ROMAN MINING COMPANIES IN SPAIN

Introduction

Spain was a key territory for the supply of precious metals during the Roman period. It is even possible that the Roman authorities' decision to retain a military presence there after the Second Punic War was to a large extent motivated by its mineral wealth. In fact, one of the first measures taken once the territory was secured in 195 B.C.E. was to establish a tribute system intended to tax the iron and silver mines.

The importance of the Spanish mines contrasts with the scarcity of information available about them. In recent years, our knowledge has advanced significantly, thanks to several archaeological research projects. We still, however, understand very little about how production was organised, and, since ancient authors rarely pay attention to these questions, we are almost entirely dependent upon epigraphic information, usually of problematic interpretation.

In spite of the limitations, there is a certain consensus among researchers that identifies two major administration models for Roman mining operations in Spain. The first of these is characterised by the existence of a large number of family owned mining and/or metallurgical companies. The names of the owners of these companies appear on the stamps of the many lead ingots of Spanish provenance that have been recovered to date. Lead was a by-product of the processing of argentiferous galena for silver, and since no stamped silver ingots from Hispania are preserved, lead ingots are almost the only source of information available to us about the organisation of silver production.

This business organisation model, well known to us thanks to the recent work undertaken in Sierra de Cartagena, east of Cartago Nova, is typical of the period that spans from the middle of the second century B.C.E. to the middle of the following century, to which most of the lead ingots of Spanish provenance refer.

---


2 Cf. Macro, 1.8.3.


5 Richardson 1976 (n. 3) 144–7.

6 Domergue 1990 (n. 1) 254–7; id., Un parcours à travers les lingots de plomb romains d’Espagne (1965–2003), Pallas 66, 2004, 105–17. We still do not have a systematic catalogue of lead ingots from the Roman period. There are currently two projects dedicated to compiling such a catalogue: one Franco-Italian project lead by C. Domergue, and a German one, which forms part of the work on the publication of the Corpus Inscriptionum Latinarum undertaken by the Deutsches Archäologisches Institut. A catalogue limited to ingots from the Republican period may be found in: B. Díaz, Epigrafía latina republicana de Hispania, 2008, 275–91.

belong. It also coincides with the “silver rush” recorded by Diodorus Siculus, which brought many Italian immigrants to Hispania in search of its mining wealth.

The second model corresponds to the phase of Imperial control of mineral exports. This management model began with Augustus’ direct intervention in starting large-scale activity in the gold mines of northwest Spain after the Cantabrian Wars, from which point onwards the intervention of Roman administration in mining activity was a constant.

Between the peak of the family owned mining companies’ activities and the management of the most important mining complexes passing into the hands of the Imperial authorities, there was a period – very poorly known – during which metal production in Hispania seems to have been controlled, at least partially, by a new type of mining companies, that can be called “anonymous”.

This period coincides, furthermore, with the phase of highest activity in the mines of the southern Iberian Peninsula. Various studies of global pollution trends confirm the existence of a significant increase in pollution between the first centuries B.C.E and C.E., which can be directly related to the metallurgical

---


---

Fig. 1. Map of the south of the Iberian Peninsula showing the evidence associated with Roman mining companies
activity undertaken in Hispania. These levels of pollution were not reached again until the early Middle Ages, when the silver production outside Europe began to increase. As P. Kay has recently observed, the massive Spanish silver supply was a decisive factor in the acceleration in economic activity in the Mediterranean between the end of the Republic and the beginning of the Julio-Claudian period. All evidence suggests that a substantial proportion of the metal from which Roman silver coins were minted in this period would have come from those very Spanish mines.

Four of those new type of companies are well attested in several of the mining districts of southern Spain. We know the names of two of them: the _societas argentifodinarum Ilucronensium_ (or _montis Ilucronensis_) and the _societas Sisaponensis_. Only the initials are known of the other two: the _societas C._ and the _societas (argentifodinarum?) Ba._ The activity of these four _societates_ is attested both in Carthago Nova and in the area of Sierra Morena, in the wide belt of land that extends between the Guadiana and Guadalquivir rivers, and includes the mining regions of Castulo, Sisapo, and Corduba (fig. 1). In contrast, there is no information about the Riotinto (Huelva) district, which has produced very little epigraphic material.

Knowledge about these companies is still very fragmentary, but different traces suggest that they could have played a significant role in the extraordinary increase in metal production at the end of the Republican period. The available evidence will now be considered.

The _societas argentifodinarum Ilucronensium_

This _societas_ is perhaps the best known of the four companies. It was active in the area around Mazarrón (Murcia), in the far west of the mining district of Carthago Nova. It takes its name from an indigenous placename, _Ilucro_. It contains the root _il(t)i-/il(t)u-_, typical of the region's autochthonous toponymy, but its location is still uncertain.

Several lead ingots from this company are known. One of them was recovered at the end of the nineteenth century from the Tiber, next to the Via Marmorata in Rome (fig. 2.1). Another five were discovered at the beginning of the twentieth century in the mining-metallurgical complex of Coto Fortuna, in the former Litoral Lagoon of El Almarjal (Cartagena mining district, S.E. Spain), A Sedimentary Archive more than 8000 Years Old, Environmental Science and Pollution Research 24, 2017, 10584–603. On this question, vid. also Doremegue 2008 (n. 1) 212–3.


15 Kay 2014 (n. 13).


20 CIL XV 7916: Societ(at)is argent(i) // fod(inarum) mont(is) Ilucronensis // galena.
Mazarrón (fig. 2.2).\textsuperscript{21} To this collection may be added various ingots, still unpublished, recovered in a shipwreck discovered near Messina (Sicily).\textsuperscript{22}

It is possible that a series of ingots found in the south of Corsica may be associated with this company, five of which were recovered from the sea near U Puntonu, and another nine from the Gavetti wreck, in the Strait of Bonifacio. All of them have stamps bearing the same text: \textit{societas argentifodinarum?} (fig. 2.3).\textsuperscript{23} Their appearance and palaeography allow them to be associated with those discussed above. Isotopic analysis has confirmed, furthermore, that they came from the mines in the area around Carthago Nova.\textsuperscript{24}

Three lead matrices survive which, judging by their content, could have been used in the production of \textit{societas Ilucronensis}’ lead ingots. All of them are from the area around Mazarrón: one was discovered in the mineral-metallurgical complex of Los Perules, while the other two were found in Coto Fortuna (fig. 2.4–6).\textsuperscript{25}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{materials.png}
\caption{Materials associated with the \textit{Societas Argentifodinarum Ilucronensis}: 1, stamp on a lead ingot from Rome; 2, stamp on a lead ingot from Coto Fortuna; 3, stamp on a lead ingot from Corsica; 4–6, lead matrices from Mazarrón; 7–8, lead seals from Mazarrón.}
\end{figure}

\begin{flushright}
\textsuperscript{21} AE 1907, 135: Societ\textit{atis} // mont\textit{i}s argentifodinarum // Ilucro\textit{nensium}.
\end{flushright}

\begin{flushright}
\textsuperscript{22} P. Rothenhoefer, M. Bode, and N. Hanel, Old Finds – New Insights: Remarks on Two Roman Lead Ingots from Minas de Riotinto (Huelva, España), Revista Onuba 4, 2012, 127–33 (129): Societ\textit{atis} argent\textit{i} // fod\textit{inarum} mont\textit{i}s Iluc\textit{ronensis} // \{galena?\}.
\end{flushright}

\begin{flushright}
\end{flushright}

\begin{flushright}
\textsuperscript{24} Bontempi et al. 2016 (n. 23) 13–14.
\end{flushright}

\begin{flushright}
\textsuperscript{25} Antolinos and Díaz 2012 (n. 18) 32–3. The one from Los Perules reads: \textit{MONT ARGENT}, while the ones from El Coto Fortuna read: \textit{SOCIET} and \textit{SOC[---]}.
\end{flushright}
A collection of lead seals from Coto Fortuna and the neighbouring mine complex of Pedreras Viejas also belong to the *societas Ilucronensis*. They bear the initials *S.A.I.*, the abbreviation of the company’s official name which is written in full on the ingots (fig. 2.7–8).26 According to C. Domergue, it is possible that this type of seal was used to guarantee that the bags of ore were not tampered with during their transfer to the foundry.27

The ingots and the lead seals indicate that the *S.A.I.* was responsible not only for mineral extraction, but also for its processing, and therefore for the final production of silver and lead. The discovery of materials associated with the company in three of the four large mining and metallurgical complexes in the area around Mazarrón, and especially in the most important of those, Coto Fortuna, suggests that the company’s activities in this mining district could have constituted a virtual monopoly.

There is no evidence that would allow us to date these materials precisely, but the lead ingots correspond to the typology of ingots manufactured in the region of Cartagena-Mazarrón between the end of the second century and the end of the first century B.C.E.28 It appears that mining and metallurgical production reached its peak in Coto Fortuna around the end of the first century B.C.E. and the beginning of the first century C.E., although the absence of archaeological intervention in this important site demands caution.29

We know of another mining company in Mazarrón, the *societas montis Ficariensis*, which is mentioned in one of the inscriptions that accompany three statues dedicated to *Mater Terra*, the *genius montis Ficariensis* and the *genius* of the *societas* itself.30 The group of sculptures can be dated to the last third of the first century C.E., a chronology consistent with the inscriptions’ palaeography.31 No further information survives about this company, and it is unknown when its activity started, nor what its relationship was with the *S.A.I.* It is likely that the companies were not contemporary, but successive, an interesting possibility but one which cannot as yet be proven.32

**The societas C(---)**

Numerous lead seals, recovered largely from the main mining districts of Sierra Morena, can be associated with this mining company. These seals, similar to those found in Mazarrón, bear the initials *S.C.* and, occasionally, numbers. They have been found in various local mining and metallurgical facilities near Castulo (Linares, Jaén), as El Centenillo (Baños de la Encina) and La Carolina; as well as near Corduba, in particular in Santa Eufemia, Posadas, and A Imodóvar del Río, and in A zuaga (Badajoz), to the far west of Sierra Morena (fig. 3.1–4).33

The abbreviation *S.C.* is recorded on two lead weights and a bronze bucket recovered in El Centenillo (fig. 3.5).34 It also appears as a countermark, on a series of local bronze coins found both in El Centenillo

---


29 Antolinos, Díaz, and Guillén 2013 (n. 26) 89–104.

30 CIL II 3525: *Genio loci Ficariensis* / *sacram* / *Albanus dispens(ator)*; 3526: *Matri Terrae / sacram* / *Albanus disp(en-sator)*; 3527: *Genio (societatis) montis (Ficariensis)* / *Albanus dispens(ator)*.


32 Antolinos and Díaz 2012 (n. 18) 36–7.

33 J. A. Antolinos and B. Díaz, Los precintos de plomo del Museo de Badajoz y la actividad de las compañías mineras romanas en el sur de Hispánia a comienzos de época imperial, M M 56, 2015, 211–31 (213–23), with above bibliography.

34 Domergue 1971 (n. 27) 351.
Fig. 3. Materials associated with the S(oietas) C(---): 1-4, lead seals; 5, lead weight from El Centenillo; 6, coin from the kese mint with countermark; 7, coin with the legend S.C.
as well as in Posadas, M arrubial (Córdoba), Toletum (Toledo) and perhaps also in Hoyo de la Campana (Granada). The majority of these countermarked coins come from the Iberian mint of kese (Tarragona) (fig. 3.6). There is also a rare collection of bronze coins which display a male head – probably Augustus’ on the obverse and a standing horse on the reverse with the legend S.C. repeated on both faces. Of the four known examples in this collection, one was discovered in El Centenillo itself (fig. 3.7).

It is not currently possible to reconstruct the name of this company. Traditionally, the initials have been expanded to \( s(ocietas) \) C\( a\)stulonensis\), given that the majority of the seals originate from eastern Sierra Morena. The discovery, however, of other seals both in the centre as well as the far west of Sierra Morena also present the possibility that the name could be \( s(ocietas) \) C\( o\)rdubensis\). A lead ingot recovered in the sea around Menorca, but originating from the mines of eastern Sierra Morena, bears the stamp SOC. PLVM. f-2:-R., which could perhaps correspond to a \( s(ocietas) \) plum\( b\)aria \( f\)\( C\)\( o\)rdubensis\). In any case, given the lack of conclusive evidence, the question must remain open.

In the Sud-Lavezzi 2 wreck, to the south of Corsica, several hundred copper ingots have been recovered, some of which are stamped with the letters SAC, along with other inscriptions of an onomastic nature. This wreck, dated to the first third of the first century C.E., carried various goods from Baetica, which included amphorae Haltern 70, Dressel 7-11, and Dressel 20, as well as new lead ingots with the stamp Minuciorum. It is therefore feasible to propose the possibility, as mere hypothesis, that these letters could refer to a \( s(ocietas) \) argentifodinarum\), perhaps the same S.C. that is documented on the lead seals. The fact that these are copper ingots is not an obstacle, since this company could have exploited polymetallic seams which would allow for copper extraction, as well as silver and lead, which is common in the mining districts of central Sierra Morena.

Most of the seals bearing the letters S.C. were discovered in the excavations by C. Domergue in El Cerro del Plomo (El Centenillo), for which reason they should be dated to the beginning of the first century B.C.E. The company must have remained active at least until the beginning of the Julio-Claudian period, the time when the foundry at Fuente Espí (La Carolina) was active, which has also provided numerous seals. The countermarked coins from kese could be dated at the latest to the first half of the first century B.C.E. It therefore seems that the period of activity for the S.C. in Sierra Morena largely coincides with that of the S.A.I. from Mazarrón.

---


36 RPC I 132.


38 A ntolinos and Díaz 2015 (n. 33) 221; contra I. Rodá, A gripa y el comercio del plomo, Mastia 3, 2004, 183–94 (185 and 189).


The *societas argentifodinarum?* Ba(---) is known by a collection of lead seals that display the legends S.B.A., [S.?]A.BA., and S.BA., occasionally accompanied by schematic representations of male heads, similar to those which are replicated on indigenous Spanish coins (Fig. 4.1–4). These seals have been recovered principally in the central and western areas of Sierra Morena, in particular in Fuente Obejuna and Posadas (Córdoba), and in Castuera and A zuaga (Badajoz). There are, nevertheless, several examples with the legends S.A.B. and AB from the Fuente Espí foundry, in La Carolina.\(^{47}\)

The full name of the company is unknown, so different suggestions have been proposed (*societas Baetica, Baedronensis* or *Baeculensis*).\(^{48}\) A lead ingot with the inscription *SOC. BALIAR.* was recovered from the Escombreras 2 wreck, at the entrance to the port of Carthago Nova,\(^{49}\) but isotopic analysis nevertheless reveals that it could have originated from the mines of Sierra Morena (Fig. 4.5).\(^{50}\) It is not impossible that it refers to the same company mentioned on the seals, although new finds would be needed to help confirm this possibility.

The characteristics and provenance of the seals of the *S.A.Ba.* indicate a date between the first century B.C.E. and the beginning of the first century C.E. Their wide distribution suggests that this company could have had interests in the majority of the main districts of Sierra Morena, and it is even likely that in some of them, the company overlapped with the *S.C.*, as the presence of seals from both companies in A zuaga, Posadas, and La Carolina attests. The lack of data, however, currently makes it impossible to determine what the relationship between the two companies could have been.

---

\(^{47}\) Antolinos and Díaz 2015 (n. 33) 213–19.

\(^{48}\) Cf. Domergue 1971 (n. 27) 350.

\(^{49}\) AE 2000, 784.

\(^{50}\) Antolinos and Díaz 2015 (n. 33) 220–21.
The societas Sisaponensis

This societas is mentioned in a terminus found near Corduba, datable to the second half of the first century B.C.E:

\[ \text{Hic viae / servitus / imposita / est ab societate / Sisap(onensi) / susum / ad montes / s(ocietatis) S(isaponensis) lat(a) ped(es) XIV (CIL II}^{12}/7, 699a). \]

It demarcated a road that only served the montes s(ocietatis) S(isaponensis), that is, the mines exploited by this company.\(^{51}\) The city of Sisapo probably corresponds to the site of La Bienvenida (Almodóvar del Campo, Ciudad Real), situated some 150 km north of Corduba, in the centre of Sierra Morena.\(^{52}\)

An epitaph from the beginning of the first century C.E. also comes from Corduba, and belonged to the tomb of three liberti of the societas S(isaponensis). All of them used the nomen Argentarius, which will be discussed later:

\[ M. \text{Argentarius s(ocietatis) S(isaponensis) l. Philinus / A. Argentarius s(ocietatis) S(isaponen-sis) l. Rufus / M. Argentarius s(ocietatis) S(isaponensis) l. / Succio / suo testameto fieri iussit (CIL II}^{12}/7, 415a). \]

Another epitaph dated to the first century C.E. from Capua (Campania) belonged to a vilicus of the socii Sisaponenses, whose relationship with the mining company still raises many questions:\(^{53}\)

\[ \text{Epapra socioru(m) / Sisapo[n]es[i]u[m] vilico / o(ssa) h(ic) s(ita) s(unt) / et Provincia / uxor (CIL X} 3964 = EDR005791). \]

The letters S.S. appear on two coins from kese, similar to those countermarked by the S.C., and on another from Carmo (Carmona) (fig. 5).\(^{54}\) The same mark was apparently reproduced on a bronze bucket found at Posadas, on various lead seals discovered in Posadas and the Guadiato Valley (Cordoba), as well as on lead ingots from the surroundings of Corduba and from the mining town of L a Loba (Fuentobejuna). Unfortunately, none of these pieces has yet been published properly, so they should be interpreted with caution.\(^{55}\)
The *societas Sisaponensis* is the only mining company mentioned by an ancient author, although not explicitly. In the second *Philippics*, Cicero, in an attempt to demonstrate the isolation and rootlessness of Antony, asks his opponent rhetorically:

*Domum dico? Quid erat in terris ubi in tuo pedem poneras praefer unum Misenum, quod cum sociis tamquam Sisaponem tenebas?* (Cic. Phil. 2.19.48).

Home do I say? Nowhere on earth was there a place where you could set foot on your own ground, excepting only your property at Misenum, which you held with partners like a property at Sisapo (trans. D. R. Shackleton Bailey, Loeb).

The text does not mention the mines, but the reference seems clear. The passage is of particular interest because it implies that the *socii* controlled (*tenebant*) Sisapo, which in this context should perhaps be understood as a figurative reference to the mining district of which the city was capital. A story recounted decades later by Strabo in the third book of his *Geography*, dedicated to Hispania, reinforces this possibility:

ἔστι δὲ καὶ νῦν τὰ ἀργυρεῖα, οὐ μέντοι δημόσια, οὔτε ἐνταῦθα οὔτε ἐν τοῖς ἄλλοις τόποις, ἀλλ' εἰς ἱδιωτικὰς μεθέστηκε κτήσεις· τὰ δὲ χρυσεῖα δημοσιεύεται τὰ πλείο (Str. 3.2.10).

The silver-mines are still being worked at the present time; they are not state-property, however, either there (at New Carthage) or anywhere else, but have passed over to private ownership. But the majority of the gold-mines are state-property (trans. H. L. Jones, Loeb).

It is therefore reasonable to propose that the *societas Sisaponensis* could have owned the mines that it exploited and, by extension, it is reasonable to suspect that the same could have been true of the other mining companies engaged in silver production, both in Sierra Morena and in Carthago Nova.

The district of Sisapo was not only important for the production of silver and lead, but also for cinnabar (*minium*). This mineral was a very rare resource that could only be obtained from the mines around Ephesus, as well as in Sisapo. Vitruvius and Pliny describe how cinnabar had to be transported in sealed bags to Rome, where it was processed in workshops situated on the Quirinal.

It is possible that the extraction of cinnabar was the responsibility of the *societas Sisaponensis*, since it seems to be the most important mining company in the Sisapo district. It is doubtful, however, that it was also charged with processing the mineral, which could only take place in Rome with a state permit. A cinerary urn from the Via Salaria, datable to the second half of the first century C.E., mentions a *procurator sociorum Miniariarum*. It is reasonable to think that this *societas Miniaria* could have been the company that benefited from the licence to process cinnabar. Its *liberti* seem to have used the *nomen* *Miniarius* and not *Argentarius*, which was used by the *liberti* of the *societas Sisaponensis*, thus confirming that these were two separate companies.

The overall impression is that the activity of the *societas Sisaponensis* could date back at least to the middle of the first century B.C.E. and could have continued well into the Julio-Claudian period, which would make it contemporary with the S.A.I., the S.C., and the S.A.Ba.
The nomina Argentarius and Aerarius

The inscription from Corduba for the liberti of the S.S. draws attention to another source of information that can help trace the mining companies’ activities: onomastics. A rgentarius and A erarius were the nomina adopted by its liberti, just as M inarius was surely the name used by the liberti of the concessionary company charged with processing cinnabar in Rome.61

A rgentarius is a rare nomen.62 Outside Spain, it is only attested in a few Italian inscriptions, the majority from Rome.63 In Spain, most of the evidence is concentrated around the Guadalquivir Valley, Emerita, and Carthago Nova;64 beyond these areas only a single piece of evidence is known, in Saguntum (fig. 1).65 The oldest document in which this nomen is attested is a funerary inscription found in M azarrón, datable to the first half of the first century B.C.E., which belonged to an individual named L. A rgentarius Nicander.66 The use of a Greek cognomen and the absence of a father’s name suggest that he was a libertus. Its chronology would allow him to have belonged to the S.A.I., although this cannot be proven.

A erarius is even rarer. In Hispania, it is attested in only two inscriptions. One was found in Salaria (Úbeda), near Castulo.67 The other, from the Augustan period, comes from Corduba, and belonged to a medicus called M. A erarius Telemach( hus), who was the libertus of a s(ocietas) aerar(iarum fodinarum).68 The use of two different nomina – A rgentarius and A erarius – could perhaps satisfy the necessity of distinguishing between the liberti of different companies, especially in Sierra Morena, where at least three large societates were active contemporaneously. 

Final thoughts

Despite the scarcity of information, it is possible to present some reflections on the role played by mining companies in the organisation of mining and metallurgical activity in Spain during the end of the Republic and the beginning of the Imperial period. Firstly, reports by Cicero and Strabo indicate that they could have been the owners of the mining sites in which they operated. This factor reinforces the hypothesis, recently proposed by A. M ateo, that they were genuine societates argentifodinarum, and not generic societates publicanorum, as they have traditionally been considered.69

The evidence from M azarrón shows that the S.A.I. controlled both mineral extraction and processing. It is also known that it was active in the majority of the mining areas in this region. The situation in Sierra M orena seems rather more complex. It is likely that the S.S. replicated the same model as the S.A.I. in the Sisapo district, although that cannot be confirmed. The distribution of the seals from the S.A.Ba. and, above all, from the S.C. throughout Sierra M orena is a good indicator that both companies were capable of maintaining their activity in different mining operations dispersed across a very wide area.

There are not sufficient data to specify what caused the evolution of mining and metallurgical companies typical of the period between the second and first centuries B.C.E., which were of a markedly family nature, into this “anonymous” societates. Stamps on lead ingots provide evidence of the existence of associations of indi-
individual producers, but it is unknown whether these were circumstantial alliances, like those envisaged in the second Vipasca bronze (A ljustrel), or if, instead, they represent the basis of more stable company structures.

M. P. García-Bellido has previously suggested that the appearance of the large companies could have been related to the privatisation of mining activities, recorded by Strabo. Without discarding this attractive possibility, it is possible to consider other reasons. The intensification of extraction operations inevitably resulted in the progressive depletion of the most profitable and accessible seams. It was consequently necessary to make increasingly significant investments to guarantee continued production. In turn, the increasing cost of the production process probably stimulated the implementation of measures intended to optimise costs and guarantee the viability of the operations.

The first century B.C.E. witnessed an increase in scale of the both the mining and metallurgical complexes. A good example of this is Coto Fortuna. Once the superficial seams were exhausted, extraction continued underground at ever increasing depth, which meant it was necessary to undertake expensive engineering works to drain sub-surface mines. At the same time, important facilities were constructed at the surface to process the mineral at the pithead.

Work in increasingly deep shafts and tunnels posed new technological challenges. In the first century B.C.E., there is evidence that the Archimedes screw was introduced in the mines of El Cenentillo and Posadas in Sierra Morena. This innovation not only entailed a qualitative leap in the mechanisation of mining operations, it also brought radical changes to the actual nature of the work in the mines, since it required uninterrupted operation night and day to prevent the sub-surface mines from flooding.

It is reasonable to propose that the need for large investment required by the transformation of the old mining operations, added to the expedience of pursuing the vertical integration of the whole production process in order to reduce costs, could have been the stimuli that encouraged the development of increasingly-large stable business alliances. This could have been the starting point of the process that would culminate in the appearance of the "anonymous" societates that begin to be attested in the first half of the first century B.C.E.

In any case, the appearance of these new mining companies did not entail the disappearance of the old family businesses. Some of them remained active in the second half of the first century B.C.E. and even into the beginning of the first century C.E., as demonstrated by the continued existence of lead ingots stamped with the names of individual producers. To this period also belonged the activities of Sextus Marius, who according to Tacitus owned profitable gold and copper mines in Hispania.

---

73 A. Wilson, Machines, Power and the Ancient Economy, JRS 92, 2002, 1–32.
The picture that emerges at the beginning of the Imperial period is rather complex. Alongside the individual producers and this four anonymous companies, there were also other, companies attested only locally such as the soc(ietas) Amat., the soc(ietas) Vesc., the S.F.B., and the SCEL, which are documented on very few lead and copper ingots.\(^77\) It is even possible that, exceptionally, certain cities could have directly managed some mines or foundries located in their territory, as revealed by the existence of various lead ingots that mention Carthago Nova and the Colonia Augusta Firma (Écija) respectively.\(^78\) It is currently very difficult to determine how all these stakeholders interacted.\(^79\) The evidence analysed so far, nevertheless, suggests that maybe the widely attested companies – that is, the S.A.I., the S.S., the S.C., and the S.A.Ba. – could lead silver production and, probably, also that of lead and copper, at least in the mining districts of Sierra Morena and Carthago Nova.

There is very little information about the reasons that led to the disappearance of these companies. From the Augustan period, and above all under Tiberius, the imperial authorities’ interest in controlling mining activity intensified.\(^80\) This is demonstrated, for example, by Tiberius’ expeditious reaction to Sextus Marius, whom he condemned to death after expropriating all his mines, as recorded in the aforementioned passage by Tacitus. It is likely that this new political climate had some sort of repercussions upon the business landscape that operated mining activity in the south of Hispania, although the only certainty is that we have no solid data on this point.

It is, however, unnecessary to fall back upon state intervention to explain the disappearance of the mining companies. From the Augustan period onwards, dependence on the supply of Spanish silver for minting coins reduced as a result of new mines opening in Britannia, Gaul, Sardinia, Germany, and Moesia.\(^81\) A recent study has shown that a substantial drop on metal production cannot be detected until the second century C.E.\(^82\) Nevertheless, it seems that the decline of the mining activities both in Carthago Nova and Sierra Morena could have started earlier, probably during the first century C.E. The emergence of new competitors must have directly affected the profitability of Spanish mines, making it increasingly difficult to maintain the capital investments needed to guarantee large-scale production. In this new climate, it is possible that the complex business structure that had underpinned mining and metallurgical activity in the south of Spain from the end of the Republic simply stopped being viable and ultimately collapsed.

Borja Díaz Ariño, University of Zaragoza, Dpto. de Ciencias de la Antigüedad, c/ Pedro Cerbuna 12, 50009 – Zaragoza, Spain
bdiazarino@gmail.com

Juan Antolinos Marín, University of Murcia, c/ Cartagena, n.º 10, 30366 – El Algar, Cartagena (Murcia), Spain
antolino@um.es


\(^{78}\) Domergue 1990 (n. 1) 236–7.

\(^{79}\) Cf. A. Orejas and Ch. Rico, Metal, civitates, coloniae: les mines hispaniques dans les processus de changement des status territoriaux à la fin de la République et au début de l’Empire, MEFRA 127.2, 2015, 521–34.


\(^{82}\) McConnell et al. 2018 (n. 13).