Roman mining was a complex notion. Its content varied from period to period and depended on the sphere of life involved, as the administrative, military and ethnographic limits of Illyricum tended to differ. Under the name of Roman Illyricum, the present paper – of necessity brief and dogmatic – deals with the lands which, historically and economically, formed the core of the area covered by the portorium Illyrici et ripae Tbráciae. They can be conveniently identified with the provinces of Noricum, Pannonia, Dalmatia, and Moesia Superior. From the point of view of the Empire’s mining
system, these provinces constituted a virtual unity lasting some three centuries (roughly, AD 100-AD 400). Regardless of the changes brought by time and all the variations which stemmed from the diversity of local conditions, the cohesion of that unit was a salient feature, though somewhat neglected by the moderns, of the Roman res metallica as a whole. In other words, owing to geographical, strategic, and mineralogical constants underlying the development of the Roman World, Illyricum as defined here may be used to provide a useful framework for an analysis of the mining industries of the first century and the post-Theodosian epoch, too. This seems true notwithstanding the fact that during the pre-100 and post-400 times the frontiers of our four provinces and the portorium Illyrici et ripae Thraceae in general had no purely administrative relevance.

One last introductory remark. I discuss in my article, first, the structure of Illyrican mining (I-III); second, certain episodes of the mines’ histoire événementielle (IV). The length of the paper is such that I am bound to restrict I-III to salient facts and IV to two isolated events, which have been generally overlooked or misunderstood by modern historians. These events, dealt with under IV, variously illustrate the importance of mining economy for the careers as well as activities of Roman élite. The student of Roman mining may find them instructive for the reasons of method also. Closely interpreted, these episodes attest to the interaction of structural needs and political factors in the ancient res metallica’s field – to be exact, those political factors which depended on the historical moment and the will of powerful individuals, not on the institutions and the processes of long duration.

I.

To begin with the basic features of what has been labelled here the structure of Illyrican mining. Our evidence covers almost six centuries. Its best part belongs to the Antonine and early Severan periods. The imperial mining

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1 On the relations between the mining districts and the portorium Illyrici and, generally, on the notion of “Illyricum” in connection with the mining of Noricum, Pannonia, Dalmatia, and Moesia Superior see Impact 155 f.; S. Dušanić, The Economy of Imperial Domains and the Provincial Organization of Illyricum, “Godišnjak Centra za balkanološka ispitivanja” 27 (Sarajevo 1991) 49-51. Cf. e.g. the significant career of M. Antonius Fabianus (ILS 9019 = PELAUM, Carrières no 150).

2 The Roman mines of Dacia, a unit for themselves, have not been included into the present survey. Neither the administrative divisions such as that of Moesia Superior under Aurelian (when four provinces were formed on its territory) have been taken into consideration in the sequel.

3 There are clear as well as manifold signs of continuity between the “late barbarian” and “early Roman” mining in Illyricum: infra, text and nn. 123 ff.; cf. S. Dušanić, Minting in the Mining Districts of Roman Illyricum (in Serbian with an English Summary), in: (I. Popović et al. eds.) Silver Workshops
district, a species (or subunit, sporadically⁴) of the fiscal estate, is attested as the typical framework of mineral exploitation. Administratively speaking, the district comprised three different types of units, termed, respectively, vicus/vici metalli, metallum (or metalli⁶), and territorium metalli⁷. In practice, less technical nomenclature prevailed and the whole constituted by the central vicus, the metallum, and the territorium, was usually and simply called “mine” (with or without its proper name). Roman grammatical usage even tended to distinguish between the so-called collective metallae, meaning a large mine (with its territory etc.), and the so-called real plural metalli, meaning several smaller mines of a province or a province-like area⁸. The organizational modalities of both kinds of mines varied to a degree, geographically as well as diachronically. What follows summarizes (frequently in a somewhat arbitrary way, or one neglecting changes brought by the time) the essential data we possess on these districts: their mineral wealth, their mining artefacts, their epigraphical and numismatic finds, their specific settlements⁹. As to these last, particular attention is paid to what we call the vici metallo-rum or central vici, possessing i.a. customs-posts as a remarkable feature of mining economy¹⁰. Less important matters, as well as those bearing on non-


⁵ A vicus of the mining territory may have been either the centre of the mining administration, industry, economics, and garrison (such little towns may be conveniently labelled vicus metallorum); or the settlement of the peregrine (vici peregrinorum) and other metallarii engaged in the near-by workings (if necessary, the settlement was eventually promoted to the rank of municipium); understandably, there may have been more than one representative of either kind of vici in large territories – especially if the territory developed through a long period and a certain specialization of its administrative district's function proved necessary.

⁶ Meaning the terrains occupied by putei, washing-tables (et sim.), and metallurgical officinae.

⁷ Cf. Lex met. (Vip. I) 5: ... ne alias in vicico/sicis metalli Vipascensis iuvat territorios ens ...; (II) 10: ... neve in ullo metallicis territoriiis metallorum moretur; (I) 1 and 9: intra fines metalli Vipascensis; (I) 7,1 (cf.7,2): in finibus metalli Vipascensis ...]. See the commentary by C. DOMERGUE, La mine antique d’Aljustrel (Portugal) et les tables de bronze de Vipasca, Paris 1983, 88 and 147 n. 218, which points at Lex. met. (Vip. II) 10 (a reference in the last line to the metallum Vipascense?), 13 and 17, fines metallorum, also. A variety of indications show that an analogous complex reality and nomenclature existed in Illyricum, too.


⁹ Archaeological evidence of minor importance has been generally omitted.

¹⁰ See below, passim (esp. text and n. 48; of course, we do not have explicit evidence about customs-posts in every district). For instructive parallels from the towns (Ampelum, Alburnus Maior; Micia may be also included here) of the aurariae Dacicae, S.J. DE LAET, Portorium, Brugge 1949, 216. Let
metallurgical mines (of e.g. stone, or salt, or cinnabar), are left aside. It is advisable to bear in mind two basic features of the Romans’ treatment of the res metallica: their flexibility and their tendency to retain, whenever possible, the inherited “barbarian” forms of exploitation – social and technological in the first place.

In Noricum, there seems to have been only one mining district, although very large and sporadically discontinuous. It occupied the interior of the province and was centred on the mines of Northern Carinthia and Upper Styria, producing the famous ferrum Noricum. Two interesting lingotières from Magdalensberg, recently published, cite Caligula’s mines (of gold), which probably belonged to the region of the Hohen Tauern. If we accept the locating of a customs-station at Lambrechtskogel and another at Bad Ischl, they should be connected with the ferrariae of the Goertschitz valley and Hallstatt respectively. «From the time of Claudius onwards the central authority of the mining administration was naturally at Virunum»; as to the mining villages, there was a whole network of them, whose relationship and history remain largely obscure.

The somewhat enigmatic metalli Pannonici are attested through the reverse legends and types of mine-coins, among other sources. They were us note, in anticipation of geographical comments to follow, that the stationes portorii dependent on mining activities were placed either (a) in the vicinity of the fines of the mining district/fiscal estate (as such they were concerned with duties on goods entering or leaving mining/fiscal territories, a task rather close to that of levying péage – thence the modern theories, wrong but understandable, that the stationes portorii, as a rule, were little more than the péage points) or (b) within the central vicus metalli itself (~ customs-duties proper connected with the specific features of such vicus’s commerce). Both kinds were included into the medieval notion of customs.

13 The salinae of east Dalmatia: Aspects 67 n. 76. The cinnabar of Dardania (Mt. Kopaonik): S. Dušanić, Epigraphical Notes on Roman Mining in Dardania, «Starinar» 45/46 (Beograd 1994/5) 30-34 (on an entry of the Aezani copy of Diocletian’s Edictum de pretiis (nos. 34, 75 and 76 Giacchero)).
16 CIL III 11549.
17 CIL III 5620; IBR 20 a.
18 Cf. ALFÖLDY, Noricum (n. 4) 255 f. (citing POLASCHEK’s opinion that a customs-post at Bad Ischl «had some connection with [local] salt mining»). The head office of the Norican portorium publicum Illyrici was at Virunum (ALFÖLDY, l.c., 254), possibly that of the Norican mining, too.
19 Aspects 57 (b-e) and 58 ff. (S. Dušanić endorses there R. MOWAT’s (Éclaircissements sur les monnaies des mines, RN (3e série) 12, 1894, 373 ff.) “conjecture that the choice of the divinities and attri-
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butes represented on some series of the *nummi metallorum* alluded to the kind of metal produced in the mines to which the specific series had been theoretically destined."

20 Whose line led to the south of the Ljubija ferrariae (cf. J. Fitz, *Die Verwaltung Pannoniens in der Römerzeit*, II, Budapest 1993, 740 f. no. 425/1-2, with comm.). Further east, it followed the course of the Tarnava – the lower Kodubara, till its confluence with the Save, where the boundaries of the three provinces (Dalmatia, Pannonia, Moesia [Superior]) met. J. D. M. S. I. 268 [*Aqua Nigra = Tarnava*] and Prol. Geogr. II. 16. I. 1, and III. 9. 1.1).

21 Fitz (n. 20) II 740 f. no. 425/2.


24 The largest Roman mine (of silver and iron, mainly) in the Mt.Cer region seems to have been in the area of modern Rumska; it functioned also in the prehistoric times as well as the medieval-early modern periods: Vasić (the foregoing note) 126 and 133 n. 17, 136 (map) f.; V. Nikolić-Stojančević, Račevina i Jadur na neolitizovanom rubopisima Cvijićevih savadrihe (Racevina and Jadur in the Unpublished Manuscripts of Cvijić’s Collaborators). "Srpski etnografski zbornik" 88, "Naselja i poročila stanovalništva" knj. 41 (Beograd 1975) 188. Gold and other metals from the mines of the Drina – Mt. Cer district: Simić, *Development* 146 ff.; Gržetić and Jelenković (n. 23) 24 f.; Cirković, Kovačević-Kočić, Čuk 103, 119, 160, 191; Organization 21. Cf. BMC III p. 535 no. 1860 (see also p. 234 n): Sol (symbol of gold) / *Metal. Pannonicis*.
to have visited his *Aur<ae>rae* there in AD 294, perhaps the same mine whose gold will have been taken by Julian in AD 361 (*infra*, note 138). As the ore deposits linked both districts to the neighbouring metalliferous areas in the north of Dalmatia, composite, Pannonico-Dalmatian *territoria metallorum* may have been constituted there in the second/third century. This was certainly the case with the mines of the lower Drina valley (below, note 37). The administrative centres of the *ferrariae Pannonicae* were the Ljubija *vicus* and Siscia – this latter obviously dealt with more important matters than the former. As to the lower Drina mines, the status of the administrative *vicus* may be assumed (nothing more than that) to have been given to the station of *Gensis*. It is recorded in the Tabula Peutingeriana as situated XXX m.p. south of Sirmium, on a road leading in the direction of the Drina; in the Mt. Cer area, the part of the *vicus* may have been attributed to the Roman settlement at the site of (modern) Rumska. On the analogy of the Ljubija-Siscia relationship, we are allowed to take that the Sirmians were responsible for the main aspects of the management of the *argentariae Pannonicae*. The colony’s connection with mining could help

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25 A sort of union of the *ferrariae Pannonicae* and the *ferrariae Dalmatica* may be postulated all the more readily if we take that, while the Ljubija *vicus* was the centre of the former, the near-by Stari Majdan *vicus* was the centre of the latter. This hypothesis of administrative *rapprochement* of the two mines and the two *vici* might be corroborated if it is assumed (on the inscriptions discussed by V. PAŠKVALIN, *Rimski žrtvenici iz Starog Majdana* [Roman Altars from Stari Majdan], “Glasnik Zemaljskog muzeja Bosne i Hercegovine” – Arheologija n.s. 24 (Sarajevo 1969) 167 ff., and D. SERGEJEVSKI, *Rimski rudnici željeza u sjeverozapadnoj Bosni* [Die römischen Eisenbergwerke im nordwestlichen Bosnien], *ibid.* 18 (Sarajevo 1963) 89 f. 95 no. 3; cf. *Aspects* 83 f. n. 202; *Organization* 20 f. 46-48) that a certain Ianuarius served as a *vilicus* at Ljubija and Stari Majdan simultaneously (but there are other possible interpretations of the appearance of this name in the inscriptions published by SERGEJEVSKI and PAŠKVALIN). Note that the *ferrariae* generally tended to constitute large units. We have epigraphical records of a *conductor ferrariarum Noricarum Pannonicarum Dalmatarum* (*ILS* 1477, II cent. AD; cf. *Aspects* 82 with n. 199; J. ANDREAU, *Recherches récentes sur les mines à l’époque romaine*, RN (6e série) 31(1989) 100 ff.) and a *conductor ferrariarum Pannoniarum itemque provinciarum transmarinarum* respectively (*FITZ* (n. 21) II 740 no. 2; c. AD 200).

26 Cf. the inscription referred to above, note 21; also, *CIL* III 3953; *Organization* 15 f. with nn. 42-46 and 48 n. 320. The bricks stamped *SISC* at the *vicus*: *BASLER* (n. 22) T. XVII 3.

27 *Gensis*: *Aspects* 66 with n. 72; VASIĆ (n. 23) 130; BOJANOVSKI (*Strassensystem*, n. 22 above) 186. I do not follow K. PATSCH’s proposals, widely accepted, to correct the MS reading into a *Gerdis* and find the name in an inscription from Skelani (see e.g. A. MAYER, *Die Sprache der alten Illyrier*, I, Berlin 1957, 150; J.J. WILKES, *Dalmatia*, London 1969, 280 with n. 7). Rumska (< Rupska, etymologically meaning [in Serbian] “mining village”): n. 24 supra.

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explaining its decision to honour a conductor publici portorii Illyrici et ripae Tetriciae, though other reasons for that step may be assumed, additionally or exclusively. The modalities of the (cheap) river transport (along the Danube, Save, Colapis, Una and Drina) of metals had its rôle in the whole complex of the administrative and customs arrangements concerning the Illyrican res metallica.

The mining organization of Dalmatia must have been still less simple. The evidence, difficult to interpret, is best taken to reflect the existence of four extensive territories of mines (A-D). To begin with, (A), the ferrariae Dalmaticae, covered the north-west of the province; as we have just noted, they may have been united for some time with the iron-mines of Pannonia – in some respects at least. It was presumably the municipium Salvium

the vicinity of Sirmium; it reflects the Sirmians' connections with the mines in the south (Mt. Cer – Argentaria – Donavia), connections which must have been of an early date in comparison with those between Salona and Argentaria, to judge from the specific features of the Salona – Argentaria – Sirmium road as recorded in the Tabula Peutingeriana.
that managed the most important affairs of the ferrariae Dalmaticae\textsuperscript{33}, roughly in the same way as Siscia did those of the ferrariae Pannonicae. The mining region of central Bosnia, (B), produced gold, perhaps silver, lead and iron also\textsuperscript{34}. Its administrative vicus will have been situated in Ad Matricem (an eloquent name, alluding to the colons’ list?), probably not far from Gornji Vakuf\textsuperscript{35}; the cities which took care of more sophisticated aspects of mining there could be identified with Bistue Nova, Bistue Vetus, even Narona itself\textsuperscript{36}. In the east of the province, the activities of (C), argentariae Dalmaticae (later on, they joined the argentariae Pannonicae into one district\textsuperscript{37}), can be traced around Argentaria (a vicus metalli?) and Domavia, a near-by peregrine settlement of miners, which developed into a city with the task of supporting and administering Argentaria’s very rich mines of silver and lead\textsuperscript{38}. Further to the south-east, another group of workings, (D), should be postulated on complex evidence, ancient, medieval and later: Brskovo (auriferous silver, silver, lead); Cadinje, Suplja Stijena and Olovo(?) (silver and lead); Kozica (iron), et al.\textsuperscript{39}. Geographically speaking, all these

\textsuperscript{33} ILIug no. 1655 (H.-Ch. NOESKE, 32
Studien zur Verwaltung und Bevölkerung der dakischen Goldbergwerke in römischer Zeit (Diss. Frankfurt am Main), BJ 177, 1977, 283 n. 64), as revised and commented upon by S. DUS\'ANIC\’, Aspects 85 f. n. 210.

\textsuperscript{34} The evidence, varied and comparatively abundant, has been cited by DAVIES, Mines 186 ff. 195 ff., S. DUS\'ANIC\’ (Aspects 67 f.; Organization 24 f.), and C\'IRKOVIC\’-KOVI\'C\’, "CIL III 1997 (Salona, I cent.), recording the aurariae Delmatae; they are also alluded to in literary sources listed by S. DUS\'ANIC\’, Aspects 67 n. 77.

\textsuperscript{35} Aspects 67 f. with n. 82; Organization 22 f. with n. 100 (against BOJANOVSKI (Strassensystem, n. 22) 167).

\textsuperscript{36} WILKES (n. 27) 274 f. et passim. For my reading prin(ceps) col(oniae) m(etallorum) N(aronae) of ILLl no. 2367, line 2, and its historical implications see Moesia Superior (in preparation).

\textsuperscript{37} Beginning with AD 161-169 at the latest: PFLAUM, Carrières no. 164 bis (Ti. Claudius Proculus Cornelius); cf. ILLl no. 83 (procurator argentarum Delmaticorum) and n. 23 above (procuratores argentarum Pannonicarum). For a b(ene)f(iciarius) co(n)s(ularis) whose first statio (unfortunately, impossible to locate precisely) was that of arg(entariae) Pan(nonicae) et Del(maticae), see G. ALFÖLDY, Altar eines Benefiziars, in: "Bölcske. Römische Inschriften und Funde", Budapest 2003, 219-228 (with a slightly different interpretation of the cursus, datable in AD 191).

\textsuperscript{38} WILKES (n. 27) 277 ff.; BOJANOVSKI (Strassensysteme, n. 22) 186 ff.; M. BAUM-D. SREJOVIC\’, Novi rezultati ispitivanja rimske nekropole u Sasama (New Results of Excavations of Roman Cemetery at Sasa), "Članci i građa", IV, Tuzla 1960, 29; Aspects 68 with n. 83, 90 f. with n. 246; Organization 43 f. – Medieval and later exploitation: CIRKOVIC\’-KOVAC\'EVIC\’-KOJIC\’, ČUK 97 et passim; SIMIĆ, Development 146 ff. esp. 163 ff. (who also deals with the mineralogical aspects of our evidence). – Ancient workings across the Drina (slightly to the north in comparison with the position of Domavia) have left traces which seem certain but have never been examined properly (SIMIĆ, Development 147 [map]); to note Postenje (silver and lead) and Rebelj (copper) among sites which probably belonged to Dalmatia (not Pannonia?); DAVIES, Mines 195; SIMIĆ, Development 171-173; A. Jovanović, Nalazi iz rimskog perioda u valjevskom kraju (Roman Finds in the region of Valjevo), in: (S. Branković ed.) "Istraživanja" II (Valjevo 1984), Valjevo 1985, 58 with nn. 2-3.

\textsuperscript{39} DAVIES, Mines 189 ff. and ID., Ancient Mining in the Central Balkans, "Revue int. des ét. balk." III 2,6 (Beograd 1938) 405 ff. (who adds Čelebić); SIMIĆ, Development 139 ff. (with maps); Aspects 68
are likely to have formed one district (discontinuous but situated within a fiscal estate?), independent from the Domavian metalla which were separated from those of (D) by the large territory of the municipium Malvesiatium\(^{40}\); certain prosopographic indications also suggest that, from the point of view of mining organization, (D) was not part of (C) but formed a district for itself\(^{41}\). Its urban centre should be placed in the municipium S(plonum?) (Komini); one of its administrative vici in Kolovrat near Čadinje\(^{42}\). (D) seems to have had a customs-station close to Kolovrat, but the interpretation of the corresponding inscription is not conclusive\(^{43}\).

Moesia Superior – constituted through Domitian’s division of Moesia into two parts – was, for the Romans, the mining province \textit{par excellence}; a testimony of the jurist Saturninus may be interpreted to that effect\(^{44}\).

\(^{40}\) The altars dedicated \textit{Term(ino)} or the like in the vicinity of Ustikolina and Sopotnica have probably marked the boundary between the territory of the municipium Malvesiatium and the mines centred around S(plonum?): \textit{Organization} 24; S. Loma (n. 39). For a similar case in Noricum, \textit{CIL} III 5036 (Aspects 64).

\(^{41}\) The cognomen of the S(plonum?) procurator (\textit{Aur. Argyrianius}), dedicatory of \textit{CIL} III 13849 (AD 270), as read and explained by S. Loma, does not accord with that of his Domavian colleague who was in office in AD 274 (\textit{Aur. Verecundus: CIL} III 12376). This seems significant though, of course, they need not have served simultaneously: Verecundus may have begun his service several years later.\(^{41}\)

\(^{42}\) S(plonum?)–Komini: on the municipium in the valley of Lim, S. Loma (n. 39), with bibl. To judge from his cognomen, the dedicatory of \textit{CIL} III 13849 belonged to the municipal aristocracy of S(plonum?), which may have implied close connections between the city and the neighbouring metalla (cf. the forthcoming studies by S. Loma (n. 39) and myself (\textit{Moesia Superior}) on the duties of the S(plonum?) princeps municipi). – The S(plonum?) Paconii at the metalla of Rudnik (north Metohija): \textit{Moesia Superior} (in preparation). – For the Kolovrat vicus, S. Loma, \textit{Zur Frage des Munizipium S. und seines Namens}, in: (M. Mikrović et al. eds.) \textit{Mélanges d’histoire et d’épigraphie offerts à Fanoula Papazoglou}, Beograd 1997, 189 et passim.

\(^{43}\) M. Mikrović, \textit{Zur Geschichte des Limtales in römischer Zeit} (in Serbian with a German summary), \textit{Geodišjak Centra za balkanoloska ispitivanja} XIV-12 (Sarajevo 1975) 98 no. 1 (mentioning, in my opinion, a \textit{tablularius} of the portorium).

\(^{44}\) Dig. 48.19.16.9-10: \textit{evitit, ut eadem sceleru in quibusdam provinciis gravissim plectantur, ut in Africa messium incensor, in Mysia (?!) vitium, ubi metalla sunt, adulteratoris monetae.} S. Dušanić (n. 3) 131-144.
rich, almost ubiquitous, metalliferous terrains of Moesia Superior can be grouped into two broad zones: Dardania in the south and what seems to have been called the ripa Danuvii in the north. The distribution of numerous customs-posts – so far as we can reconstruct their network – is concordant with the fact that both zones were divided into several mining districts managed by the procuratores. Some districts (in Moesia Superior as well as elsewhere) may have developed mining subunits within their fines, subunits each of which possessed its administrative vicus metalli and, perhaps, its


46 The second-century mine-coins with the reverse legend (nom. pl.) \*Metalli Dardanici\ (covering the whole of the country: Aspects 535-554): BMC III. p. 234 nos. 1106-1109; p. 534 nos. 1857-1859; BMC IV. p. 370. Dardania as a part of Moesia (Superior): Plin. NH III 149; Ptol. Geogr. III 9.2; IMS VI 220; the altars Aspects 70 n. 97 and IMS I 167. – On Dardania in general, F. Papazoglou, *The Central Balkan Tribes in Pre-Roman Times*, Amsterdam 1978; S. Dušanić, Aspects 69-71 and Organization 26-28; IMS IV pp. 19-36. – Evidence of Dardania’s mines and/or metals that either refers to the country as a whole or some parts of it that cannot be identified with precision and confidence: Aspects 71; Organization 21 ff.; Moesia Superior (in preparation).

47 Note 30 above. De Laet (n. 10) 135, cites Lehner’s comments upon the title praepositus ripae Rheni of a customs officer in Germany: «le rôle du praepositus ripae Rheni devrait être rapproché de celui des praefecti ripae Rheni…, Danuvii…, Euphratis… que nous trouvons mentionnés à diverses reprises… Selon Lehner, leur tâche aurait consisté dans la protection militaire des cordons douaniers établis le long des ces fleuves». In our opinion, the (still hypothetical) rôle of the ripa Danuvii in the organization of the Upper Moesian mining had been determined by two principal factors: (a) the Danube (and the Save) facilitated the transport of metals as well as the miners’ commodities (the Dardanian *metalla* probably depended, mostly, on the rivers in the south), and the commodities were subject to the Danubian *portorium* of course; (b) the administration, defence and peregrine labour in the mines of the ripa Danuvii were all centred in the Danubian forts (Tricornium, Pincum, Aquae). There is epigraphical evidence that not only the ripa Thraciae but also the Upper Moesian ripa (like its Dardanian complement) had a part in the functioning of the *portorium* (*Alf* I 524, Scisia: *Mercurialis Secundii Augusti nostri Moesiae vilici ripae*); cf. the inscription cited by Fitz (n. 20) III 1091 no. 722/1 comm., where the reading *Moesiae ripae* (superior) seems better than the *Moesiae regionatis* (*Alf* II 524, Scisia: *Moesiae regionatis*). For the legionary ripa Danuvii during the Principate and after, *Ann. ép.* 1926, 80; Milena Dušanić, *The Praepositus Ripae Legiones and Tile-Stamps from Moesia Prima* (in Serbian with an English summary), “Arheološki Vestnik” 25 (Ljubljana 1976) 275-283. A section of it was termed ripa superior, which recalls the abbreviations *s.s. in Alf* I 524, just quoted, and the late Roman legionary documents studied by Milena Dušanić, *Ripa Legiones: Pars Superior* (in Serbian with an English summary), “Arheološki Vestnik” 29 (Ljubljana 1978) 343-345 (the brick-stamp *Leg. III Flavia*, part(s) superior, and the like).

48 On the connection (neglected by modern historians) between mining and *portorium* see *Impact* 152-154 (where the *dardanariatus* has been discussed, among other economic realities of the *territoria metallorum* which demanded the customs control on the State’s part). – The customs-posts in the mining districts/centres of the ripa Danuvii: IMS I 105 (Kosmaj, supra, note 30 (Aqua)); there is still no document published recording the customs-station(s) of the Metalla Pincensia. – The customs posts in Dardania (divided into two groups, on the criteria explained above, note 10) form a very dense network (of some 9 *stationes*), which is dealt with in Moesia Superior (in preparation).
own manager as well. The limitations of the modern historian’s knowledge does not allow us as yet to distinguish in a satisfactory way between a district and the subunit of such a kind; and, of course, administrative relations were bound to evolve with time – especially with the changes of the mineralogical situation. According to a (rather hypothetical) analysis of the complex of the Metalli Dardanici, Dardania had at least five districts, centred in (A) Municipium Dardanorum, (B) Ulpiana, (C) Lopate (whose ancient
name seems to have been Lamud(um?) or Konjuh (Vizi(anum?) or Kratovo (Kratiskara?)52, (D) Remesiana53 and (E) Timacum Minus54 respectively.

52 TIR K 34, pp. 72 and 80 (s.vv. Konjuh, Lopate and Lojane, VIII d; Grizilevei, Kratovo [its identification with ancient Kratiskara remains disputable, see IMS IV p. 52 with n. 71]), Zletovo, TIR K 34, pp. 60, 75, 137, IX d [these last three places may not have belonged to Dardania]); IMS VI pp. 15 f. 41ff. and nos. 209, 212; Organization 30 and Moesia Superior (in preparation). For some data on its mineral wealth (gold, silver, lead, copper, iron) and medieval as well as modern mining in the whole area see SIMIĆ, Development 291-300; CIRKOVIC, KOVAČEVİĆ-KOJİĆ, ČEK 156, 174 et passim. Its western and northern boundaries are difficult to fix; the former probably followed the near-by watershed while the latter may be traced rather far to include the lead mines of Kriva Feja whose exploitation certainly went back to the pre-mediterranean period (SIMIĆ, Development 290 f.; Organization 30).

53 In Procopius’ list of forts De Aed. IV 4, p. 123, 11-40 ed. HAURY (cf. IMS IV p. 52, for attempts at localization of individual toponyms), Remesiana (like Aquae, see infra, n. 59) figures as a vicus (the historian calls it πολίς) and the centre of a region (χώρα), not of a city territory (συνεπώ); the Itin. Hier. (p. 556, 6) cites it as a manσio, not a civitas. This would well accord with the identification of the area of p. 123, 13-40 as a fiscal estate (Aspects 73 f.; Organization 30-32). Indeed, at least two toponyms in the list of p. 123, 13-40 should be connected with mining: Φερραιρίς (123, 20) and Αλλιάματας (123, 18); the latter probably implies the presence of the Dalmatians transported from their country to Moesia for the sake of mining (the Dalmatians in the auraiæ Deciae being the most famous, but far from the only, parallel for such deportations). But it is difficult to locate these two forts, as well as to trace the perimeter of the χώρα as a whole and fix the date of its birth. In a very hypothetical reconstruction of the early phase of life of Remesiana’s χώρα, it will have covered (roughly) a narrow mountainous zone in the centre of the eastern part of Moesia Superior, spreading from Remesiana in the north till the Vlasina Lake in the south. This would imply that the χώρα included the notable mines of Ruplje (silver, lead, gold: DAVIES, Mines 223 f.; SIMIĆ, Development 288-290) near Predejane, and those around Crna Trava (iron), slightly to the east (for some others, of lesser interest, see Organization 31 f.). Procopius’ Ferraria is better sought there than at Botaça (contra, DAVIES, Mines 229, et alii), rather far to the south, whose Roman mine may have lain outside of Remesiana’s χώρα, – even outside of Dardania itself. Finally, to judge from the verses of Paulinus of Nola (Carm. XVII. 269-272) dedicated to Nicetas of Remesiana (cf. Nicetas’ De symbolo frg. 3 BURN), gold was obtained somewhere in the neighbourhood of Nicetas’ see (an allusion to Ruplje?); v. 272 ερυθαί αὐραίων shows that Paulinus did not think of “gold-washers” in his poem.

54 P. PETROVIĆ, Der römische Bergbau in Ravna: archäologische Notizen, in: AMM 95-202; cf. IMS III/2, pp. 18-21 (gold, copper, silver, lead and iron in the area of the Srivlješki Timok, Trgovilški Timok, Beli Timok, and the Crni Timok); the valley of the Grand Timok, which forms a unity (in late sources such as Procopius’ list of forts of the χώρας ‘Ασκονήσιος [De Aed. IV 4, p. 123, 45 ff. ed. HAURY]) with the region just defined through the four Timoks, seems to have been originally (i.e. before Aurelian’s formation of new provinces in the northern Balkans) a district for itself (Aspects 74-76; Organization 32-34; DUŠANIĆ (n. 45) 345). The southern (Dardanian, IMS III/2, p. 31) section of Procopius’ χώρας ‘Ασκονήσιος will have been centred around Timacum Minus (whose history and monuments have been closely examined by P. PETROVIĆ in: IMS III/2), the northern Moesian (?) around Aquae itself. – Several inscriptions found at Timacum Minus (which never became a municipality) betray a vicus metallicus. Three of them are especially eloquent: IMS III/2, nos. 31, 38 and 84. – In addition to the archaeological and metallographic evidence of Roman mining in the area of Timacum Minus (IMS III/2, pp. 22 [map] and 20 with n. 10: the site of Aldinac [a source of copper and iron mostly, situated not far from Timacum Minus, to the south-east; cf. AMM 199], et al.) we should note the toponym ‘Ασκονήσιος in the χώρας ‘Ασκονήσιος (Proc. De Aed. IV 4, p. 124, 4 ed. HAURY) which is best identified with the silver mines in the valley of the Crni Timok (such as Lukovo – Malakonje, IMS III/2, p. 28 with n. 7). Another toponym in the same region, Αφριλίσια (De Aed. IV 4, p. 124, 5), may have also preserved...
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The lead ingot from Jasenovik, IMS IV 135 (late Flavian?), was probably produced somewhere in that part of the province which was managed from Timacum Minus.

In most cases, they are attested only archaeologically (and through meagre traces at that). Cf. IMS IV 109 (near Lece), a dedication to Liber by Flavius Lucius and his son (?) Flavius Lucillius pro salutes suas et vicanorum. Probably a village of miners (though not a central one?), to judge from its geographical position (PETKOVIC´ ad num.: “l’inscription provient d’une région assez isolée”, famous for the wealth of its mines) and the nature of the god addressed (for Liber’s cult see Zˇ. PETKOVIC´, An Unpublished Dedication from the Mining District of Kosmaj (Moesia Superior) (in Serbian with an English summary), ZˇA 52, 2002, 219-224).

(F) was rich mineralogically (gold, lead, iron: SIMIC´, Development 239-241) and active during the Middle Ages (GÈRKOVIĆ, KOVAČEVIĆ-KOVIĆ, ČUK 95). Ancient traces of intensive life, including the fornaces, have been found at Lece itself as well as in the whole area south and south-west of Naissus (SIMIC´, l. c.; TIR K 34, VIII c and p. 78 s.v. Lece; cf. IMS IV 136). But it is difficult to decide, on present evidence, whether the whole area between Kopaonik and the vicus ÔRemisianisiva and the districts of (C) and (D) respectively, formed a unit (centred at Naissus [S. DUSˇANIC´(n. 45) 346 with n. 22]?) from the point of view of mining administration. As to the latter point of uncertainty, the terrains such as those around Rudnica, Trepcˇa, Plana, Koporić´, and/or Kursˇumlija (on them, Moesia Superior [in preparation]) are likely to have been subunits of (A) (cf. n. 50 supra).

On the Sumadija metalla (history, inscriptions [including those of the coloni, mining officials and the stamped massaee plumbeae], numismatic and archaeological evidence): S. DUSˇANIC´ in: IMS I 93 ff. (for some recent archaeological publications see M. TOMOVIC´, “Roman Mines and Mining in the Mountain of Kosmaj”, in: AMM 203-212; mineralogy [mostly silver and lead but also some gold and iron: SIMIC´, Development 179-205; see also bibl. in: Organization 35 n. 216]). The Sumadija district united the Roman mines of Avala, Zeleznik, Kosmaj, Rudnik, and some others (IMS I p. 115 with n. 42). However, its southern boundary may have reached the southern slopes of Rudnik only (cf. IMS I 115 and no. 167 with comm.), the rest of Sumadija (i.e., roughly, the valley of the Zapadna Morava) having formed part of Dardania. The vicus metalli of Kosmaj seems to have been placed around the Stojnik fort and called Deumessus or the like; thence the name of the northern part of the district will have been Metalla Deumessensia. With regard to certain aspects of their administration and the metal transport, the Sumadija mines were closely connected with Tricorum (Metalla Tricornioiensia) and Singidunum (Impact 148 ff.; S. DuŠANIC´ (n. 45) 344 ff.).

Its name figures as (Metalla) Aetana Pincensia in the reverse legend of Hadrian’s mine-coin (BMC III, p. 353 no. 1853 [AD 128-138]). The vicus metalli was obviously Pincum (DuŠANIC´ (n. 45) 345 with n. 12; IMS III/1, forthcoming), and the relationship among Pincum, the Pek-Mlava mines (active since Titus, if not earlier: S. DuŠANIC´ (n. 3) 137 ff. [cf. the hoard of denarii from Žuto Brdo not ed by R. OBRADOVIĆ, U dolini Mlave pronalaze arheološke predmete. Istorija ispod raonika (Archaeological Finds in the Mlava Valley...), “Glas”, September 14, 2003, no. 1827, pp. 16-17] and the civitas peregrina of the P(in)censes/Pikensioi (Ptol. Geogr. III.9.2) must have been more or less the same as the relationship among Tricorum, the Sumadija mines and the Tricornioiensia / Tricornensioi
the lower valley of Timok (i.e. the so-called Grand Timok = ancient R.
Timacus) 59. Their connections with certain elements of the provincial
structure – the legions, the cohortes equitatae, the forts of the civitates peregrinae
and with the neighbouring cities – should be emphasized as a factor support-
ing the miners’ activities as such 60. All these Upper Moesian districts, eight
or nine in number and quite long-lived 61, produced silver and lead 62. Many
of the Dardanian and the Timok metalia were also well-known for their
gold 63; it should be noted that gold-washing was practised, too, along most
of the Upper Moesian rivers 64. Iron and copper were obtained sporadically;
the aerariae and ferrariae were especially frequent in the eastern area of the
province, particularly in the mountains bordering the valleys of the South
Morava (ancient Margus), Mlava, Pek, Porečka, and Timok 65.


59 A region obviously centered on Aquae, though that town, at the mouth of the Porečka R., was
situated (slightly) upstream from the place where the Timok joins the Danube. Aquae possessed i.a. a
permanent garrison (provided by a cohors equitata), a customs post, services intended to administer a
part of the Upper Moesian ripa and the adjacent territoria (in the early epoch, it must have governed a
civitas Moesorum, equivalent to the civitates of Tricorn(i)enses and P(in)censes), a port, etc., but was
not given the status of a city (above, n. 53; IMS III/1, in preparation); on the other hand, the valleys of
the other four Timoks, to the south of the Aquae district (which began, approximately, with the south-
ern-most slopes of Mt. Deli Jovan), were centered on Ravna/Timacus Minus (see note 54 above; Orga-
nization 35 n. 207, stresses our difficulties in tracing the boundaries between three neighbouring dis-
tricts – those of Pincum, of Aquae, and of Timacum Minus). Also, Aquae probably controlled the ter-
rains gravitating to the Porečka R. and its tributaries, and the profits of gold-washing in the whole
area, where the gold-washers must have been ubiquitous. To close this note, Aquae will have been the
head of administration of several important mines (furnishing mainly copper and gold), which are best
known under their Serbian names and have been famous for their modern history but which are also
sources of interesting traces of ancient life and ancient exploitation, e.g. Bor, Krivelj, Zlot, Šaška, and

60 Impact 148 ff.


62 Our evidence – ancient slag-heaps, ingots, toponymy, epigraphical and numismatic documents
etc. – shows that the argentariae (producing both silver and lead) were the most frequent mines in
Moesia Superior.

63 Aspects 71, 74, 76, 91 f.

64 Ibid. 55 (the map) and 75.

65 Ibid. 73 ff.
II.

The organization of the mining territories of Illyricum can be closely studied from a variety of documentary sources. Among them, inscriptions citing the imperial procurators and lesser officials hold a prominent place. All the territories have left epigraphical data of some kind concerning their mining workings and management – unevenly distributed in time and space, it is true. The evidence starts with the early first century and lasts till the late fourth. Its persistence into the epoch of the Later Empire shows that post-Severan res metallica had more vitality in Illyricum than in Spain or Britain, for example, whose mines lost much of their importance, as well as ceased to produce public inscriptions, with the beginning of the third century.

What we know of the organizational patterns may be interpreted as follows (to quote the 1977 summary of our evidence, as revised in the light of fresh finds and analyses):

«The administration of Illyrican mining was rather uniform. With the negligible exception of some municipal and private workings of less than modest importance, all the mines we know about in Noricum, Pannonia, Dalmatia, and Moesia Superior belonged to the category of fiscal domains. As a rule, the aurariae and argentariae were managed by the imperial procurators and leased by small lessees; conductorial mines of lead, active in Dardania under the Flavians, presented an interesting if comparatively short-lived departure from that practice, departure best explained by a combination of particular local conditions (whose aspects remain mainly un-

66 Ibid. 81 ff. (cf. Pflaum’s Addenda ad nos. 146 and 150 of the Carrières) with bibl. (p. 81 n. 195); Organization 45 ff.; my articles of 1996 and 1997 (n. 50 above).
67 Flor. II 25; Pliny, NH XXXI 21, et al.; cf. e.g. CIL III 1997 (Salona).
68 Cod. Thod. 132, 5 = Cod. Inst. XI 7, 4 (AD 386).
69 Supra, note 61.
70 J.C. Edmondson, Mining in the Later Roman Empire and Beyond: Continuity or Disruption?, JRS 79 (1989) 84-102 (but see e.g. Pac. Paneg. XII 28, 2 [cf. 26 and 27], of AD 389).
71 Aspects 92 ff.
72 Ibid. 73 f. and Organization 38 with n. 244, on the Aeraria in the territory of Naissus (Proc. De Aed. IV 4, p. 122, 36 HAURV). For private mines in early Illyricum (the Princeps’ gift) see infra, text and nn. 130 f.; probably, they did not remain private property for a very long time.
73 A significant fact, which (practically speaking) is incompatible with the suggestions that the other forms of ownership should also be assumed here (patrimonial, or [large scale] private and municipal); Aspects 79 ff. (81 n. 194); text and note 4 above; text and nn. 130 f. below.
74 See e.g. the official Sočanica inscriptions of AD 136-137 and 238-244 respectively, quoted Aspects 87 nn. 219-220.
75 IMS IV 136 (cf. S. Dušanić, Epigraphical Notes on Roman Mining in Dardania, ”Starinar” 45/46 (Beograd 1994/5) 27 ff.); Ann. ép. 1999, 1683 d (= P. Tiarius Riafas) ?).
known to us\textsuperscript{76}) and the general economic factors (the relative cheapness of lead\textsuperscript{77}). Only ferrariae retained the régime of large lease-holders during the first and the second centuries, but it differed little from the régime adopted in the mines of gold and silver, owing to the semi-official position of the conductores\textsuperscript{78}. The impact of the State control can be detected in all types and phases of exploitation\textsuperscript{79}; however, the presence of the familia Caesars within the territoria metallorum\textsuperscript{80} need not imply that the production itself was really transformed into a State activity during the conductorial period.

Written evidence\textsuperscript{81} on various forms of compulsory work is virtually lacking. However, that sort of work must have played a considerable rôle during the first two centuries AD (the diggers belonging to the civitates peregrinae and living on, or in the vicinity of, the mining terrains\textsuperscript{82}) and the post-Severan epoch (the damnati ad metalla\textsuperscript{83}) alike. This state of affairs had manifold consequences of an administrative and military nature. The principes municipii were obliged to assist the collaboration between the communities of native miners and neighbouring Roman cities\textsuperscript{84}, collaboration whose principal aim was to promote the production of metals, directly or indirectly\textsuperscript{85}. There were analogous connections between the mines and military units also, thanks to the technical or clerical competences of certain soldiers\textsuperscript{86}. On the other hand, the peregrine diggers and, especially, the damnati ad metalla were constantly tempted to rebel or join the barbarians’ attacks upon the territoria metallorum; that danger was neutralized by various troops garrisoning mining areas as well as protecting mining communications\textsuperscript{87}. The

\textsuperscript{76} Note that IMS IV 136 (and no. 135, too) cites the singular form Metallo, not the expected collective Metalla.

\textsuperscript{77} Organization 50.

\textsuperscript{78} Aspects 82 ff.

\textsuperscript{79} Ibid. 82 with n. 197.

\textsuperscript{80} It explains i.a. the issue of mine-coins with Hadrian’s bust in the obverse and the MET NOR legend in the reverse (Aspects 57, a). For the hypothesis of «the State intervention in the work of the Norican officinae ferrariae» in I-II cent., Aspects 82 n. 200.

\textsuperscript{81} But cf. Aspects 92 n. 255: «it can be surmised e.g. from the density of cemeteries in the Kosmaj region or from numerous finds of fetters in the Pek and Timok valleys that the share of unfree labourers was important».

\textsuperscript{82} Impact 148 ff.

\textsuperscript{83} Cf. Davies, Mines 14-16.

\textsuperscript{84} That collaboration produced i.a. the composite names such as m(etal) m(unicipii) D(ar)damorum and col(onia) m(etalorum) D(omav.) Above, n.74 (municipium Dardanorum, AD 238-244) and CIL III 12728 f. (Domaria, AD 251-253).

\textsuperscript{85} Moesia Superior (in preparation), on the principes municipii active at Sošanica and in the mines in the north-west of the province; S. LOMA (n. 39), on the principes municipii S( ) in the south-east Dalmatia and the mine of Čadinje.

\textsuperscript{86} S. DUŠANIĆ (n. 45) 354 ff.

\textsuperscript{87} Ibid. 347 ff.
chief mining officials, procuratores, were imperial freedmen till some date in
the late second century, and knights thereafter. There is no evidence of the
(frequently assumed) simultaneous use of a knight and a freedman as asso-
ciated procurators of the same mine; at least the Ljubija metallica seem to
have had the vilici directly under the procurator. The equites who sup-
seded the freedmen were obviously sexagenarii, to become perfectissimi
after the reign of Constantine I; the last-attested procurators of Illyrican
mines date from the advanced fourth century – a fact to reflect the vitality
of that branch of life in Illyricum. The case of the procuratores centenarrii
in the second-century argentariae of the Drina valley (which may have yield-
ed some gold in addition to silver and lead) illustrates the mineral wealth
of the region, famous in Antiquity and Middle Ages alike. Remarkable as it
is, it need not have been wholly isolated.

Two districts in proximity could be united, even if belonging to different
provinces, if their products were more or less of the same kind. Larger, less
homogeneous agglomerations of that type are not known, though allowance
should be made for union in some bureaucratic aspects – for instance, that
of the imperial metalli Dardanici within Moesia Superior or certain complex-
es of iron-mines scattered throughout Illyricum as well as some more distant
countries during the period of the conductoriate. Of course, the system of
conductoriate – traditional in the ferrariae, with their comparatively cheap
products – made such complexes easier to organize and maintain, both eco-
nomically and administratively. A Norican altar (ILS 1477) cites therefore a
\textit{conductor} ferriariae \textit{Noricarum} \textit{Pannoniarum} \textit{Dalmaticarum} together with the conductor’s three pro-
curatoria each. The metallifer-
ous areas leased by another large lessee (c. AD 200: \textit{C. Iul(ius) Agathopus con-
ductor} \textit{ferrariarum} \textit{Pannoniarum} item \textit{provincialium} \textit{transmarinarum}) were still more complex but, again, shared the main quality of
producing iron, in Pannonia and the (?)East. It seems that in the typical
pattern, a fiscal district with its imperial procurator depended directly on
the provincial governor or financial procurator, and the reverse legends of

\begin{itemize}
\item 88 Aspecti 195 ff.; S. Dušanić (n. 50) 211 ff.
\item 89 E.g. by Noeske in. 33) 300 f.
\item 90 Aspecti 83 f. note 202, nos. 2-8 (AD 209-253/68 (?)).
\item 91 S. Dušanić, in: AMM 221, on IMS I 151.
\item 92 Text and note 3 supra.
\item 93 Cirković, Kovačević-Kojić, Čurk 116.
\item 94 The case of the argentariae Pannoniae et Dalmatiae (text and note 37).
\item 95 Aspecti 82 f.; note 25 above.
\item 96 Fitz (n. 25) II 740 no. 2.
\item 97 Sardinia and/or Gaul being the alternatives.
\end{itemize}
the *nummi metallorum* indicate that the province\textsuperscript{98} had something to do with the distribution of that currency. Not later than Domitian’s reign\textsuperscript{99}, certain activities of Illyrican mines were beginning to be managed by a centralizing office in Rome, which probably functioned on the level of a *tabularium* in the ministry of the * procurator a rationibus*\textsuperscript{100}. Such an arrangement was obviously indispensable for planning and distributing the production of precious metals in general. In the mid-third century if not earlier it seems to have been replaced by the office of a head of Illyrican mining, a dignitary residing locally, perhaps in Pannonia.\textsuperscript{101} The *comes metallorum per Illyricum* of the Later Empire must have been a distant successor of his.\textsuperscript{102}

The cultural aspects of life in mines also tended to develop certain common features. Our sources concerning the miners’ pantheon, rites, and beliefs in Illyricum and Dacia are abundant and specific enough to permit us to speak of the miners’ religion as a phenomenon for itself.\textsuperscript{103}

The diggers of ores as well as the smelters of metals were exposed to both exceptional difficulties and exceptional dangers, which generated specific fears;\textsuperscript{104} such fears deeply influenced the religious emotions *intra fines metallorum* (let us note that miners passed for notoriously superstitious people in all epochs).\textsuperscript{105} Ethnic differences did not influence the essence of the miners’ pantheon’s homogeneity. So we meet there deities whose local competence was more or less the same, although they bore names of different origins (Latin, Greek, native, Oriental).\textsuperscript{106} According to the character of their connections with the miners’ activities/needs, they can be classified into three main groups: the deities of nature (e.g. Liber, Silvanus, Diana, Ceres), the underworld (e.g. Dis Pater, Terra Mater, Orcia, Aeracura), and the patrons of the work in galleries and the metallurgical *officinæ* (e.g. Hercules, Vulcanus, Neptune).\textsuperscript{108} The cultural climate of Illyrican mines owed much to that religiosity which was psychologically intensive, rich in monu-

\[^{108}\text{S. Dušanić, } \text{The Miners’ Cults in Illyricum, } \text{“Pallas” 50 (Toulouse 1999, Mél. C. Domergue) 129-139.}
\[^{107}\text{Petković (n. 55).}
\[^{106}\text{S. Dušanić (n. 103).}
\[^{105}\text{H. Wilsdorf, } \text{Bergleute und Hüttenmänner im Altertum bis zum Ausgang der römischen Republik, Berlin 1992, 130 ff. («Der ’fromme’ Bergmann und die religiöse Namengebung im l Mauritius 1978).}
\[^{104}\text{S. Mroz, } \text{Zur Religion der römischen Bergleute in der Prinzipatzeit, } \text{“Eos” 70 (1982) 133-148; }
\[^{103}\text{S. Dušanić, } \text{The Miners’ Cults in Illyricum, } \text{“Pallas” 50 (Toulouse 1999, Mél. C. Domergue) 129-139.}
\[^{102}\text{Not. Dign. Or. XIII 11. Impact 154 with n. 89.}
\[^{101}\text{In Siscia or Sirmium?}
\[^{100}\text{S. Dusanić, } \text{The Miners’ Cults in Illyricum, } \text{“Pallas” 50 (Toulouse 1999, Mél. C. Domergue) 129-139.}
\[^{98}\text{I.e. Noricum, Pannonia, and Dalmatia. } \text{Aspects 57 a, b-e, f-h.}
\[^{99}\text{Statius, } \text{Silvae III 3, 86 ff.}
\[^{90}\text{Aspects 93.}
\[^{89}\text{Statius, } \text{Silvae III 3, 86 ff.}

ments, and international in its traditions. No need to emphasize the fact that the Hellenophone people – metallarii as well as the other inhabitants of mining territories – were both numerous and prominent. In the region of Komaj at least they possessed i.a. a Greek school with a learned teacher.109

III.

The res metallica of Roman Illyricum was a phenomenon of prime importance. To begin with, isolated ancient data and the medieval parallels of a statistical order tend to suggest that conclusion. During the first half of XV century, the mines of silver in Serbia and Bosnia (areas roughly corresponding to the metalliferous parts of ancient Illyricum) yielded more than 30 tons of that metal a year, i.e. a quantity which almost matched the then production of the entire Europe (according to the estimates of the latter that omit the data concerning Serbian and Bosnian mining).110 Though it is (as yet) impossible to quantify the production of Roman mines of Illyricum in any precise form, indirect ancient evidence confirms what has just been deduced from the XV century numbers. The evidence shows that, together with the Dacian aurariae, the metalia Illyrici presented the richest source of metals in the whole Empire during the AD 100-AD 400 period. Suffice it to note here some exceptional, and privileged, features of Illyrican mining: its centralization, its having special mine-coins, the high rank of its imperial officials, and the care of the State to supply it with manpower through massive deportations. Conversely, the competition tended to become less and less important. Notably, the famous mines of Roman Spain increasingly impoverished by intensive exploitation during the epochs of the late Republic and the early Empire – exploitation which resulted in the penury of ores, wood, and diggers.

These indications concerning the wealth of Illyrican mines as a whole can be completed through mineralogical and historico-archaeological data furnished by particular mining regions. To cite one example only, the ore of the Kosmaj argentariae (modern Šumadija, north-west of Moesia Superior) yielded argentiferous lead with a high percentage of the precious metal (6110 grammes per ton). The enormous quantities of ancient slag found there (more than 1,000,000 tons, according to an 1875 estimate) reveal a thorough exploitation which lasted several centuries.112 Silver (?) and lead ingots of Kosmaj provenance, exported as far as Britain (?), Rome, Sarmizegetusa

109 IMS I 150.
110 See e.g. supra, n. 44; infra, text with nn. 116 ff. and the concluding remarks.
111 Čirković, Kovačević-Kojić, Ćirk 118 ff.
112 IMS I p. 111 ff.
(Dacia), and Novae (Moesia Inferior), and datable to the period of II-IV centuries, attest to the enviable productivity of the Kosmaj officinae 113. In that, Kosmaj was not alone among the mines of Illyricum. The “barbarian” mines of the Mt. Cer – lower Drina area sent their lead to Ravenna as early as c. 14-13 BC 114. The Dardanian lead ingots were transported by sea, under Domitian, to Caesarea Palestinae 115.

All this squares with purely archaeological, epigraphical, and numismatic traces of sophisticated life in the north-west of Moesia Superior from the Julio-Claudian period to the close of the fourth century 116. This region, garrisoned after c. AD 169 by a cohors equitata one thousand men strong, whose formation was part of Marcus’ wider measures to protect the Illyrian mining from the effects of the Marcomannic War 117, possessed an active customs station of its own 118. Its position and wealth indirectly attest to the autonomy of the economic and monetary conditions existing intra fines metalli 119. It is no simple coincidence that Dardania, almost completely covered by mining territories and dense with the prosperous vici metallo- rum, possessed a large number of customs posts 120. Obviously, their task was to prevent various forms of dardanariatus, speculation in corn 121 and related commodities, rather typical of ancient and medieval mining economy 122.

IV.

Let us propose now brief comments on two characteristic episodes of the imperial history; as noted above, the histoire événementielle of Illyrican mining illustrates some important aspects of its structural development and vice versa. A large quantity of interesting lead ingots – 99 pieces, bearing some 10 different stamps in various combinations – have been found in a Roman

113 For those ingots and their find-spots see Moesia Superior (in preparation). Note that the Kosmaj massae plumbeae were exceptionally heavy, in the third century at least (c. 250-300 kgs).
114 Section IV below.
116 IMS I, p. 95 ff.
117 S. Dušanić (n. 45) 348 ff.
118 IMS I, 105.
119 Cf. the commentary ad num.
120 Supra, n. 48.
121 Ibid. For more details see Impact 153 l. 156.
The wreck discovered at Valle Ponti, not far from Comacchio\textsuperscript{123}. Their archaeological context strongly suggests a mid-early Augustan date; they probably reached Italy through a large ship that had started from (? Narona (Illyricum) and stopped at the commercial port of Ravenna. Much debated\textsuperscript{124}, the ingots still pose several interrelated problems, (a) of the mining area which furnished their lead, (b) of Augustus’ north-east policy in the penultimate decade of the second century BC, and (c) of the identity of the businessmen whose abbreviated names figure in the stamps.

To judge from a variety of indications, the Valle Ponti massae, most of whose inscriptions refer to (M. Vipsanius) Agrippa and a libertus/client of Caecilius (Pomponius Atticus)\textsuperscript{125}, must have been produced somewhere in Illyrian land: a neglected piece of evidence attests to the existence of (Metal- lā) Agrippī(a)na not far to the south of Sirmium\textsuperscript{126}. The massae were obviously produced by the native population and exported to Italy c. 14 BC through the agents of Agrippa and several other Roman magnates close to Augustus\textsuperscript{127}. Legally and otherwise, there was nothing unusual about such a collaboration between the “barbarian” smelters and Roman commerce\textsuperscript{128}. The whole enterprise (behind which we should assume massive production of lead pipes?) may have been connected with Agrippa’s (and Augustus’)


\textsuperscript{124} Cf. J.C. DE NICOLÁS-I. RODÁ, Un nuevo lingoto de plomo con la marca AGRIP, “Poster presented to the participants of the Barcelona Congress of Greek and Roman Epigraphy”, 2002, with bibl. Professor Cl. Domergue will shortly publish a revision of his 1987 conclusions. On my part, I have discussed the epigraphical and historical aspects of the Valle Ponti wreck at the XII Congressus Internationalis Epigraphiae Graecae et Latinarum (Barcelona, Sept. 3-8, 2002); what follows is based upon the results of that discussion.

\textsuperscript{125} 84 ingots stamped AGRIP (166 times); the stamp (Domergue was right to ascribe it to M. Vipsanius) may have been intended for every piece of the series. – 85 (at least) ingots with the L. CAE. BAT stamp (total of at least 106 impressions, to be read L. Caec(ilius) Bat(o, -onianus or a similar Illyrian name)).

\textsuperscript{126} See below, text and n. 133.

\textsuperscript{127} Other stamps cite names that offer additional indications of interest here, prosopographical and chronological. Let us note those of C. Mātius (the businessman who was Caesar’s and Augustus’ friend), P. Li(vineius) R(egulus) (moneyer c. 8-10 BC; a Li(cinius), related to the Empress, being an alternative possibility?), and L. No(tius) A(sprenas) (a friend of Augustus and the father of two late Augustan consuls, the younger of whom was a tresvir monetalis in about 6 BC). While ingots stamped AGRIP provide a terminus ante quem (M. Vipsanius died in 12 BC), those stamped P. Li(vineius) R(egulus) suggest an approximate terminus post: the date of his holding the post of monetalis (c. 10 BC), a young man’s office, indirectly shows that he was unable to engage in mining/metallurgical affairs during the period much, if any, earlier than (say) 15 BC. Actually, there are reasons connected with Augustus’ eastern policy to put the production of the Valle Ponti massae c. 14 BC, when the relations between Rome and the corresponding parts of Illyricum seem to have been peaceful for a short period.

\textsuperscript{128} Cf. e.g. Polyb. XXXIV. 10. 10 = Strab. IV. 6. 12 (208), of Noricum and c. 150 BC; Tac. Ann. XI. 20, of the Mattiaci and AD 47.
care for water supply of Rome and many other cities, care that probably explains Agrippa's choice to exploit certain plumbariae in Spain, too. The name of (Metalla) Agrippi(a)na seems to imply that the Sirmian mine was soon presented to Agrippa by Augustus, in accordance with Augustus' grand habits; analogous gifts for Livia and C. Sallustius Crispus (or Statilius Taurus and Cn. Piso pater, if agricultural(?) estates are taken into account) have already been recorded. That act of the Princeps' generosity took place c. 13-12 BC perhaps, at the time of Agrippa's fatal illness and the constitution of provincia Illyricum, which made the mine a part of the patrimonium Principis. Both the gift and Agrippa's aqueducts will have been less a matter of economic system and public utility than of individual initiative and status symbols; their impact on the res metallica, though important, will have belonged to the same sphere of para-economic phenomena. Agrippa's beneficence may have excused him for having mines and quarries as well as for engaging in financial transactions. But he hardly needed excuses of that kind in his epoch; let us note that as early as a generation before Agrippa, Crassus (the future Triumvir), notorious for his "avarice", possessed "numberless silver mines" in Spain (Plut. Crass. 2.5).

Second, Diocletian's visits to Illyrican mines and quarries in AD 293-294. Thanks to the evidence of subscriptions to the then laws in the Codex Justinianus and a number of other sources, we know that he inspected a whole series of such places: the Lugio quarry in Pannonia near Ad Statuas (early November, 293), the Aur(a)riae south of Sirmium (May 3, 294), the T(h)races (mine or quarry in the vicinity of Sirmium; May or July, 294), (Metalla) Agrippi(a)na again in the region south of Sirmium (August 5, 294), De(u)messus (-um) (the Kosmaj mines; September 22, 294). His purpose was to secure metals and stones for Sirmium, probably also to send it teams of skilful metal-workers and lapidarii from the centres where corresponding artisans were available. He held all this a necessary part of his

129 De Nicolás-Rodá (above, n. 124).
131 Eck-Caballos-Fernández (n. 130) 205 ff.
132 The name of Illyricum is used here to mean the provinces of Pannonia, Dalmatia(?) and Moesia Superior such as existed in I-III cent. (cf. n. 2 above). Other provinces and occasions can be cited to illustrate the same tendency of Diocletian to visit mines and quarries, but they are left for a more exhaustive treatment of the problem.
project to promote Sirmium into another Rome\textsuperscript{134}; according to the Tetrarchs’ ideas, already firmly established, every new Rome had to possess i.a. a mint for itself, an armorum fabrica, and luxurious buildings\textsuperscript{135}. Diocletian’s ambition resulting in the programme of the Sirmian imitatio Romae doubtless displayed political aspects. However, it was not purely a rational matter. Lactantius speaks, not without some reason, of Diocletian’s maniacal and boundless cupiditas aedificandi\textsuperscript{136}. That cupiditas of his must have inspired his focus on the workings of mines and quarries. With its roots in the individual psychology, such a focus cannot be traced in every Emperor. For example, it was not shared by Constantine I, another great builder and Diocletian’s heir in many respects – we have no evidence that Constantine ever visited a mine or a quarry though he lived through long periods in Naissus, itself situated in a rich mining area\textsuperscript{137}.

* * *

To sum up the foregoing observations, the impact of Illyrican mines on the development of the Roman world should be viewed under two basic headings.

First, the coinage and industry. The production of gold, silver and copper there was indispensable for the functioning of the State mints in Rome and, from the third century onwards, in Illyricum itself. The iron, lead, and copper melted in these mines served well both manufacturers and masons throughout the Empire; the same may be said of lead and aqueducts and other waterworks. The numerous army fabricae of the middle Danube and adjacent regions wholly depended on the iron obtained locally.

Second, high-level internal policies: military, social, and administrative. Thanks to their mineral wealth, the fiscal domains of Illyricum had a considerable influence upon the formulation of these policies in the corresponding areas (provinces), a fact that has remained almost overlooked by modern historians. Compared to the other mines and geographical units, the metalla Illyrici had a series of specific traits: strong garrisons, special customs service,
and a centralized management. In the wider context of provincial structures, the needs of these *metalla* determined certain aspects of the penal practice, of the progress of Romanization, of the civil wars’ strategy\(^{138}\), of the employment of the *militia officialis*, of the social and ethnic mobility, and of the evolution of the *civitates peregrinae, canabae*, and the cities. Even a number of material elements of the Illyrican provincial system – such as the geographical distribution of the settlements, the directions of roads, and the course of the provinces’ boundaries – largely depended on the demands of mining activities. To conclude briefly, the originality of Rome’s treatment of the metalliferous estates in Illyricum reflects the priority of the *res metallica* in the hierarchy of the State’s vested interests in general.