

Mining and Territory at Carthago Nova

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Since the seminal publication by Claude Domergue on ‘Les mines de la peninsule Iberique dans l’Antiquité romaine’, Spanish and French archaeologists have intensified archaeological excavations and epigraphic surveys of mining areas on the Iberian Peninsula. These have provided new data and offered inspired interpretations of new and known material.¹ This material, in combination with the literary and epigraphic evidence, has improved our understanding of exploitation of metal resources in southern Spain; at the same time it raises questions which, as we shall see, cannot be satisfyingly answered. Recently, Almudena Orejas and Christian Rico have offered their comprehensive and enticing reading of the evidence from the Sierra de Cartagena and the Sierra Morena; in particular, they addressed issues of access, possession, and ownership of mines in a province.² In light of the recent scholarly discourse on possession and ownership of public land in the Late Republic, a reconsideration of some of the more significant points seems appropriate.³ The focus of this paper is on the mining areas of ‘La Union’ to the east of Cartagena, and, to a far lesser degree, on Mazarron to the west of the city.

During the upturn of mining activity in the 19th century in ‘La Union’ to the east of Cartagena, numerous slag heaps were observed and re-smelted in order to acquire the remaining lead; ancient mining shafts and tunnels were also encountered, but mostly destroyed by the modern mining operations. Much of the dateable evidence, therefore, hails from installations associated with the processing of argentiferous lead sulphide or galena stemming from the mines. El Gorguel, a battery of four smelting furnaces associated with mines some 5–6 km to the east of Cartagena, witnessed a first phase of activity from around 200 BC to 110 BC (according to pottery finds), and a second phase lasting from the late 2nd century BC to the first quarter of the 1st century AD.⁴ Another site in Sierra de Cartagena, Cabezo del Pino, yielded what have been described as ‘washeries’ for silver and lead, alongside ovens. The establishment of this complex dates to around the late 3rd and the early 2nd century BC with major activity unfolding throughout the mid-2nd century BC. The washeries were seemingly in operation, more or less, down to the early 1st century BC, and the complex was abandoned in the second quarter of the 1st century BC.⁵ A further foundry was discovered at La Huertecica on the Mar Menor to the east of Cartagena, which saw its heyday in the mid-2nd century BC, a steep decline in activity during early decades of the 1st century BC, and finally it was shut down in the early decades of the 1st century AD.⁶ This observation of decline in the early 1st century BC seems to tally with the interpretation by Claude Domergue of the dateable material recorded in the mines of the Sierra de Cartagena.⁷

These findings have been linked with a further observation relating to the mould marks and cold stamp impressions on ingots found in Cartagena, its harbour, or on shipwrecks which have been linked with the Sierra de Cartagena through lead isotope

analysis. Ingots dating to the late 2nd or early 1st century BC showed mould marks with the names of one or two individuals of Italian origin; these marks are applied when smelted lead is poured into a cast form.⁸ The ingots from the shipwreck of Comacchio, thought by Domergue to originate from the Sierra de Cartagena as well and dated to the reign of Augustus, seemed to have been marked with stamp impressions of abbreviated names after the ingots had been cast, in other words, were stamped cold. Some of the early mould-marked ingots and the later stamped ingots carried the same family names, such as *Utii*, *Turii*, *Planii Russini*, and *Iuni* – if we believe Domergue’s reading of the stamp impressions on the Comacchio ingots. These Italian names are well attested in the epigraphy of Carthago Nova in late 1st century BC/early 1st century AD. The change on the ingots in how these names are indicated, either in mould marks or in stamp marks, was interpreted to reflect a degradation of the *Planii Russini* or the *Turii* from former proprietors of silver mines to mere merchants of lead ingots.⁹

Both the decline of smelting/washing activities associated with argentiferous lead mining in the Sierra de Cartagena, and the supposed demotion of some Italian families from possessors of mines to merchants of ingots has stimulated attempts at explaining these phenomena. The chief narrative sees the latter as a result of changes to the status of land, which triggered the exclusion of small-scale Italian mining companies from the mines. This hypothesis rests on a section in Strabo’s *Geographies*, completed during the reign of Tiberius, in which he claims that in his day and age the silver mines near Carthago Nova were not publicly owned anymore, that is, not owned by the state; instead these were now private possessions (τὰ ἀργυρεῖα οὐ μέντοι δημόσια ... ἀλλ’ εἰς ιδιώτας μετέστησαν αἱ κτήσεις 3.2.10). Cicero, in his speech held in 63 BC before the senate on the agrarian bill of Rullus, also makes mention of (public) lands near Carthago Nova (*de lege agraria* 1.2.5). The assumption has been that these public lands included the public mines which Strabo describes.

If so, it was felt that the privatisation of these lands, which Strabo makes reference to, must be associated with the establishment of Carthago Nova as a *colonia* sometime after 63 BC and before the mention of *duoviri quinquennales* on the bronze coins minted by the city perhaps as early as the mid-1st century BC.¹⁰ What exactly happened is not clear: it is thought that occupiers of public argentiferous lead mines either lost possession of the mines to the new colonist owners, or gained ownership themselves by being properly registered as colonists and proprietors of the mines. Another possibility discussed is that the mines became public property of Carthago Nova itself: two lead ingots found at Riotinto were marked NOVA CARTHAGO, which may suggest some form of involvement of the colony in mining.¹¹ Though this narrative, crafted from the available literary, epigraphic, and archaeological sources, is overall convincing, there are some issues with it.

Ager occupatorius

Let us turn to the issue of *ager publicus* at Carthago Nova first: if we follow the idea that Strabo's public silver mines stand on the public lands (which Cicero says are near the city), then the question arises as to who could access these mines, who could gain possession of them, and under what arrangement these were exploited.

In answering these questions, we face some difficulties: for instance, employing the writings of the land surveyors in order to understand the use of public lands, and indirectly, of mines on public land, has its pitfalls. Unless we postulate that Roman law did not change over 400 years, the content of these texts from the 2nd century AD, often reworked in 3rd and 4th century AD, cannot necessarily be applied without caution to public land in the Middle and Late Republic.¹² Also, much of the data on land arrangements pertains to Italy and to the lands of *coloniae*; for the Republic, we have little detail on how provincial and public lands in the Roman West were dealt with in general.¹³

Antonio Mateo argued that the mines near Carthago Nova were not farmed out on the basis of a *lex censoria* to public contractors for five years; instead the mines stood on *ager occupatorius*, on which a *vectigal*, a tax, was imposed by the state; the collection of this tax was possibly undertaken by *publicani*.¹⁴ This, it was argued, would provide miners with a long term perspective, allowing them to invest in the exploitation of argentiferous lead. Only the public contract for collection of the *vectigal* by *publicani* would be subjected to re-evaluation by the authorities every five years, by the censors in Rome, or, more likely, the governor in Nearer Spain.¹⁵

Given that *ager occupatorius* can be occupied quite easily, the mines near Carthago Nova would have attracted many people; Strabo tells us that Polybius (34.9.8–11) reports some 40,000 men working in the silver mines there (3.2.10). Who these people were is not clarified: Diodorus' narrative on the mass movement of Italians to Spain taking over the mines and deploying slaves to exploit rich lodes of silver and gold (5.36) have been thought to apply to the Sierra de Cartagena as well. The archaeological evidence from there is perceived to indicate the presence of Italians in the mining zones near Carthago Nova. The names appearing on lead ingots and in the epigraphic evidence associated with Carthago Nova are understood to be Italian, thus lending further support to the idea that they took over the operation of the mines in the Sierra de Cartagena as well.¹⁶

Some reservations pertain to the *ager publicus* of Carthago Nova being *ager occupatorius*. Firstly, the term *ager occupatorius* itself is anachronistic: it does not really emerge in our sources prior to the writings of the land surveyors in the 2nd century AD.¹⁷ Even so, most of the public land throughout Italy, as Saskia Roselaar has argued, was *ager occupatorius* in all but name. This legal category of public land, however, seems not ideally suited for the purpose of continuing or commencing mining operations. *Ager occupatorius* was land that could be occupied by anyone, that is Romans, Latins, and Italians,

in return for rent, a *vectigal*. The possession of this land, however, was precarious as it simply could be taken away by the state when the need arose.¹⁸ More importantly, even if occupiers of such public land were willing to accept this risk, they would face further insecurities. These insecurities are still reflected in a passage on *ager occupatorius* by Siculus Flaccus in his *De condicionibus agrorum* (Th. 102).

“There is no bronze record, no map of these lands which could provide any officially recognized proof for landholders, since each of them acquired a quantity of land not by virtue of any survey, but simply whatever he cultivated, or occupied in the hope of cultivating. Indeed, some made maps of their holdings in private, which are not binding on them in respect of their neighbours, or on their neighbours in respect of them, since the matter is voluntary.”

In light of the absence of any form of official registration by the Roman state, opening a mine on *ager occupatorius* seems a rather hazardous undertaking. Given the difficulties of establishing and securing possession of a clearly defined plot of land in order to commence or continue mining, one would presume that potential occupiers would be rather hesitant to invest in a mining operation **and** pay rent on the land.

What is more, the indication that possessors of *ager occupatorius* made their own maps of the lands they claimed suggests that such possessions were regularly contested – and not by peaceful means. By the 2nd century BC, disputes over the possession of *ager occupatorius* seem to have prompted the development of two legal instruments which allowed an occupier of public land to secure its possession. One was the *interdictum uti possidetis*, which guaranteed that the person in possession of the land at the moment of a lawsuit was declared the rightful possessor unless he had acquired the land by force or stealth, or had received it from another party without security of tenure.¹⁹ The other instrument was the *interdictum unde vi* (attested in the *lex agraria* of 111 BC), which allowed a person who had lost access to his land by force to be seen as still possessing the land.²⁰ The availability of both instruments does not exactly inspire confidence in the capacity to secure and protect one’s possession against rapacious neighbours or new arrivals – especially in a silver mining district. In short, not only could the land be removed from one’s possession by the state at any point in time, one also needed to be weary of violent neighbours or new arrivals who had no scruples in using violence to secure a mine.

On top of this, we may expect that rent, *vectigal*, was more likely to be collected from mining districts (unlike arable land in Italy turned into *ager occupatorius*). Livy claims that M. Porcius Cato, in 195 BC, after pacification of the province, drew *vectigalia magna* from iron and silver mines (34.21.7). Strabo quotes Polybius when saying that some 25,000 drachmae were collected daily from the public mines of Carthago Nova for the people of Rome – likely collected as *vectigal* (3.2.10). The fair calculation and efficient collection of rent, though, necessitates at least some knowledge of which pos-

essor occupies or runs which public mines; a land cadastre or at least the registration of mines at a central archive would be expected.

Without the possibility to register the land one has occupied and secure the returns on the investment in mining equipment, labourers, slaves, perhaps even furnaces, washeries, fuel, etc., it seems unlikely that individuals or companies would have been attracted to invest anything in the exploitation of argentiferous lead in the Sierra de Cartagena. Unless we want to postulate a registration procedure similar to the one attested under Hadrian for occupied mining plots in the Vipasca tablets, *ager occupatorius* would have provided a rather ill-fitting framework for a sustainable mining industry at Carthago Nova.²¹

Mould Marks, Seal Impressions, and Miners

The advantage of the *ager occupatorius* hypothesis appears to be the fit it provides with the evidence for a multitude of small-scale mining companies run by individuals, as suggested by the mould marks on lead ingots. This interpretation of the evidence rests on Claude Domergue's seminal study of mould marks, stamp impressions, inscribed numerals, and nail holes on ingots.²² His explanation for the sequence of marks and stamp impressions applied to an ingot has proven to be robust, but I remain unconvinced as to the claim that the personal names in mould marks must indicate the possessors of mines. On lead ingots dating to the late 2nd and early 1st century BC the names of one or more individuals (sometimes preceded by the term *soc(ietatis)*) appearing in mould marks are rendered in the possessive genitive, thus indicating ownership of the freshly cast lead ingot. Whether the owners of these lead ingots ran the smelting furnaces and/or were directly involved in mining the argentiferous galena remains conjecture. Of course, we cannot exclude the possibility that some of these small-scale companies controlled the whole lead trade, from mining to processing to marketing and sale. However, I am more comfortable in suggesting a segmentation of production where the tasks of mining, processing, or trade are taken on by different individuals and companies.²³

In short, the picture emerging from the mould-marks suggests at best the multitude of different owners/traders of lead ingots, but they do not provide proof for a multitude of individuals or small-scale companies mining in the Sierra de Cartagena. But who then was mining the argentiferous galena mines near Carthago Nova? Strabo, based on Polybius, does claim some 40,000 people working in the silver mines there; whether this number is accurate, whether these workers were slaves or free men is secondary at this point; but who deployed or employed them is the question which needs to be answered.

Contracting gold and silver mines out to *publicani* appears as the default mechanism of the Roman state.²⁴ This seems to have applied to the mines near Carthago Nova as well. Based on mould marks on lead ingots and the actual moulds and stamps, Juan Antonio Antolinos Marín and Borja Díaz Ariño assume that the mining district of

Mazarrón to the west of Carthago Nova was partly in the hands of a *societas argentifodinarum Ilucronensium* by the mid/late 1st century BC.²⁵ The processing and trading of lead aside, the name of the company strongly suggests that it was involved in the mining of argentiferous galena. So far, there seems to be no evidence suggesting that the company operated at Mazarrón already in the late 2nd and early 1st century BC. Based on Domergue's interpretation of mould marks it was assumed that large scale *societates* replaced individuals or small-scale companies by the mid-1st century BC, but there is nothing to categorically exclude the possibility of large scale *societates* being present in the mining districts before the mid-1st century BC.²⁶

Decline

The perceived decline of activity at and subsequent abandonment of foundries and washeries such as El Gorguel or Cabezo del Pino in the early 1st century BC was linked to the establishment of Carthago Nova as a colony. Yet, we cannot be certain that the argentiferous galena mines of the Sierra de Cartagena or at Mazarrón were on the *ager publicus* Cicero mentions. Establishing the full picture of mining, smelting, and trading ventures connected to the argentiferous lead deposits is impossible, given that we know absolutely nothing about what happened to silver. We do not know whether the same companies and individuals noted on the lead ingots traded silver as well, or whether different companies, perhaps even *societates publicanorum*, dealt with this precious metal, or whether it was directly carted off by the state immediately after cupellation. Apart from the literary sources such as Strabo or inscriptions such as the mould marks on ingots naming a *societas argentifodinarum*, the silver mined has left little traces in the archaeological evidence. This becomes especially problematic when assumptions are made about the rise or decline of silver production based on the inscribed lead ingots and historical context alone. Perhaps a re-examination of lead ingots regarding silver content and de-silverization of lead in combination with a renewed study of Republican silver coinage (along the lines of Hollstein 2000) might help shed some light on this neglected chapter.²⁷

Summary

The aim of this brief paper was to raise some issues with the predominant narrative, not to discount it. Firstly, the understanding of public land as *ager occupatorius* seems not to provide a good legal framework conducive to the economically sustainable exploitation of precious and rare metals. Secondly, mould marks on lead ingots only really indicate the owners of said ingots, but strictly taken, do not necessarily indicate who is running the mine. The default position of the Roman state was to lease out mines to large-scale

public contractors who might well be in place already earlier, even though they are not explicitly noted on ingots. Thirdly, an examination of the silver content of lead ingots said to hail from the Sierra de Cartagena might contribute another facet to the storyline of decline observed in this important mining region.

Notes

¹ Most notable are the recent projects undertaken by Juan Antonio Antolinos Marín in the Sierra de Cartagena or by Luis Arboledas Martínez (2010) or Luis Maria Gutiérrez Soler (2010) in the Sierra Morena, just to mention a few.

² Orejas – Rico 2015.

³ Roselaar 2010 with further bibliography.

⁴ Antolinos Marín 2012, 64–74.

⁵ Antolinos Marín – Rico 2012, 74–89, esp. 89.

⁶ Alonso Campoy 2009, 33.

⁷ Domergue 1987, 358–390; Domergue 1990, 233.

⁸ Orejas – Rico 2015, 523.

⁹ Domergue et al. 2012; Orejas – Rico 2015, 526. A recent lead isotope analysis now suggests that the ingots from Comacchio are more likely to hail from the Pangaion range in Macedon, see Rothenhöfer 2018.

¹⁰ Abascal 2002.

¹¹ Orejas – Rico 2015, 527.

¹² Roselaar 2010, 12–14.

¹³ e.g. *lex agraria* of 111 BC on Africa, or Cicero's Verrines and letters [Sicily, Gaul], see Carlsen 2003 with further bibliography.

¹⁴ Mateo 2001, 65.

¹⁵ Orejas – Rico 2015, 523 f.

¹⁶ Domergue 1990, 251–266.

¹⁷ Roselaar 2010, 89.

¹⁸ Roselaar 2010, 94.

¹⁹ Roselaar 2010, 114.

²⁰ Roselaar 2010, 115; Cic. Tull. describes such a case, as does Cic. *Mur.*12.26 and *Rep.* 1.13.20.

²¹ At Vipasca, a plot of land or existing mine (*puteus*) could be occupied and was later officially assigned to the occupant with the payment for a *pittacium*, a 'registration fee', cf. Hirt 2010, 266–267.

²² Domergue 1998.

²³ See also Antolinos Marín – Diaz Ariño 2012, 27.

²⁴ Livy tells us that in 167 BC the Macedonian mines were shut down by the senate as they could only be exploited through *publicani* (45.18.3–5); this injunction is further clarified as pertaining to gold and silver mines only, with copper and iron mines being exempted (45.29.11). Whether the *publicani* were to run the mines or only collect rent on them is not further illuminated by the passage (Mateo 2001, 59). Pliny the Elder points out that there was a *lex censoria* ensuring that the *publicani* did not employ more than

5,000 men in the gold mines of Victumulae on the land of Vercellae (*nat. hist.* 33.78). Furthermore, Strabo claims that the Salassi found themselves in regular disagreement with the *publicani* over the supply of water to the gold mines the latter had contracted (4.6.7).

²⁵ Antolinos Marín – Díaz Ariño 2012.

²⁶ Domergue 1990, 253–277.

²⁷ To my knowledge, the lead ingots said to hail from the Sierra de Cartagena or Mazarron have only been examined in order to determine their origin through the analysis of lead isotopes; the question of whether the ingots from the Comacchio shipwreck, for instance, were de-silvered seems not to have been directly addressed so far (e.g. Domergue et al. 2012; Trincerini et al. 2010). A recent paper published by Matthew Ponting argued that the chemical composition of Iron Age and Roman lead items from Somerset suggests that “they were not produced from lead that had been de-silvered, but from smelted galena with variable silver contents” (2018, 185). This means that no cupellation process had taken place even though the technology was available. It appears that a choice was made not to de-silver the smelted lead because the silver content may have been deemed uneconomical to exploit. A proper analysis of the ingots from Republican Spain could help us to understand the decline in mining activity observed and whether or not this might be connected with a decrease of silver in the galena.

References

Abascal 2002

J. M. Abascal, La fecha de la promoción colonial de Carthago Nova y sus repercusiones edilicias, *Mastia* 1, 2002, 21–44.

Antolinos Marín 2012

J. A. Antolinos Marín, Centros de producción y administración en el territorio minero de Carthago Nova. A propósito de los halazgos documentados en El Gorguel (Sierra de Cartagena), in: A. Orejas – Chr. Rico (eds.), *Minería y metalurgia antiguas. Visiones y revisiones. Homenaje a Claude Domergue* (Madrid 2012) 63–80.

Antolinos Marín – Díaz Ariño 2012

J. A. Antolinos Marín – B. Díaz Ariño, La *societas argentifodinarum Ilucronensium* y la explotación de las minas romanas de Carthago Nova, *Chiron* 42, 2012, 25–43.

Antolinos Marín et al. 2012

J. A. Antolinos Marín – B. Díaz Ariño – M. C. Guillén Riquelme, Minería romana en Carthago Nova. El Coto Fortuna (Murcia) y los precintos de plomo de la *Societas Argentifodinarum Ilucronensium*, *JRA* 26, 2013, 88–121.

Antolinos Marín – Chr. Rico 2012

J. A. Antolinos Marín – Chr. Rico, El complejo mineralúrgico de época tardorrepublicana del Cabezo del Pino (Sierra de Cartagena, Murcia), in: M. Zarzalejos Prieto – P. Hevia Gómez – L. Mansilla Plaza (eds.), *Pasajes mineros antiguos en la Península Ibérica Investigaciones recientes y nuevas líneas de trabajo. Homenaje a Claude Domergue* (Madrid 2012) 69–90.

Arboledas Martínez 2010

L. Arboledas Martínez, *Minería y metalurgia romana en el sur de la Península Ibérica. Sierra Morena oriental*, BARIntSer 2121 (Oxford 2012).

Carlsen 2003

J. Carlsen, *Public Land in the Western Provinces of the Roman Empire*, in: J. J. Aubert (ed.), *Tâches publiques et entreprise privée dans le monde romain* (Geneva 2003) 179–192.

Domergue 1990

C. Domergue, *Les mines de la péninsule ibérique dans l'antiquité romaine* (Rome 1990).

Domergue 1998

C. Domergue, *A View of Baetica's External Commerce in the 1st c. AD Based on Its Trade in Metals*, in: S. Keay (ed.), *The Archaeology of Early Roman Baetica*, JRA Suppl. 29 (Portsmouth 1998) 201–218.

Domergue et al. 2012

C. Domergue – P. Quarati – A. Nesta – P. R. Trincherini, *Retour sur les lingots de plomb de Comacchio (Ferrara, Italie) en passant par l'archéométrie et l'épigraphie*, in: A. Orejas – Chr. Rico (eds.), *Minería y metalurgia antiguas. Visiones y revisiones* (Madrid 2012) 81–103.

Gutiérrez Soler 2010

L. M. Gutiérrez Soler, *Minería antigua an Sierra Morena* (Jaén 2010).

Hollstein 2000

W. Hollstein (ed.), *Metallanalytische Untersuchungen an Münzen der Römischen Republik* (Berlin 2000).

Orejas – Rico 2015

A. Orejas – Chr. Rico, *Metalla, 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, 2015, 521–534.

Ponting 2018

M. Ponting, *Pretia Victoriae or Just an Occasional Bonus? Analysis of Iron Age Lead Artefacts from the Somerset Lake Villages*, OJA 37, 2018, 185–199.

Roselaar 2010

S. Roselaar, *Public Land in the Roman Republic. A Social and Economic History of Ager Publicus in Italy, 396–89 BC* (Oxford 2010).

Rothenhöfer 2018

P. Rothenhöfer, *Corpus der römischen Bleibarren. Historisch-archäologische und naturwissenschaftliche Untersuchungen zur Bleiproduktion im Römischen Reich. Die Arbeiten des Jahres 2018, e-Forschungsergebnisse 2*, 2018, 71–74.

Trincherini et al. 2009

P. R. Trincherini – C. Domergue – I. Manteca – A. Nesta – P. Quarati, *The Identification of Lead Ingots from the Roman Mines of Cartagena (Murcia, Spain). The Role of Lead Isotope Analysis*, JRA 22, 2009, 123–145.