius* 1 (1957), 692 ff.

²¹ Pliny, *NH* 3. 138; 33. 78; 37. 202; M. Besnier,

Rev. Arch. 10 (1919), 31-50.

²² Strabo 3. 147-8 = Polybius 34. 9. 8-11; Badian, *op. cit.* (n. 4), 32-4, 125, n. 20 and 126, n. 28; Brunt, *op. cit.* (n. 4), 105.

²³ On Polybius' geographical work, see Strabo 8. 332.

²⁴ Strabo 3. 147 = Posidonius *FGH* 87 F. 47 and Edelstein-Kidd F. 239. Compare with Diodorus 5. 35. 1-38. 3; both Strabo and Diodorus mention that an ἰδιωτῆς could make a Euboic talent in three days (Diodorus 5. 36. 2); that silver boiled out of the ground during forest fires (Diodorus 5. 35. 3); and both relate Demetrius' joke (Diodorus 5. 37. 1; cf. Athenaeus 6. 233e, who also quotes Posidonius as his authority).

extraction of the ore.²⁵ Diodorus describes how, as soon as the Romans had control of Spain, a multitude of Italians flocked to the mines, and made great fortunes (πλήθος Ἰταλῶν ἐπεπόλασε τοῖς μετάλλοις, καὶ μεγάλους ἀνεφέροντο πλοῦτους διὰ τὴν φιλοκερδίαν).²⁶

It is not possible from Posidonius, as reported by Strabo and Diodorus, to determine precisely how the administration of the mines worked. However some conclusions can be drawn: the account given is not compatible with direct state exploitation of the mines, as happened briefly in Germany in the reign of Claudius, when legionaries were used, and in British lead mines, which were probably under military supervision in the period immediately following the invasion of A.D. 43.²⁷ Equally it is very hard indeed to believe that Posidonius was talking of mining operations undertaken by the great Roman *societates publicanorum* on a five-year lease from the censors. The report of individual effort and individual profits sounds much more like a nineteenth-century gold-rush than the operations of the great financiers of the republic. If, as seems likely, Posidonius included this account of Spain's mineral riches in his description of the Viriathic war, then he is presumably talking of a period during or before the mid-second century B.C., or at the latest before 60 B.C. when his work was largely completed.²⁸

Turning to Strabo's quotation from Polybius, it is surprising to note, given what has been claimed for the passage, that here again there is no mention of *societates publicanorum*.²⁹ What Polybius says is that within an area of twenty stades round the city of New Carthage there stay 40,000 workers, who bring in twenty-five thousand drachmae per day to the Roman people (τῷ δήμῳ τῶν Ῥωμαίων καθ' ἑκάστην ἡμέραν). This has been taken to mean that the companies handed over 25,000 drachmae per day to the state, while they themselves retained another, and perhaps equal, share; or alternatively that the very large figure of 25,000 drachmae should be a total output figure, and that the amount paid to the state can only have been a fraction of this.³⁰ Both these interpretations are difficult. Firstly there is no mention whatever of *publicani* in the passage, and any suggestion that this was the method of exploitation involved must remain an hypothesis. Secondly the language which Strabo, and presumably Polybius, uses is very difficult to reconcile with the operation of the *societates*. The normal method of contracting to the *societates* was through the censors, the *societates* in question paying a lump sum in return for the right of exploitation during the five-year period of the censor's *lustrum*; this was the system which Polybius himself described with reasonable accuracy in his exposition of the Roman constitution in book six.³¹ If this was the system employed in the New Carthage mines, then the amount of silver produced daily was strictly irrelevant to the amount of cash accruing to the Roman people. If he was describing a situation in which the *societates* paid such a lump-sum to the censors for the right to exploit the mines, Polybius has chosen an extremely odd method of doing so. Finally it is worth noticing that Strabo at least took seriously Polybius' remark about the money accruing to the Roman people. In an observation of his own following the quotation from Polybius, he states that the silver mines still exist, but that neither in Spain nor elsewhere do they now belong to the state, but have been transferred to private possession.³² The distinction here between public and private control certainly suggests that Strabo believed that the Roman people, as opposed to private individuals or companies, had the benefit of the 25,000 drachmae per day which Polybius mentioned.

Perhaps the strongest argument in favour of the hypothesis that the mines at New Carthage were operated by *publicani* is the apparent scale of the operation.³³ Certainly

²⁵ Strabo 3. 147; Diodorus 5. 36. 2. On the small-scale mine operators of fourth-century Attica, see E. Ardaillon, *Les mines du Laurion dans l'antiquité* (1897), 183 ff.; on the system at Laurion in general, R. J. Hopper, *ABSA* 48 (1953), 200-54, and *ibid.* 63 (1968), 293-326. For an operator working the mine himself, see [Dem]. 42, esp. § 20.

²⁶ Diodorus. 5. 36. 3-4.

²⁷ Tac., *Ann.* 11. 20; Davies, *op. cit.* (n. 1), 15; S. S. Frere, *Britannia* (1967), 284 ff. For the suggestion that this was the method employed in Spain, see Frank, *ESAR* I, 154 and van Nostrand, *ESAR* III, 128 f.

²⁸ Thus Jacoby, *FGH* II. 3, 190 on Posidonius 87 F. 47.

²⁹ Strabo 3. 147-8 = Polybius 34. 9. 8; cf. Brunt's remark that 'the mines were undoubtedly in the hands of publicans' in the time of Polybius, *op. cit.* (n. 4), 105. Badian similarly assumes that Polybius describes the *societates*, *op. cit.* (n. 4), 33 f.

³⁰ Frank, *ESAR* I, 155 f.; Badian, *op. cit.* (n. 4), 34.

³¹ Mommsen, *Röm. Staatsrecht* 3 II, 439; F. Kniep, *Societas Publicanorum* I (1896), 100 ff.; Polybius 6. 17. 1-8.

³² Strabo 3. 148: οὐ μέντοι δημόσια (sc. τὰ ἀργυρεῖα) οὔτε ἑνταῦθα οὔτε ἐν τοῖς ἄλλοις τόποις, ἀλλ' εἰς ἰδιωτικὰς μετέστησαν κτήσεις.

³³ See also the argument of Orth, *RE* suppl. IV (1924), 152.

40,000 workers, presumably slaves though perhaps free native Spaniards, is a large work force, especially in the context of the much smaller scale of ancient industry compared with its modern equivalent. Modern scholars, much impressed by this figure, have assumed that only through the operation of a *societas*, with a number of rich men pooling their resources, would so large an enterprise be able to function. This may well be true, and the point would be an important one, if we knew that the whole work-force was used by a single employer. For the moment it is worth emphasizing merely that neither Polybius nor Strabo says that the mines of the area were exploited by only one lessee; that the mines seem mostly to have been of the type common in the ancient world, with deep but very narrow galleries, allowing access to small numbers of men at one time, and thus employing only a small number of men in each mine³⁴; and finally that Polybius does not even state that the community of 40,000 workers in the area were all involved directly in extraction and processing of ore, and that it is at least possible that a large number were engaged in providing the necessities of life for the mine-workers.³⁵

So far then the *societates publicanorum* have been remarkable in the ancient accounts of the Spanish mines chiefly through their absence. This is not to say that the sources exclude the possibility that such *societates* were exploiting the mines; but there is no evidence in their accounts to show that they did so, and some indications that they did not. There is one other passage which certainly mentions *publicani* as involved with mining during the early second century, and although it is not about Spain, deductions about the Spanish situation have been made from it. In describing the regulations laid down by the senate for the four regions that were to replace the kingdom of Macedonia in 167 after the final defeat of Perseus at Pydna, Livy states that it was decided that the lease of the Macedonian mines should be ended and also that of farms in the countryside; he also comments on the large amount of *vectigal* obtained from the mines ('metalli quoque Macedonici, quod ingens vectigal erat, locationes praediorumque rusticorum tolli placebat').³⁶ The reason Livy gives, and which from the language of the passage seems to have been incorporated in the senate's decree, was that it was not possible to exploit these possessions without the use of *publicani*, and that where there was a *publicanus*, either there was no public law, or no freedom for the allies ('nam neque sine publicano exerceri posse et, ubi publicanus esset, ibi aut ius publicum vanum aut libertatem nullam esse').³⁷ From this it has been argued that the only way the Romans could envisage the organization of a mining industry was through the use of publican companies, and that their unwillingness to subject the Macedonians to this resulted from the senate's previous experience with the *publicani* who operated the Spanish silver mines.³⁸

The context of Livy's remark needs some further examination before we can determine its significance for the senate's policy on mines. In the first place it is important to realize why, as Livy goes on to say, the Macedonians could not operate the mines themselves ('ne ipsos quidem Macedonas id exercere posse')³⁹. It was clearly not the case that the Macedonians lacked the necessary technical expertise. They had been mining silver very successfully before this time, and had produced thereby the 'ingens vectigal' to which Livy refers; indeed despite the original decision of the senate to close down all mining operations, it was agreed in the final settlement that although the gold and silver mines were to be discontinued, the mining of iron and copper could continue.⁴⁰ Purely from the technical point of view, it would have been perfectly possible for the Macedonians to have mined the silver themselves, and to have made a payment to Rome from the proceeds; just such a process was used apparently for the iron and copper mines, the tax demanded being reduced to one half of that previously collected by the Macedonian kings. The reason for the closure

³⁴ Diodorus 5. 37; on the mines of the Cartagena region, see Davies, op. cit. (n. 1), 107-10; A. Beltrán, *Memorias de los Museos Arqueológicos Provinciales* 6 (1944), 201-9. In one case in fourth-century Attica, a workshop attached to a mine employed only thirty slaves, and it is unlikely that the small-scale galleries would allow so many to be usefully employed in extracting the ore, Dem. 37. 4, cf. Hopper, loc. cit. (n. 25), 247-8. See below p. 147 f.

³⁵ Compare the similar situation described in the Appendix.

³⁶ Livy 45. 18. 3 ff.

³⁷ Not, incidentally, 'no public law and no freedom for the allies' as Badian, op. cit. (n. 4), 12.

³⁸ Brunt, op. cit. (n. 4), 105; Badian, op. cit. (n. 4), 40-2.

³⁹ Livy 45. 18. 5.

⁴⁰ Livy 45. 29. 11.

of the silver mines seems rather to be connected with Roman fears about the possible political consequences of leaving control of the mines in the hands of the Macedonians. Livy states that if the administration was done locally, it would be an everlasting source of discontent and revolt.⁴¹ Diodorus is more explicit. The senate, he says, did away with the income from the silver and gold mines in order to avoid injury to the Macedonians, and to avoid anyone being able, with the support of the money acquired from the mines, to rebel in the hope of seizing the kingdom of Macedonia.⁴² Perseus had relied heavily on money from the mines, and in his preparations for war with Rome had re-opened abandoned workings and started new ones.⁴³ It is easy to understand the senate's unwillingness to leave such a potentially dangerous source of wealth in Macedonian hands in the immediate aftermath of Perseus' defeat. This would also explain why, after a delay of nearly ten years, the senate seems to have been prepared to re-open the Macedonian mines, though we have no means of telling who was responsible for their operation, whether Romans or Macedonians.⁴⁴ There are other difficulties about this passage in Livy, and it may be that his outburst against the *publicani* has its origins not in the debate in the senate in 167 but from a much later period altogether⁴⁵; in any case, it is clear that general principles cannot be drawn from this incident and applied to senatorial policy on mines in general. The policy of closure adopted in Macedonia was prompted in the first place by fear of renewed political activity in what were nominally four independent states.

2. THE EXPLOITATION OF THE SILVER MINES: AN ALTERNATIVE

A review of the evidence for the exploitation of Spanish silver deposits in the second century B.C. gives no grounds for the belief that the Roman state used the great *societates publicanorum* to finance the mining operations in the newly-formed provinces. It is perhaps doubtful whether in any case the great financiers would have been prepared to make what would have been a very large capital investment in such troubled regions.⁴⁶ Yet the Roman people certainly did profit from the mining: Cato's institution of *vectigalia* and the sums recorded by Polybius as going to the Roman people leave no room for doubt.⁴⁷ The question is, was this possible without the use of *publicani*?

It would be as well at the outset to make two general points. Firstly, the state of our sources and the data that may be gleaned from them do not justify an attempt to postulate one single pattern of ownership and organization for all the silver mines in Spain during this period. Information from the first century B.C. and the first century A.D. seems to give a very varied picture. Some mines at least appear to have been privately owned, though exactly what type of 'ownership' is involved is not clear. However it is likely that under the republic there was a mixture of different forms of control of the Spanish mines, both by the state and by private individuals.⁴⁸

Secondly, even where mines were under state control of some sort (as was clearly the case for the New Carthage mines), and yielding a *vectigal*, it is not necessary that the *societates publicanorum* should be involved. As Rostovtzeff pointed out, there were at least

⁴¹ Livy 45. 18. 5.

⁴² Diodorus 31. 8. 6: κατέλυσαν δὲ καὶ τὰς ἐκ τῶν μετάλλων ἀργύρου καὶ χρυσοῦ προσόδους διὰ τε τὸ τῶν ἑνοικούντων ἀνεπηρέαστον καὶ ὅπως μὴ τινες μετὰ ταῦτα νεωτερίζοιεν διὰ τῶν χρημάτων ἀνακτώμενοι τὴν Μακεδόνων ἀρχήν.

⁴³ Livy 39. 24. 2.

⁴⁴ Cassiodorus, sub anno 158. Badian, op. cit. (n. 4), 127, n. 41 believes that the *publicani* took over when mining resumed; Toynbee, *Hannibal's Legacy* (1965) II, 360 f., that probably the Macedonians did so.

⁴⁵ In particular, the fear that 'ubi publicanus esset, ibi aut ius publicum vanum aut libertatem sociis nullam esse' (Livy 45. 18. 4) applies more clearly to the conflict of interest likely to have been experienced by a Roman provincial governor in the first century B.C. than to the administration of the 'republics' of Macedonia after 167 (cf. Cicero's

advice to his brother Quintus on the problems of handling the publicans expressed in similar terms: Cic., *ad Quint. frat.* I. I. 32-3).

⁴⁶ On the size of investment that would be needed, see Badian, op. cit. (n. 4), 33-4; Frank, *ESAR* I, 154-7. Though Badian (126, n. 30) rightly points out the impossibility of precise figures, he has no doubt that the capital required would be very large.

⁴⁷ Above p. 141.

⁴⁸ Thus Strabo says that the silver mines both at Cartagena and elsewhere εἰς ἰδιωτικὰς μετέστησαν κτήσεις (Strabo 3. 148; see also below p. 147); Sex. Marius is said to have owned gold mines in Spain in the reign of Tiberius (Tac., *Ann.* 6. 19); and the 'triumvir' M. Crassus had very many silver mines, perhaps in Spain, according to Plut., *Crass.* 2. 7. On all this, see the sensible remarks of M. Torres in R. Menendez Pidal (ed.), *Historia de España* II (1935), 337 ff.

three methods of contracting out the exploitation of the mines available to the Romans, just as there were with the leasing of *ager publicus* in general: they could be let to large-scale contractors; they could be operated by small-scale lessees, who sub-contracted from large-scale companies; or they could be let directly to small-scale lessees. Each of these systems is known in the ancient world.⁴⁹ Moreover strictly speaking all these systems involved *publicani*, at least as the term was later defined by the Roman jurists. Ulpian specifically states that 'omnes, qui quod a fisco conducunt, recte appellantur publicani'.⁵⁰ This would include not only the great *publicani* of the *societates publicanorum*, Cicero's 'flower of the Roman knights',⁵¹ but also small farmers on the *ager publicus*. In Ulpian's terms at least, all these men were *publicani*.

To return to the mining area around New Carthage, it is extremely likely that the Roman state operated some form of leasing of concessions there, whatever the position elsewhere in the peninsula may have been. It is only in this part of Spain that we hear of tracts of *ager publicus*, belonging to the Roman people, during the republican period, and this surely covered the silver deposits there which the Carthaginians had operated.⁵² There is, however, a high probability that this leasing was undertaken not through the *societates publicanorum* and the *ensoria locatio* made every five years at Rome, but by the allocation of parts of the mining area to small-scale contractors, a transaction which could be carried out on the spot between the contractors and the governor or his representatives. This was indeed similar to the system which the Romans used in Sicily to collect the tithes on natural produce; the contracts for collection of wine, oil and vegetable taxes were made, until 75 B.C., by the two quaestors on the island, the grain tithes being sold by the praetorian governor himself.⁵³ The evidence from the Spanish silver mines seems to accord with just such a procedure.

Firstly the literary evidence. Polybius describes the revenue of the mines near New Carthage as paid directly to the Roman people and calculated on a day-to-day basis. This, as pointed out above, seems out of place if the contracts were let by *ensoria locatio*, but would fit much better if the lessees of the mining concessions paid either a rent or a proportion of their production directly to a Roman official on the spot.⁵⁴ Diodorus' account of the mines in Spain,⁵⁵ which describes the inrush of a large number of Italians, each making private profits from the mines, which he says were previously operated by the Spaniards themselves and then by the Carthaginians, also suggests that these men were relatively small-scale individual contractors. It is important to note that Diodorus here is certainly using Posidonius (see above, n. 24) and that Posidonius and Polybius were both eye-witnesses of these mining areas.⁵⁶

The archaeological evidence also tends to confirm this picture. The mines of the area themselves, so far as they have been examined, are of two types. There are large open-cast pits, and, more usually, shafts sunk to the level of the deposit, with galleries which then followed the direction of the vein. Although the extent of these galleries can be impressive (at the 'La Fortuna' mine near Mazarron is one which runs for 1,800 m), the height and width of the passage is very restricted indeed.⁵⁷ Here, as indeed in most ancient mines, there was room at best for one worker to stand at the face, with another man cutting the

⁴⁹ M. Rostowzew (= Rostovtzeff), *Geschichte der Staatspacht in röm. Kaiserzeit*, *Philologus*, Supp. IX (1904), 446 ff.

⁵⁰ Ulpian in *Dig.* 39. 4. 1. 1; cf. F. Knip, *op. cit.* (n. 31), 4.

⁵¹ Cic., *Planc.* 9. 23.

⁵² In the long list of Roman possessions overseas which Cicero argues were to be sold under Rullus' *rogatio* in 63, the only ones in Spain are 'agros in Hispania apud Carthaginem novam' (*de leg. agr.* 1. 2. 5; 2. 19. 51). On Carthaginian exploitation, see above n. 8.

⁵³ Wine, oil and vegetables: Cic., 2 *Verr.* 3. 7. 18. Corn: 2 *Verr.* 3. 64. 151. Carcopino, *op. cit.* (n. 2), 80-1. Cicero's remark that *vectigalia* could only be assigned at Rome (*de leg. agr.* 2. 21. 55) applies only to censors, as is clear from *de leg. agr.* 1. 3. 7 (cf.

Knip, *Societas Publicanorum* 1, 100).

⁵⁴ Pol. 34. 9. 8 (= Strabo 3. 147-8); cf. above, p. 142.

⁵⁵ Diodorus 5. 35-6. It is probable that he is describing the mines in southern Spain, as he stresses their continuous operation from before the arrival of the Carthaginians through to Roman times; cf. also Davies, *op. cit.* (n. 4), 107 n. 12, and above p. 140.

⁵⁶ Posidonius T. 20 (Edelstein-Kidd) = Strabo 3. 147; Polybius 10. 11. 4 (cf. Walbank, *Historical Commentary on Polybius* II, 205).

⁵⁷ A. Beltrán, *Memorias de los Museos Arqueológicos Provinciales* 6 (1944), 201-9; for a description of the 'La Fortuna' mine, G. Gossé, *Ampurias* 4 (1942), 52 ff.

lower section in a kneeling position; often there is only space enough to crawl.⁵⁸ Such methods of mining mean that the work-force used must have been broken down into relatively small units, with one or two men only actually digging out the gallery and the ore, and considerably more (say another six men) involved in taking the diggings to the surface, which was done in the Cartagena region by hauling it in buckets made of esparto;⁵⁹ in addition, men would be needed for the preparation, washing and smelting of the ore once it had been extracted. However, even allowing for gangs of miners working in shifts, we should not be too far from the truth in estimating a total work-force for each unit of about fifty men.⁶⁰ There would be considerable variations from this mean, depending on the difficulties of working the mine, the need for more complex methods of drainage, the distance of the face-workers from the surface and so forth. Of course the fact that the mines were probably worked by these relatively small work-forces does not prove that the men who leased them were small-scale operators: it would be quite possible for a large-scale lessee to have operated a number of these units. However it does show how small-scale operation would have been possible, and also that the large numbers recorded by Polybius may well give a misleading impression (above p. 142).

There is one further archaeological indication that the mines were being operated basically by individual contractors rather than by the great *societates publicanorum*. The ore that was mined round New Carthage was an argentiferous lead, and after the silver had been extracted by a smelting process known as cupellation, a considerable quantity of lead would be available as a by-product.⁶¹ The lead was formed into ingots, numbers of which have been found in the New Carthage region, and elsewhere.⁶² These ingots are stamped with a name, presumably that of the owner or lessee of the mine from whose furnaces the lead was produced. So far as can be determined from the lettering, these ingots belong for the most part to the republic and early empire. Under these circumstances it is remarkable that all but one of these ingots bear the names of private individuals, either of Roman or Italian origin.⁶³ The probability is that these men were individual contractors, exploiting the mines on their own behalf, especially as some of the same people were local magistrates at New Carthage, and almost certainly residents of the area.⁶⁴ It is of course possible that these individuals were merely the representatives of large stock companies, but that is unlikely for two reasons. Firstly the distinctive legal feature of the *societates publicanorum* was that under Roman law they had a corporate *persona*, and thus the right to enter into contracts, to own property and so forth.⁶⁵ It is therefore unlikely that they would use the name of a representative of the company to mark out its ingots rather than the name of the company itself. Secondly there does exist one example of a lead ingot which, though found in Rome, probably comes from Spain, and which bears the title of the SOCIET. ARGENT. FOD. MONT. ILUCR., clearly a silver-mining company.⁶⁶ Although this society may well be of Augustan date, the use of its name in this way reinforces the probability that those ingots bearing private names were produced by private individuals.

It is not difficult to envisage several types of arrangement which the state might have

⁵⁸ Beltrán, *op. cit.*, 204; Davies, *op. cit.* (n. 4), 20-1; R. J. Forbes, *Studies in Ancient Technology* vii (1963), 194-7. The process of driving such galleries using two men is described in Agricola's *de re metallica* (Basel, 1556); the dimensions he describes are approx. 3 ft by 7 ft 6 in, the size of many Roman galleries (G. Agricola, *de re metallica* tr. H. C. and L. H. Hoover (repr. 1950), 102). Compare also Theophrastus' remarks on mines in Samos, in *de lapidibus* 9. 63, and the note of D. E. Eichholz (1965) *ad loc.*; and the primitive, narrow workings of the mine at Diógenes, on the north slope of the Sierra Morena, which probably date from the early first century B.C., C. Domergue, *Mélanges de la Casa de Velasquez* 3 (1967), 29-92.

⁵⁹ Thus the group of nine miners shown about to descend on the relief from Linares, Rostovtzeff, *SEHRE*² 1, pl. xxxv. For an illustration of the esparto buckets, see especially Gossé, *art. cit.* (n. 57), pl. iv.

⁶⁰ Compare the work-forces used at Laurion, as

calculated by S. Lauffer, *Die Bergwerkshlaven von Laureion* 1 (1955), 46-8; and by H. Wilsdorf, *Bergleute und Hüttenmänner im Altertum*, Freiburger Forschungsheft 1 (1952), 143-4. See also Appendix on numbers in the South American silver-mines in the sixteenth century.

⁶¹ On cupellation, see R. F. Tylecote, *Metallurgy in Archaeology* (1962), 79-82.

⁶² Davies, *op. cit.* (n. 1), 107-10.

⁶³ C. Domergue, *Mélanges de la Casa de Velasquez* 1 (1965), 9-28 and *Archivo Español de Arqueología* 39 (1966), 41-72; Hübner on *CIL* II 6247.

⁶⁴ For example, P. Turullius, whose name occurs on several lead ingots, is also known from local coins as a *duumvir quinquennialis* in the early imperial period, A. Beltrán, *Memorias de los Museos Arqueológicos Provinciales* 8 (1947), 207-8.

⁶⁵ Badian, *op. cit.* (n. 4), 69; Knip, *op. cit.* (n. 31), 241 ff.

⁶⁶ *CIL* xv 7916.

made with these men who operated the mines. The tablets from Aljustrel in Portugal, set up in the reign of Hadrian to regulate the mining district of Vipasca, show that the mine operators there first purchased the rights to exploit a particular mine from the *procurator metallorum*, the local state official, and then handed over to the *fiscus* one half of the ore they extracted, before smelting it, or else paid an equivalent price.⁶⁷ In the fourth century A.D., the emperors Gratian, Valentinian II and Theodosius I laid down that anyone who wished to mine on private property should be allowed to do so, on condition that they paid 10 per cent to the land-owner and 10 per cent to the *fiscus*, and other schemes on the basis of a tax on the ore extracted are known from the period.⁶⁸ In the sixteenth century owners of silver-mines at Zacatecas in Mexico and at Potosí in Peru (now Bolivia) paid a tax to the crown of one-tenth or one-fifth of the refined silver, which was then stamped and could be traded.⁶⁹ All these methods of taxation were used with individual mine-operators, working on the same scale as I have suggested above. Probably that used at New Carthage was most like that later found at Vipasca, since it is probable that the characteristics of that scheme (fixed rent or 'purchase' of rights, with a proportion of the ore going to the state) would be most appropriate in a situation in which the land being mined was *ager publicus*. The existence of a levy on the ore produced would also explain much better Polybius' insistence on a certain sum coming to the Roman people each day from the mines.⁷⁰ The part played by the *procurator metallorum* in the Vipasca inscription would no doubt be filled by the governor's quaestor, just as happened at the same period with the sale of the Sicilian grain tithes.⁷¹

There is much about the organization of the Spanish silver mines during the first hundred years of Roman occupation which must remain obscure. Moreover there is no reason to assume that whatever method was used to administer the mining areas remained unchanged for a prolonged period. Strabo certainly thought that there had been a change between the time of Polybius, when the silver mines had been publicly owned (δημόσια), and his own time when they had been transferred into private hands (εἰς ἰδιωτικὰς κτήσεις).⁷² It is uncertain what this means (perhaps it involved a transfer of the land under which the mines were dug from the state to private individuals) but clearly Strabo's language indicates some alteration. Furthermore, the precise application of a system like those outlined above gave considerable scope for variation. There would, for example, be no reason to exclude the operation of *societates* of one sort or another: the regulations for Vipasca lay down rules to enable a lessee of the mines to take 'socii' if he so wishes, outlining their responsibilities and privileges.⁷³ The probability is, however, that the administrative machinery developed ad hoc, and that it was not, at least in the early days, the heavily centralized method of five-year contracts assigned to the *societates publicanorum* by the censors in Rome. The evidence indicates a series of much smaller-scale operations.

II

The silver mines were not of course the only means the Romans had of raising revenue from the Spanish provinces in the second century. More direct taxation was also imposed, particularly the *stipendium* and a 5 per cent levy on corn crops. It will be instructive at this point to examine the ways in which these fiscal institutions evolved, particularly because some scholars have believed that they were already in a fairly sophisticated and centralized form by the beginning of the second century. If this is true, the rather unformulated, ad hoc nature of the methods which seem to have been used in the operation of the silver mines might seem oddly out of line.

I. THE STIPENDIUM

There is no doubt that in the last century of the republic Spain paid *stipendium* to Rome, nor that at that date it consisted of a fixed tax, paid directly to the state, presumably by way

⁶⁷ *FIRA*² I, 104 and 105.

⁶⁸ *Cod. Theod.* 10. 19. 10 (29 Aug. 382); cf. A. H. M. Jones, *The later Roman Empire* (1964), 435-6 and 838-9.

⁶⁹ P. J. Bakewell, *Silver Mining and Society in Colonial Mexico, Zacatecas, 1546-1700* (1971), 186 ff.;

C. Haring, *The Spanish Empire in America* (1947), 277-8.

⁷⁰ Above, nn. 52 and 54.

⁷¹ Above, p. 145 and n. 53.

⁷² Strabo 3. 148.

⁷³ *FIRA*² I, 104, ll. 12-24.

of the quaestors of the two Spanish provinces. Cicero mentions the Spaniards together with the Carthaginians as paying a 'vectigal certum, quod stipendiarium dicitur', as distinct from other forms of *vectigal* assigned at Rome by the censors to *publicani*, and from the *decumae* or tithes which were the general rule in Sicily.⁷⁴ Florus is explicit as to the date at which Spain began to be taxed in this way: 'Scipio ille mox Africanus . . . non contentus Poenos expulisse, stipendiariam nobis provinciam fecit.'⁷⁵ That is to say, according to Florus Spain was a stipendiary province from 206 onwards. Furthermore the practice of imposing the payment of *stipendium* on a defeated enemy may already have been current by the early second century. Certainly Carthage was made to pay reparations to Rome after 241 and again after 201, and in several passages Livy refers to this as 'stipendium'.⁷⁶ Thus some scholars believe that from an early stage a stipendiary tribute, a 'vectigal certum' in Cicero's sense, was imposed upon the Spaniards.⁷⁷

The only specific references to the levying of *stipendium* in Spain in the late third and early second centuries are in Livy. The first mention is during the second Punic war: when the two Scipio brothers wrote to the senate in 215 to request further supplies of money, clothing and food for their troops in Spain, they added 'quod ad stipendium attingat, si aerarium inops sit, se aliquam rationem in tuto quomodo ab Hispanis sumatur'.⁷⁸ It is clear that under normal circumstances, if the *aerarium* had not been short of funds, this 'stipendium' would have gone from Rome to Spain rather than *vice versa*, and that what the Scipios were proposing was not the institution of a regular tax (Cicero's 'vectigal certum') but an ad hoc levy to provide payment for their soldiers. Precisely similar assistance had been sought in the previous year by the Roman commanders in Sicily and Sardinia, again from local sources.⁷⁹ In 218 Cn. Scipio had, according to Livy's account, conducted operations in northern Spain against the Ilergetes and the Ausetani, at that time allies of the Carthaginians, which had resulted in the acquisition of substantial amounts of cash.⁸⁰ Pay for the army was still being collected in a similar fashion in 206, when Scipio Africanus raised money to satisfy his mutinous troops at the river Sucro. The soldiers' complaint was of 'stipendium non datum ad diem', and Scipio decided 'missis circa stipendiarias civitates exactoribus stipendii spem propinquam facere'. It is not surprising that when the revolt of the Ilergetes, which was associated with the mutiny, was suppressed the one demand made of their leader Mandonius was that he should provide money 'ex qua stipendium militi praestari posset'.⁸¹ In such a context the 'stipendiariae civitates' seem to be those communities from which the Romans raised *stipendium* for their soldiers, just as they had from some of the Italian peoples during the wars of the fourth century. This is confirmed by the language in which Livy describes the demand made of Mandonius after his subsequent revolt in 205 for 'stipendium eius anni duplex et frumentum sex mensum sagaque et togae exercitui'. That this 'stipendium duplex' was not a double payment of a fixed annual tax is shown not only by its being listed along with other army supplies, but by the words 'eius anni'. Exactly the same description is attached to the *stipendium* paid by various Italians in the earlier books of Livy's history, where it means that the money provided was to pay the army for the year in question.⁸² In these cases, therefore, the Spanish *stipendium* was not a 'vectigal certum'; it was likely in principle to vary from time to time, as the size and cost of the army employed varied.

The one remaining reference in Livy to *stipendium* in a Spanish context shows that this meaning of *stipendium* as pay for the army collected in the province was not confined to the period of the Hannibalic war. In 180 Q. Fulvius Flaccus, applying for permission to celebrate a triumph over the Celtiberians, reported that 'confectam provinciam, nec

⁷⁴ Cic., 2 *Verr.* 3. 6. 12.

⁷⁵ Florus 1. 33. 7.

⁷⁶ On the *stipendium* as a reward for the victor: Cic., 2 *Verr.* 3. 6. 12; Caesar, *BG* 1. 44. 2; Mommsen, *Röm. Staatsrecht*³ III (1887), 728; Marquardt, *Röm. Staatsverwaltung* II (1876), 185 ff. On the Carthaginian payments: Polybius 1. 62. 9; 3. 27. 5-8; 15. 18. 7; Livy 21. 1. 5, 40. 5, 41. 9; 30. 37. 5; 32. 2. 1; 33. 46. 8-9; 36. 4. 7.

⁷⁷ Thus J. J. van Nostrand, op. cit. (n. 13), 127; A. Schulten, *CAH* 8 (1930), 308 and n. 3; C. H. V. Sutherland, *The Romans in Spain* (1939), 53 ff.; and

perhaps E. Meyer, *Röm. Staat und Staatsgedanke*² (1961), 234.

⁷⁸ Livy 23. 48. 5. Their request had been for 'pecuniam in stipendium, vestimentaue et frumentum exercitui' (48. 4).

⁷⁹ Livy 23. 21. 1-5.

⁸⁰ Livy 21. 61. 6-11.

⁸¹ Livy 28. 25. 6 ff., 34. 11.

⁸² Livy 5. 27. 15; 5. 32. 5; 9. 41. 7; 10. 46. 12. Cf. 29. 3. 5 (Mandonius). For a contrary view, see van Nostrand and Schulten, loc. cit. (n. 77).

stipendio, quod mitti soleret, nec frumento portato ad exercitum in eum annum opus esse'. Once again, as in 215, the implication is that normally *stipendium* would have been brought from Rome to Spain but that on this occasion it was not needed; no doubt the 'stipendium... in eum annum' had been supplied by the Celtiberians themselves.⁸³

Thus such evidence as is available on the nature of the *stipendium* down to 180 indicates that in Spain at least it had not developed beyond meaning 'money to pay the army', and that it was levied ad hoc and at the instance of the governor (thus Scipio in 206, and presumably Fulvius Flaccus in 180). It is not surprising that the system in Spain should be more like an earlier Roman one than the 'vectigal certum' of the later republic. If Mommsen was right in suggesting that the idea of the *stipendium* as a regular rather than an occasional payment came from the Hellenistic kingdoms, it is not to be expected in Rome's early years in Spain.⁸⁴ In support of Mommsen, it is interesting that *stipendium* is the word Livy uses to translate Polybius' φόροι when describing taxation by the Romans; and, more importantly, Livy also describes dependent Greek cities as being 'stipendiariae' to their Hellenistic rulers.⁸⁵ The date at which this ad hoc collection was replaced in Spain by the 'vectigal certum' which Cicero mentions cannot be established with certainty. The most likely time is during the reorganization carried out in the governorships of Ti. Sempronius Gracchus and L. Postumius Albinus in 180-78. Gracchus himself drew reparations from the defeated Celtiberians, no doubt much as his predecessors had done, but Appian, describing the treaty arrangements that he made subsequently, talks of the taxes determined under Gracchus (φόρους τοὺς ὀρισθέντας ἐπὶ Γράκχου) and, though it seems that these contributions had been allowed to lapse at some time between 178 and 154, the description would fit the later conception of *stipendium*, and would make sense in the context of the 'precise treaties' (συνθήκας ἀκριβεῖς) that Gracchus is said to have instituted.⁸⁶

2. CORN LEVIES

It is certain that at some date before 171 some sort of 5 per cent levy (*vicensuma*) had been imposed on some at least of Rome's Spanish allies. In that year various Spanish tribes complained to the senate about the conduct of three former praetorian governors, two from Hispania Citerior and one from Ulterior. At the end of the proceedings Livy states that the senate laid down regulations for the protection of the allies in future 'ne frumenti aestimationem magistratus Romanus haberet neve cogeret vicensumas vendere Hispanos, quanti ipse vellet, et ne praefecti in oppida sua ad pecunias cogendas imponerentur'. This implies that not only was a 5 per cent levy of corn being collected in Spain, but that there was a system of 'frumenti aestimatio'; the use of the phrase here indicates that already the governor was permitted to fix the price which the Spanish communities could pay in lieu of corn. It seems too that the abuses of the tax system which were to cause hardship to provincials through the republican period and into the empire were already being practised, and that an attempt was being made by the senate to suppress them.⁸⁷

For the purpose of determining the nature of the fiscal organization in the Spanish provinces, there are two questions about this passage, to which the answers are not immediately evident, and which have been very variously answered by modern scholars: when was this system of the 5 per cent corn-levy instituted, and what light does the system of corn-levies throw on other methods of taxation?

It has been generally assumed that all exactions of corn in Spain down to 171 were on the basis of the *vicensuma*.⁸⁸ Rostovtzeff indeed even identified the *vicensuma* and the

⁸³ Livy 40. 35. 4.

⁸⁴ Mommsen, *Röm. Staatsrecht*³ III, 729 f.

⁸⁵ Livy 37. 25. 12 = Pol. 21. 11. 9; Livy 38. 9 = Pol. 21. 43. 14. For Hellenistic *civitates stipendiariae*, see Livy 34. 57. 10; 35. 16. 6; 37. 53. 4; 37. 55. 6; 38. 39. 7-8 (= Pol. 21. 46. 2-3).

⁸⁶ Demands on the Celtiberians: Livy 40. 47. 10; Gracchus' arrangements: Appian, *ibid.* 43. 179; 44. 182. It may be at this time, rather than in 197, that the Iberian coinage on the denarius standard was first introduced, to pay the *stipendium*; M. H. Crawford, *Num. Chron.* 1969, 79 ff., though he

believes that the Iberian denarii were introduced in 197, presents arguments not incompatible with 178.

⁸⁷ Livy 43. 2. 12; Ps-Ascon. 203 (Stangl). On *aestimatio frumenti* see Cic., 2 *Verr.* 3. 81. 188 ff.; J. Carcopino, *op. cit.* (n. 2), 102 ff. On later abuses, Cic., 2 *Verr.* 3. 77. 178; Tacitus, *Agricola* 19; Ammianus 28. 1. 18; R. T. Pritchard, *Historia* 20 (1971), 224-38.

⁸⁸ Sutherland, *op. cit.* (n. 57); van Nostrand, *op. cit.* (n. 13), 127; M. Rostovtzeff, *RE* VII s.v. 'frumentum', 153-4.

stipendium, arguing that the latter was a money payment equivalent to the value of the corn-levy, that is one-twentieth of the crop. He further argued that the corn which did come to Rome from Spain⁸⁹ must have been either *frumentum emptum*, compulsorily purchased from the Spaniards, or else have been grown on state-land owned by Rome itself. It is of course possible that there was such public land in Spain at an early date, but surely not the wide acres that Rostovtzeff implied. Significantly Cicero, when cataloguing the state-owned land that would be sold under the terms of Rullus' agrarian bill in 63, can mention in Spain only land near New Carthage, which might well be connected with Rome's mining interests there.⁹⁰ In any case Rostovtzeff's reconstruction is at odds with the evidence about the Spanish *stipendium* during this period. I have argued above that *stipendium* in the sense of a regular tax did not appear in the two provinces until c. 179/8; and in any case, even when it does appear Cicero carefully distinguishes between the fixed and precise nature of the *stipendium* ('vectigal certum'), and the taxes extracted from either Asia or Sicily, both of which were on a tithe basis. Further, just as pay for the army (*stipendium*) was collected on an ad hoc basis, so too was corn, and other supplies for the army. Mandonius in 205 was ordered to provide not only 'stipendium eius anni duplex' but also 'frumentum sex mensum . . . sagaque et togae exercitui'; and in 180 Fulvius Flaccus could report that he had enough 'stipendium' and enough 'frumentum' for his troops.⁹¹ In these cases at least the references seem to be to exactions of corn to feed Roman soldiers, not a cash equivalent.

These examples of course cannot show that the *vicensuma* system was not in use in Spain during the early years of the Roman presence there, but they do show that there were alternative means of exploiting the natural resources of the provinces. It seems likely moreover that in 195 when Cato was sent to Spain as consul, there was no mechanism for collecting a fixed corn-levy. According to Livy, he arrived at a time when the corn was standing on the threshing-floors, and therefore he forbade the supply-agents ('redemptores') to buy corn for his army, and sent them back to Rome, with the words 'bellum se ipsum alet'. He then proceeded to ravage the fields round his base at Ampurias.⁹² It is clear from this anecdote that there was no permanent machinery in Cato's province for the collection of corn, and moreover that the possibility of supplying his army by means of a 5 per cent corn-levy had not even occurred to Cato, for whom the alternatives were either to purchase corn or to capture it from the enemy. If the *redemptores* had been proposing to collect *vicensumae*, Cato's retort would have lost its force. The consul's neglect of a corn-levy is particularly striking, because it occurred at precisely the moment when it would have been easiest to collect, when 'id erat forte tempus anni, ut frumentum in areis Hispani haberent', the time at which, under the Sicilian system, the tithe was assessed and collected.⁹³ If there is no sign of an organized corn-levy when Cato arrived in Spain, there is equally no evidence that he himself instituted one. Although, at the end of his governorship, Cato reorganized the finance so that 'locupletior in dies provincia fuit', there is no mention at all of a tax on corn, the only *vectigalia* that he imposed being on the silver and iron mines, whose importance apparently much impressed him.⁹⁴

Here again, as in the case of the *stipendium*, there is an unfortunate paucity of evidence about the collection of corn; but such as there is consonant with a system of ad hoc exactions from the Spaniards, similar in many respects to that of the *stipendium* outlined above. It is likely too that under normal circumstances this would not produce enough corn to feed the troops; in 215, when the two Scipio brothers first mentioned the possibility of their raising money in the peninsula to pay the soldiers, they emphasized that it would not be possible to feed and clothe them from the same source.⁹⁵ No doubt supplies were often sent by sea from Rome, especially during the early years, while the Carthaginians were still a real force in Spain, although the only direct evidence refers to two attempts, one unsuccessful, to supply the army there in 217.⁹⁶ Some of the corn required will also have been

⁸⁹ In 203, grain was sent from Spain to Italy and to Africa: Livy 30. 3. 2, 26. 5-6.

⁹⁰ Cic., *de leg. agr.* 1. 2. 5; 2. 19. 51. This is the only evidence cited by Rostovtzeff for state-owned land in Spain during the republic. On the mining area at Nova Carthago, see above p. 145.

⁹¹ Livy 29. 3. 5; 40. 35. 4.

⁹² Livy 34. 9. 12-13.

⁹³ Cic., 2 *Verr.* 3. 14. 36-7.

⁹⁴ Livy 34. 21. 7; cf. Gellius, *NA* 2. 22. 29.

⁹⁵ Livy 23. 48. 4-5.

⁹⁶ Livy 22. 11. 6-9; Polybius 3. 106. 7.

purchased locally, again on an ad hoc basis, as in the story of Cato and the *redemptores*. It may be, as with the *stipendium*, that a more formalized system was introduced by the Gracchan arrangements of 179/8. Although there is no evidence for the date of the institution of the *vicensuma*-system, the passage of Livy on the trials of 171, which contains the only mention of the *vicensuma* in any of the sources, would fit well with this suggestion. The investigations which led to the senatorial regulations discussed above were into the activities of the praetorian governors in Citerior in 178-5 and 174-3, and in Ulterior in 173. It is of course necessary for a fiscal system to be in existence before abuses of it can take place, and therefore it may be significant that those accused of practising these abuses had been governors of the Spanish provinces in the years immediately following the return to Rome of Gracchus and Albinus in 178.⁹⁷

The picture that emerges from the two instances of the *stipendium* and the *vicensuma* is of a gradual development of the provincial fiscal machinery from a series of ad hoc arrangements. In any case this might have been expected: from Cn. Scipio's first arrival in 218 down to the period of the governorship of Gracchus and Albinus in 180-79, the record is one of almost continuous warfare.⁹⁸ It is clear that even the senate's instruction in 197 to the first praetors sent to the two provinces to define the boundaries was not carried out satisfactorily, for on at least one occasion the governor of the nearer province is found fighting in what might be expected to be Ulterior, and vice versa.⁹⁹ These are precisely the conditions in which the original financial arrangements, primitive but adequate, might have been expected to persist.

The attitude which seems to be exemplified by the ways in which the *stipendium* and the *vicensuma* were developed is not unlike that which has already been seen in the case of the silver mines: the use of ad hoc institutions, set up in the local area in order to collect a substantial revenue without the use of complex administrative machinery. Nor should this cause surprise. The exploitation on behalf of the Roman state of the silver mines in Spain was simply one facet of the exploitation of the newly acquired provinces as a whole. As might be expected in an area continually beset by wars and at a considerable distance from Rome itself, the methods of revenue-collection developed in response to the conditions on the spot, rather than being imposed from the centre. The Romans were still, in the late third and early second centuries, acquiring the experience that would eventually lead to the more fully developed administrative institutions of the last century of the republic. It is precisely within this period that the machinery and the terminology of Roman provincial administration was first being shaped.

APPENDIX: NOTES ON THE SILVER-MINES IN SPANISH AMERICA IN THE SIXTEENTH CENTURY

Conditions in the silver mines in the Spanish New World in the sixteenth and seventeenth centuries, and the methods employed there to exploit the silver deposits, show interesting similarities to conditions and methods used in the ancient world. As information on these areas is not always readily accessible to ancient historians, I include here some notes on two major silver mining areas, Zacatecas in Mexico, and Potosí in the Spanish viceroyalty of Peru, but now in modern Bolivia.¹⁰⁰

Similarities in both the historical background and the scale of these mining enterprises with the situation of the Romans in Spain is striking. In both cases the silver was located in an infertile and

⁹⁷ Livy 43. 2. 1-12.

⁹⁸ The only period in which neither of the two Spanish governors is stated by the sources to be involved in fighting in the complete list 218-179 is 189-8, when L. Plautius Hypsaeus was in Citerior, P. Iunius Brutus in Ulterior (Livy 37. 50. 8; 57. 3-4).

⁹⁹ Livy 32. 28. 11. In 192, Fulvius Nobilior (Ulterior) was besieging Toletum on the Tagus, while Flaminius captured Licabrum, south-east of Corduba (Livy 35. 22. 58).

¹⁰⁰ The sources used in this appendix are: for Zacatecas, the survey by P. J. Bakewell, *Silver Mining*

and Society in Colonial Mexico, Zacatecas 1546-1700 (1971); for Potosí, Luis Capoche, *Relación general del Asiento y Villa Imperial de Potosí*, written in Potosí in 1585 for the benefit of the viceroy Toledo, and printed in *Bibl. de autores españoles* CXXII (1959), 5-242, edited by L. Hanke; and an anonymous *Descripción de la villa y minas de Potosí*, dating from 1603, printed in *Bibl. de autores españoles* CLXXXIII (1965), 372-85. I wish to thank especially Dr. N. G. Parker for drawing my attention to these mines, and Mr. Peter Cummings for assistance in what was for me an unfamiliar area.

distant part of a newly-acquired empire (though the distances involved were of course much greater in the case of the Spanish Empire); Polybius states that 40,000 men lived in the mining areas around New Carthage, and although the Indian work-force at Zacatecas probably never exceeded 5,000 in the sixteenth and early seventeenth centuries, the total at Potosí in all occupations was reckoned in 1603 at over 30,000.¹⁰¹ Moreover the techniques involved were similar in certain important respects. Although by the late sixteenth century the method of separating the silver from the argentiferous lead ore was by amalgamation with mercury rather than by cupellation, the processes involved in extracting the ore itself were much the same as in the Roman period. Easily accessible deposits were mined by open-cast methods, but in most cases narrow tunnels ran up to and followed the veins, tunnels in which at the most only two men could work at the head. The material which had been dug out was then carried back along the tunnels and, in the case of vertical shafts, up ladders to the surface.¹⁰²

Given these similarities, it is interesting to note the ways in which the Spaniards used their labour force. The first point to note is that only a small proportion of the available work-force was actually employed in the mines and the ore-processing plants associated with them: in Zacatecas in the 1620s, there were probably 1,700 out of 5,000, while of the 30,000 in all occupations reported in Potosí in 1603, about 11,000 are reported as being in the mines and related activities (4,600 in the mines themselves, and more than 6,000 employed in washing, sorting and processing the ore).¹⁰³ The remainder were involved in small trades in the towns and in agriculture to support the community.¹⁰⁴ Secondly the numbers of Indians employed by individual miners were on a similar scale to those at Laurion, for example, in the fourth century (see above, n. 83). At Zacatecas they ranged from eighteen to eighty-five, while at Potosí in c. 1585 a list of 550 registered workings shows that 11,247 Indians were used in them, ranging from an exceptionally large working employing 200 to several very small ones with four, six or eight, a normal number being between twenty and fifty.¹⁰⁵ The mines seem to have been registered and operated in both places by a large number of individuals and groups of individuals, although the list from Potosí at least shows that such individuals could register several mines.¹⁰⁶

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¹⁰¹ Polybius 34. 9. 8-9; Bakewell, op. cit., 128; *Descripcion de 1603*, 377.

¹⁰² Bakewell, op. cit., 131-2; Capoche, op. cit., 104 ff.; cf. above p. 145 f.

¹⁰³ Zacatecas: Bakewell, op. cit., 127-8. Potosí: *Descripcion de 1603*, 377.

¹⁰⁴ Hence the much larger proportion not involved

in mining in Potosí, which was much more isolated than Zacatecas.

¹⁰⁵ Bakewell, op. cit., 127; Capoche, op. cit., 79-102.

¹⁰⁶ Bakewell, op. cit., 181 ff.; Capoche, op. cit., 79-102.