



PIG OF LEAD, FOUND AT THE ROODEVE, CHESTER, 1885.

THE ADMINISTRATION OF THE ROMAN MINES.

BY F. HAVERFIELD, M.A., F.S.A.

(Read 19th January, 1891.)

ARCHÆOLOGISTS may be divided into two classes. There are, firstly, the local archæologists, who devote themselves, mainly or entirely, to the study of their own particular neighbourhoods, and there are, secondly, the general archæologists, if I may so call them, who deal with details collected from all quarters with no geographical limit. The first class is very common in England; you may find it in any town which has an intelligent and educated population. The second is almost confined to our universities. The two are mutually necessary, the one to supply local details, the other to compare, estimate, and explain. Local workers, if left to themselves, are likely to misunderstand, to over or under value the importance of discoveries; general archæologists, unless they have local details, have but a poor collection of facts on which to base their inductions. I will give an instance. We in England are fond of arguing that, if a town has four streets meeting at a central "cross" at right angles, those streets represent the lines of an old Roman camp. Now this notion is at first sight a plausible one, and your own streets in Chester

appear to confirm it. Hence local archæologists have not hesitated to give a Roman origin to towns whose streets show this arrangement. But a little comparison and wider search will show that the argument by no means always holds. In the first place, many Roman towns, like York and Carlisle and Winchester, show no such arrangement, neither do foreign towns like Cologne, Trier, Mainz, Augsburg, Belgrade, which have, beyond a doubt, been inhabited continuously since Roman days. In the second place, some towns which are certainly not Roman, do show it—Wareham in Dorset is one.¹ One infers from this that streets of this kind may be Roman, but may also not be, and one reaches this conclusion by comparing details collected from many places. It were easy to multiply such instances, but I think it is hardly necessary to show that, unless local and general knowledge combine, success in archæology becomes impossible. It is with this in my head that I selected, as my subject to-night, the “Administration of the Roman Mines.” It is a subject on which little has been written in English,² and it is one on which local knowledge is most valuable. It is possible that I may add to the general knowledge of some of you; it is certain that many of you will be able to increase my local knowledge. I have chosen the subject also as one which

¹Mr. Bellows has suggested that Wareham is a Roman site, but hardly any Roman remains have been found there, and the earth walls round the town seem to be later (see *inter alia* C. Roach Smith, *Retrospections*, iii. 177). The late Mr. Freeman once suggested to me that they were a post Roman British copy of Roman work. Flint is another case. It is possible that Wareham was copied from Dorchester and Flint from Chester, but it is not *necessary* to suppose this.

²My chief authorities are O. Hirschfeld, *Römische Verwaltungsgeschichte* (Berlin, 1876), pp. 72—91, and Marquardt, *Staatsverwaltung* (Leipzig, 1884), ii. pp. 252 foll. The mines of Dacia are described in part by Jung, *Römer und Romanen* (Innsbruck, 1887), pp. 46 foll. For the *lex metalli Vipascensis* see Bruno Fontes, p. 141, *C. I. L.*, ii. Suppl. 5181.

possesses some local interest and falls within the scope of a local Archæological Society.

The Romans seem to have first paid serious attention to mining in the second century before Christ. The Carthaginians had worked the rich mines of Spain in the grand style, and when the Romans wrested Spain from them, about the year 200 B.C., they set to work in turn to exploit the mines. They did so very elaborately. About 130 B.C., we hear on contemporary authority that 40,000 men were employed in the silver mines near Cartagena, and it is stated that 20,000 pounds weight of gold were yearly won from the mines of west and north-west Spain. Subsequent conquests brought other mines into Roman hands, and though some of these, like the once-famous silver mines of Laureion in Attica, were practically exhausted, the mineral wealth of Egypt, Macedonia, and Asia Minor, mostly, no doubt, state property, was enormous. There were also mines in Italy, but none of importance. As you know, Italy is, to this day, extremely poor in metals, and, at a time and for a reason unknown to us, the senate forbade the working of Italian mines. But the Roman republic did not succeed in developing any better the mining industry of the conquered provinces. It may or may not be true that a democracy cannot govern a great empire: it is a problem which we ourselves have to solve to-day; but it is undeniable that the Roman republic utterly failed to do so. Many causes contributed to the decline and fall of the Roman republic, but her conquests were her worst enemies. *Graecia capta ferum victorem cepit* is true in a sense of which Horace never dreamed. And the incapacity of the Roman government appeared as much in its mining administration as elsewhere. The mines in conquered territory were treated as state property and leased by the censors, the "lords of the treasury," to various "companies," who took

the mines and worked them at what profit they could. The shareholders (so to say) in these companies were the capitalists, politically called *equites*, financially *publicani*—men of the same class as those who contracted for the tithes of Asia and Sicily and the custom dues of Judæa. It is matter of common knowledge that the government were wholly unable to control these capitalists. Here, as in other countries, the millionaires have been able to override the law. Livy (45, 18) tells us that the mines in Macedonia, rich as they were, remained unworked, and the reason he gives is the following dilemma: the mines could only be worked through *publicani*, but the presence of *publicani* meant the absence of law and justice. Nothing perhaps exposes the weakness of the later Republican government more clearly than a little detail like this. I commend it to you, not only as a fact worth remembering in connection with Roman history, but also as a good instance of the importance which occasionally attaches to apparently insignificant details. I shall have occasion again to point out how the history of Roman mining illustrates that of Rome altogether. In justice to the government it should be added that some restrictions were placed on the *publicani*: thus one law forbade a certain company to employ more than five thousand workmen in certain gold mines at Vercellæ, in Piedmont, which was not in Italy, as Italy was understood before B.C. 31. But it is quite uncertain whether the law, or contract, was obeyed. The *publicani* in many cases were their own judges, and would no more condemn a comrade offending against the government, than a jury of whites in Missouri would condemn a white on the accusation of a coloured man.

Under the empire things mended. In the first place, the one man, who under the title of "first citizen" ruled

the Roman world, held the reins too tightly to allow much misgovernment. In the second place, the emperors used a new form of official to assist in the government. The officials of the republic, chosen by the people, were set aside: they existed, just as sheriffs of counties exist to-day, but their power was gone. Beside them there gradually arose a vast bureaucracy, all its members appointed by and removable at the will of the princeps. These men, called in large part *procuratores*—"financial agents"—were the emperor's own servants, often his own slaves or freedmen. Many of them, too, were men of great ability; and the net result was a vast improvement in the provincial governments, and amongst other things in the management of the mines.

These mines were very numerous now, and I do not propose to give you a list, which, from its length, would be tedious. They were mainly if not wholly in the hands of the government, but some doubt rests on this point, which I may here briefly explain. In a conquered province all property which had belonged to the former government of the district became Roman state property; private property, on the other hand, was, as a rule, untouched. But there is no doubt that, in most of the countries which the Romans conquered, the minerals were state property; and it is also certain that a good deal which once was private soon became state property by purchase or confiscation. For instance, a certain Pompeius, son-in-law of the Emperor Claudius, seems to have possessed marble quarries; he was afterwards put to death by the emperor and his property confiscated.

It is an interesting question whether any sort of mines became necessarily state property, that is, whether there ever existed a state monopoly. To some extent we find what is possibly evidence of private ownership; so on

some pigs of lead found in Britain¹ we have names of (as it seems) private citizens. It is, of course, possible that such names were those of imperial procurators or other agents; of three found in Britain, two seem to sound like freedmen of some early emperor, and therefore his agents—viz., Iulius Protus and Claudius Trophimus—for the freedman took his former master's name. A third, however, has distinctly the look of a private citizen, and the absence of any official designation makes it pretty certain that the other two are also private men. But whether they were owners or lessees is another question, and one not now capable of a sure answer. In all probability the state did not reserve mining rights absolutely as a monopoly. The empire, indeed, was singularly free from restrictions on trade. Free trading we cannot call it, though it has been asserted by distinguished political economists² that trade in the two first centuries A.D. was freer in some ways than it is even now over the same space of land. This may be an exaggeration, but it is certain that the imperial financiers did little in the way of monopolies; so far as I know, only one real monopoly ever existed, that being in connection with the Spanish vermilion workings. On the whole, therefore, it seems to me probable that the state claimed no monopoly of mining, but as a matter of fact did possess all or nearly all the mines actually worked. On the other hand, restrictions were certainly put on working. Thus Pliny tells us that a law limited the lead working in Britain, as the ore lay near

¹ The Spanish pigs with private names seem to belong wholly to republican times.

² By Professor A. Marshall, *Principles of Economics*, i., p. 20, following Naue, by Rodbertus in Hildebrand's *Jahrbücher*, v. 263, and by Friedländer, *Sittengeschichte Roms* (Leipzig, 1881), ii. 54. For monopolies see Cagnat, *Impôts Indirect chez les Romains* (Paris, 1882), pp. 237-245.

the surface, and (we may suppose) was considered liable to be exhausted easily.

It may be convenient to add that, by "state," I here mean emperor. Under the empire, that curious dyarchy in theory and monarchy in practice, the senate and the republican government nominally subsisted on. But just as the republican officials were thrown into the shade by the imperial officials, so the republican government was thrown into the shade by the emperor. The latter had, indeed, his own treasury, called *fiscus*, and his private purse, called *patrimonium*, both of them names for the revenues under his direct control as emperor. Among such revenues the receipts from the mines were included (hence the emperors' names on the pigs in your museum), and a passage in the historian Dio suggests that they formed a very considerable part of the imperial revenues.

The administration of the mines under the empire was to some extent the same as under the republic: the mines, that is, were let to lessees. We have several instances of this; iron mines in Noricum and Gaul, lead mines in Switzerland, gold mines in Dacia and Spain, were all let out to capitalists, similarly with some copper mines in Britain. A mass of metal has been found at Caerhyn bearing the inscription SOCIO[RVM]ROMAE, the *socii* being the "company" who hired the works.¹ But these *publicani* had not the same free hand as under the republic. They were strictly tied down by law, and strictly controlled. The incapacity of the senate had vanished before the vigorous rule of the emperor and his personal officials.

Chance has preserved us some detailed information about one imperial mine of the first century in the Spanish

¹ *C. I. L.*, vii. 1210; Way, *Archaeological Journal*, xvi. (1859), p. 40. I should be glad of any information as to where this metal is now preserved.

peninsula. A bronze tablet was found in 1876, at Aljustrel, which is usually known as the *lex metalli Vipascensis*, and contains part of the regulations laid down by the imperial officials (hence the term *lex*) for the management of the mine and the adjacent district. Here we find an imperial *procurator*, in charge (it would seem) of other mines besides this particular one, and a company of contractors who lease the workings from him. These contractors, however, do not appear to work the ore themselves; they, in turn, sublet to others, and this arrangement suggests that we have to do with a free population of small workers, like those of the alluvial gold diggings in Australia, or the diamond mines in South Africa. Such a system obtained perhaps in Dacia, and elsewhere occasionally in the Roman world, but it certainly was not the universal one. Capitalist enterprise and slave labour were common enough. Besides the lessees of the workings, the document also provides minutely for the administration of the district, which appears to have been "extra parochial," that is, distinct from the civil government of the adjoining country, very much like the *saltus* of the emperors and the *territoria* occasionally allotted to the legions. Within the area of this district, special arrangements obtained which sound strange enough to us. Only certain contracting parties could hold auctions and sales, could keep baths, could cut hair and make shoes; and, in return for these privileges, restrictions are laid on the accepted monopolists. The baths must be open during fixed hours, must not cost more than a fixed sum, must be cleaned at intervals, must have water flowing through them, be full up to a prescribed limit, and so forth. We have nothing in Britain to correspond to this. We know nothing of procurators or special rules for mining populations; we do not even know who the miners were, and we cannot be quite sure what is

meant by the appearance of LII (*legio ii?*) and LEG XX on two British pigs.

This, however, does not appear to have lasted permanently; in the course of the second century, A.D., the imperial officials began to exploit the mines directly. This change of policy is interesting. The second century corresponds roughly to the Age of the Antonines, and the historian, Gibbon, in a well-known passage, asserts that during the Age of the Antonines the lands then subject to Rome enjoyed more peace and prosperity than they ever did before or ever have done since. One chief cause of this golden age was the efficiency of the emperors and their government, and it is perhaps not too bold a step to compare this increased efficiency with a change in the administration of mines. If this be so, it is a second instance of correspondence between the general character of Roman rule and so insignificant a thing as the mines. The fact seems anyhow beyond dispute. For instance, in the early years of the second century, a *collegium aurariarum*, "a guild of lessee gold miners," is mentioned on a Dacian inscription: by the middle of the century this has given way to direct administration of officials from Rome. The resultant centralisation must have been considerable and hardly beneficial, but the tendency to centralise is very marked in the later empire. It is visible, for instance, in the constitutional history of the provincial towns. Many of these had what we may call "charters," but, as time drew on, town after town was found unable to manage its own affairs, or balance its own accounts, and the town councils had to be suspended and superseded by commissioners sent direct from Rome.

The best specimen of this centralised mining administration is afforded by the marble quarries, which, in due accordance with Roman law, we may call mines, and about which we happen to have peculiarly full information.

Twenty-four years ago, in 1867, the depôt of marble at Rome was discovered. This depôt contained a large number of marble blocks, obviously proceeding from imperial quarries, and furnished with inscriptions mentioning the emperor's name, the date, the place whence the block was cut, and its number on the books, the latter being preceded by N = *numero*, and the imperial officials concerned in the quarrying. The following officials are mentioned :—

(1) The *procurator*, who had charge of the whole quarrying—for instance, *sub cura Irenaei Aug(usti) lib(erti) proc(uratoris)*.

(2) The officer, usually a centurion, who actually superintended the quarrying, the centurion being as a rule taken from a legion stationed very far from the mines or quarries where he is employed.

(3) The expert, *probator*, who tests the goodness of the stone ; and, lastly and less commonly,

(4) The carrier who transported the block for shipment.

These do not necessarily all appear at once on the same block, though it is not uncommon for them to do so. We also find an additional notice respecting (as it seems) imperial freedmen or slaves who carried out the individual pieces of quarrying,—so to say, the foremen of the gang, who appear to have in some way shared in the direct profits of the quarrying, and so stood midway between contractors and employés. This arrangement still exists in Sardinia, and is in use in Austria, and forms a curious anticipation of the profit-sharing schemes put forward by modern economists to prevent strikes.

A similar organisation no doubt prevailed in most of the imperial mines, though we cannot always trace the details so exactly. We know, however, that in Egypt, the jewel-diggings and granite quarries were under control of important officials and guarded by military detachments.

We can further trace such arrangements in the copper mines of Cilicia, the mines of Palestine, the gold-washings in Dacia, the gold and silver works in Pannonia and Dalmatia, and various mines in Spain and Sardinia. The superintending officials seem to have been concerned with all of the mines of any one kind in one province. There would be one *procurator* for all the gold mines in Dacia, and another for all the iron or copper or marble. But there never appears to have been any centralised organisation at Rome for dealing with the revenues: there was among the imperial *bureaux* no "mining office." The gains were put into the imperial treasury without any ceremony or the use of any head office at Rome.

The technique of the mining lies outside my subject this evening, but I may just observe that it seems to have been very uneven. The Roman slag in the forest of Dean is worth working to-day for the iron it contains, and the gold workings of Dacia can be seen to-day in use, but the pigs of lead in your museum show considerable skill in separating silver and lead. I do not think we need boast. Thirty years ago the waste of some of our own mines was worth working over again. Nor do I think I need say anything about the men employed. They were, of course, slaves and prisoners, and we know, from inscriptions, that their lot was a terrible one in some cases. Carelessness about human life and comfort and want of ventilation in subterranean workings were not the worst of their evils.

The mining was continued till the fall of the empire, and, curiously enough, it seems to have decayed with the empire itself. Even in the second century, M. Aurelius, the Stoic Emperor, had to carry on a desperate war against the Marcomanni, who invaded, or tried to invade, Dacia about 170 A.D., and it is a remarkable fact that we have no clear trace of mining in Dacia later than the second century.

Later still, matters seem to have got worse. Quarrying went on, but to provide labourers, prisoners were more and more frequently condemned *in opus metalli*. We have a particularly interesting instance of this in *Passio quatuor coronatorum*, a Christian tract describing the labours of Christians condemned to work in the quarries in the time of Diocletian, when the emperor was building the great palace at Salonæ, of which the remains are visible to this day. But it is obvious that during the fourth century mining declined. The *Notitia Dignitatum*, which belongs to the close of that century,¹ mentions only a *comes metallorum per Illyricum* and certain underlings or rather persons liable to supply the deficiencies of the mines. The decay of the Roman Empire in the third and fourth centuries appears most clearly in the administration of the mines, which thus provide us with a last index of Roman prosperity.

APPENDIX.

MINES IN ROMAN BRITAIN.

It may be convenient to add a brief list of the mines in Roman Britain. The principal sources of information are the inscriptions collected in the *Corpus Inscriptionum Latinarum* (vii., p. 220), and the *Ephemeris Epigraphica*, various remains, references in ancient writers, and the following articles (among others) by modern writers:—

¹ The British section is considerably earlier (perhaps about A.D. 300), but it contains no allusion to mining.

- E. Hübner, *Rheinisches Museum*, xii. (1857) 350, and xiv. (not xiii.) 363.
- A. Way, *Archæological Journal*, xvi. (1859) 36, and xxiii. (1866) 63.
- J. Phillips, *Proceedings* (March, 1848) of the *Yorkshire Philosophical Society*, i. (1855) 77 = *Arch. Journal*, xvi. 17.
- J. Yates, *Somersetshire Archæological Society's Transactions*, viii. (1859).

Subsequent discoveries have, however, made all of these obsolete in many points of detail. The inscriptions have been collected conveniently, if not completely, by V. J. Vaillant, *Saumon de Plomb* (Boulogne, 1888).

The metals mined in Britain were :—

1. *Gold*, attested by Tacitus (*Agricola* 12), and earlier by Strabo (iv. 5, 2), and perhaps by the abundant gold coinage, &c., of the Britons. Phillips and Murchison (*Silurian System*, p. 367) professed to find Roman gold workings at Gogofau, near Lampeter, but further evidence seems wanting. That there is a certain small amount of gold in Wales has always been known. Some may also have come from streams in S.W. Britain (Evans, p. 43).

2. *Silver*, attested by Strabo and Tacitus, and by two inscribed ingots (*C. I. L.*, vii. 1196-8), as well as occasionally by uninscribed bars found with Roman remains (*e.g.*, one found in England, and now in Scarborough Museum). The silver was extracted from lead; there were no separate mines. There was a silver British coinage.

3. *Lead*, attested by Pliny (*N. H.*, 34, 164) and by many inscribed "pigs" and traces of mines. The "pigs" inscribed mostly with emperors' names, date, so far as they are datable, between A.D. 49 and A.D. 169 (*C. I. L.*, vii. 1201-1217; *Ephem.*, iii., p. 141; iv., p. 206; vii., p. 341).¹

¹ *C. I. L.*, vii. 1218 is not a lead "pig," though often described as such.

The chief mining districts are :—

(1) The Mendips of Somersetshire, especially near Charterhouse and Blagdon, where abundant traces of working are visible to this day. Two “pigs” have been found, dated A.D. 49, within six years of the Claudian Conquest; others belong to the second century. A mosaic pavement at Pitney, now destroyed, is said to have represented a mining scene. Attempts have been made to work the Mendip lead in recent times.

(2) Shropshire, especially west and south-west of Wroxeter at Shelve, Snead, and other places. Here also “pigs” and workings have been found; the pigs belong to Hadrian’s reign (A.D. 117-138).

(3) North Wales, near Flint, to which belong the lead pigs dated about A.D. 74-6, and inscribed DECEA, DECEANGI, &c. Traces of ancient lead workings survive. See also *Journ. Chester Archæol. Soc.*, i. (1886).

(4) Derbyshire: Workings and lead pigs; one found near Wirksworth belongs to Hadrian’s reign, and probably *Lutudæ* is to be sought in this region. It has also been conjectured that a pig of lead of Domitian’s reign (A.D. 81), found on Hayshaw Moor, and inscribed BRIG (*i.e.*, *plumbum Briganticum*), belongs to these mines; but it seems to come from too far north for such an attribution. See further details in *Journ. Derbyshire Archæol. Soc.*, vii. (1885) 75.

Lead pigs have been found in several other places in Britain, but all are due to loss in transport, and can be assigned only conjecturally, except perhaps the Hayshaw Moor specimen just mentioned, which may belong to some Yorkshire mine. The evidence for a mine near Penpark, in Gloucestershire (*B. and G. Trans.*, iv. 320), is wholly inadequate.

4. *Tin*, attested by Posidonius (B.C. 135-51) as quoted by Diodorus Siculus (v. 22 and 38) and Strabo (iii. 2-9), and

by Cæsar (*B. G.*, v. 12), and also by a single inscribed "pig" in Truro Museum.¹ The workings appear not to have been very extensive in Roman times. In pre-Roman times the tin was probably brought by land to some point in the channel near enough for crossing to Gaul; hence Cæsar's remark that tin *nascitur in Mediterraneis regionibus*. Usener, Rhys, Ridgeway, and others have confirmed the doubts felt by Pliny, and in this century by various Cornish writers, as to any connection between the Cassiterides and Cornwall. The tin of the Phœnicians, and much, though not all, of the early tin throughout Western Europe apparently came from north-west Spain.

It is proper to add here that the ingots of metal found at various times in the Thames, by Battersea, are pewter, and not pure tin, and cannot be taken as proofs of the production of tin in England. The rare tin coins of the British period (Evans, pp. 123, 484) seem to have Gaulish rather than Cornish affinities.

5. *Copper*, attested (not very satisfactorily) by two inscribed blocks of copper found in Anglesey and at Caerhyn, and reported traces of Welsh workings; for instance, at Llanymynech Hill, on the edge of Denbighshire and Montgomeryshire. (*Gentleman's Magazine*, 1856, ii. 635.) But the workings were not extensive: much of the English copper ore is said to be such as a primitive miner could not easily reduce to pure metal, and Cæsar equally remarks *aere utuntur importato*.

6. *Iron*, attested by Cæsar (*ferrum in maritimis regionibus*) and Strabo, and by remains of workings and uninscribed bars. The principal workings were apparently in (1) East

¹ The inscription was first noticed by myself, and I am afraid that, beyond the fact that it is an inscription, I can say little definite. The symbol of a helmeted head also appears on the tin: it may belong to the third century.

Sussex, Cæsar's *maritimæ regiones*, where the ore is on the surface, and easily wrought; it was, indeed, worked down to the beginning of the present century, and could be worked still if cheap smelting fuel were at hand. (*S. A. C.*, ii. 169.)

(2) The Forest of Dean, where are immense masses of iron *scoriae*, and other remains (*Arch. Journ.*, xvii. 230, Wright, *Wanderings of an Antiquary*) and, to a less extent,

(3) Near Lanchester, and in other parts of Durham. (Scarth, *Roman Britain*, p. 169.)

7. Besides these metals, we have evidence of other workings which might be in a Roman sense called mines. Coal has been found at Chester, Wroxeter, along Hadrian's Wall, and elsewhere. Objects made of Whitby jet and of Kimmeridge clay are common enough in the north and south of England respectively, and Purbeck marble was used at Chichester, Colchester, Silchester, and elsewhere for inscriptions and other purposes. Salt, too, was perhaps worked in Cheshire. But we know little or nothing of the workings whence these materials came, and, except for completeness, they do not deserve a mention.



FIG OF LEAD, FOUND NEAR TARVIN BRIDGE, CHESHIRE, 1838.