

ROMAN MINING IN ILLYRICUM: HISTORICAL ASPECTS*

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Roman Illyricum 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 Thraciae*. 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

* The list of bibliographical abbreviations includes:

AMM (= *Ancient Mining and Metallurgy in Southeast Europe*. International Symposium, Donji Milanovac (May 20-25, 1990), edd. P. PETROVIĆ, S. ĐURĐEKANOVIĆ, and B. JOVANOVIĆ, Belgrade and Bor 1995);

Aspects (= S. DUŠANIĆ, *Aspects of Roman Mining in Noricum, Pannonia, Dalmatia, and Moesia Superior*, in: (H. TEMPORINI-W. HAASE eds.) *Aufstieg und Niedergang der römischen Welt* II 6, Berlin-New York 1977, 52-94);

ĆIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, ČUK (= S. ĆIRKOVIĆ, D. KOVAČEVIĆ-KOJIĆ, R. ČUK, *Staro srpsko rudarstvo* [Old Serbian Mining Industry], Beograd 2002);

DAVIES, *Mines* (= O. DAVIES, *Roman Mines in Europe*, Oxford 1935);

ILLug (= A. et J. ŠAŠEL, *Inscriptiones latinae quae in Iugoslavia inter annos MCMXL et MCMLX repertae et editae sunt*, Ljubljana 1963 [nos. 1 -451]; – *inter annos MCMLX et MCMLXX*, Ljubljana 1978 [nos. 452-1222]; – *inter annos MCMII et MCMXL*, Ljubljana 1986 [nos. 1223-3108]);

Impact (= S. DUŠANIĆ, *The Roman Mines of Illyricum: Organization and Impact on Provincial Life*, in: (C. DOMERGUE ed.) *Mimeria y metalurgia en las antiguas civilizaciones mediterraneas y europeas*. Coloquio intern. asociado, Madrid 1985 – Madrid-Toulouse 1989, II, 148-156);

IMS (= *Inscriptions de la Mésie Supérieure* (F. PAPAZOGLU ed.), vols. I (M. MIRKOVIĆ and S. DUŠANIĆ), Beograd 1976; II (M. MIRKOVIĆ), Beograd 1986; III/2 (P. PETROVIĆ), Beograd 1995; IV (P. PETROVIĆ), Beograd 1979; VI (B. DRAGOJEVIĆ-JOSIFOVSKA), Beograd 1982;

Moesia Superior (= S. DUŠANIĆ, *Studies in the History of Roman Mining in Moesia Superior*, in preparation);

Organization (= S. DUŠANIĆ, *The Organization of Roman Mining in Noricum, Pannonia, Dalmatia, and Moesia Superior* [in Serbian with a brief summary in English], «Istorijski Glasnik» 1980 [Beograd] 7-55);

SIMIĆ, *Development* (= V. SIMIĆ, *Istorijski razvoj našeg rudarstva* [Historical Development of Mining in Yugoslavia], Beograd 1951).

For geographical maps illustrating Roman mining in Noricum, Pannonia-Dalmatia, and Moesia Superior see *Aspects* 53-55.

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 whole¹. 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 Thraciae* in general had no purely administrative relevance².

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 centuries³. Its best part belongs to the Antonine and early Severan periods. The imperial mining

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 = PFLAUM, *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*⁵, *metallum* (or *metalla*⁶), and *territorium metalli*⁷. 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 *metalla*, 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 metallorum* 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-

and Mints. Symposium Acta, November 15-18, 1994, Belgrade (National Museum) 1995, 131-144. Also, between the mining works of the late Roman and early Byzantine periods: *Aspects* 66 note 69, 67 note 79; DAVIES, *Mines* 186, 189; I. BOJANOVSKI, *L'exploitation minière dans l'antiquité à l'intérieur de la province de Dalmatie, à la lumière des sources épigraphiques et numismatiques* (in Serbo-Croatian with a French summary), “Arheološki radovi i rasprave” 8-9 (Zagreb 1982) 116 with n. 77.

⁴ Cf. G. ALFÖLDY, *Noricum*, London-Boston 1974, 100.

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 *vici 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 *vici*'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 alius in v[ico]-icis metalli Vipascensis inve] territoris eius ...*; (II) 10: ... *neve in ullis metallis territorisve metallorum moretur*; (I) 1 and 9: *intra fines metalli Vipascensis*; (I) 7,1 (cf. 7,2): *in finibus met[alli 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.

⁸ S. DUŠANIĆ, *The Heteroclite Metallum on the Roman Mines' Coins* (in Serbian with an English summary), *ŽA* 21 (Skopje 1971) 535-554.

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 Daciae*, S.J. DE LAET, *Portorium*, Brugge 1949, 216. Let

metallurgical mines (of e.g. stone, or salt, or cinnabar¹¹), 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*¹². Two interesting lingotières from Magdalensberg, recently published, cite Caligula's mines (of gold), which probably belonged to the region of the Hohen Tauern¹³. If we accept the locating of a customs-station at Lambrechtskogel¹⁴ and another at Bad Ischl¹⁵, they should be connected with the *ferrariae* of the Goertschitz valley and Hallstatt¹⁶ respectively. «From the time of Claudius onwards the central authority of the mining administration was naturally at Virunum»¹⁷; as to the mining villages, there was a whole network of them, whose relationship and history remain largely obscure¹⁸.

The somewhat enigmatic *metalli Pannonici* are attested through the reverse legends and types of mine-coins¹⁹, 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 *finis* 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.

¹¹ 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)).

¹² ALFÖLDY, *Patrimonium regni Norici*, BJ 170 (1970) 163-177; ALFÖLDY, *Noricum* (n. 4 above) 113-116 et passim; E. POLASCHEK, *Noricum*, RE XVII 1 (1936) 1043; H. GRASSL, *Veröff. Verband Österr. Geschichtsvereine* 26, 1989, 54 f. (non vidi).

¹³ *Ann. ép.* 1995, 1196-7 (C. *Caesaris Aug. Germanici imp. ex Noric(is) metallis*), with comm.

¹⁴ CIL III 11549.

¹⁵ CIL III 5620; IBR 20 a.

¹⁶ 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.

¹⁷ ALFÖLDY, *Noricum* (n. 4) 115.

¹⁸ *Ibid.* 113 ff. et passim.

¹⁹ *Aspects* 57 (b-e) and 58 ff. (S. DUŠANIĆ endorses there R. MOWAT's (*Eclaircissements sur les monnaies des mines*, RN (3e série) 12, 1894, 373 ff.) "conjecture that the choice of the divinities and attri-

obviously situated in the mountainous south of the province, in the vicinity of the Pannonico-Dalmatian boundary²⁰. Two districts of Pannonian mines should be sought on that long boundary. The western, around present-day Ljubija (a welcome epigraphical find confirms its being part of the Pannonian, not Dalmatian, territory²¹), and the eastern, on the lower Drina (ancient Drinus). The main product of the former was iron again²², of the latter silver and lead²³. Mt. Cer (in the north-eastern quarter of the Drina district) probably yielded gold in addition to silver, lead, iron, and (?)copper²⁴: according to a recent hypothesis (section IV), Diocletian should be assumed

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 Tamnava – the lower Kolubara, till its confluence with the Save, where the boundaries of the three provinces (Dalmatia, Pannonia, Moesia [Superior]) met. *IMS* I p. 96 f. (S. DUŠANIĆ, on Jord. *Get.* LII. 268 [*Aqua Nigra* = Tamnava] and Ptol. *Geogr.* II. 16. 1. 1, and III. 9. 1.1).

²¹ FITZ (n. 20) II 740 f. no. 425/2.

²² As shown by the Ljubija inscriptions of the officials of the local *ferrariae* (listed *Aspects* 83-5 with nn. 202 ff.); on the other hand, by the rich archaeological and mineralogical evidence furnished by that site and its neighbourhood (BOJANOVSKI, *Dolabellas Strassensystem in der römischen Provinz Dalmatien* [in Serbo-Croatian with a German summary], Sarajevo 1974, 231 [with bibl.]; ID. (n. 3) 106 ff.; D. BASLER, *Römisches Eisenwerk und Ansiedlung im Japra-Tal* [in Serbo-Croatian with a German summary], “Glasnik Zemaljskog muzeja Bosne i Hercegovine u Sarajevu” – Arheologija n.s. 30-31, 1975-6, 121-171 [see also pp. 167 f., for a list of villages of and the testimonies concerning the *ferrariae Dalmaticae*]; *ILLug* (1978), pp. 104 ff.; *Organization* 20 f.; ĆIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, ĆUK 15).

²³ For the (high ranking) *procuratores argentariarum Pannonicarum* see PFLAUM, *Carrières* nos. 146, 150, 146 bis (Add.); *Organization* 21 f. 49. The mine-coins of the Diana (~ silver) type bearing the *Metal. Pannonicis* legend have been published by V.M. SIMIĆ and M.R. VASIĆ, *La monnaie des mines romaines de l'Illyrie*, RN (6e série) 19 (1977) 56 nos. 1-3. The mine of *Agrippi(a)na* (to the south of Sirmium) had a “barbarian” predecessor that had produced lead *c.* 14 BC: text and notes 123 ff. below (cf. *Organization* 21 n. 87, on (?) *plumbum Saviense*). The archaeological and geological data concerning Roman mining of silver, copper (?), and lead in the valley of the lower Drina: *Organization* 21f.; M. VASIĆ, *Mačva i Podrinje u rimsko doba* (Mačva and Podrinje in the Roman Period), “Glasnik Srpskog arheološkog društva” 2 (Beograd 1985) 124-141; I. GRŽETIĆ and R. JELENKOVIĆ, *Osobine srebra i njegova nalazišta u Srbiji* (Characteristics of Silver and Its Findings in Serbia), in: (I. POPOVIĆ et al. eds.) *Silver Workshops and Mints*. Symposium Acta (November 15-18, 1994; National Museum, Belgrade), Belgrade 1995, 13-29. Medieval and later exploitation: ĆIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, ĆUK 97 f. et passim; SIMIĆ, *Development* 146 ff.

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 Jadar u neobjavljenim rukopisima Cvijićevih saradnika* (Račevina and Jadar in the Unpublished Manuscripts of Cvijić's Collaborators), “Srpski etnografski zbornik” 88, “Naselja i poreklo stanovništva” 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.; ĆIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, ĆUK 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<a>riae* 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 century²⁵. 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 former²⁶. 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) Rumska²⁷. 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*²⁸. The colony's connection with mining could help

²⁵ A sort of union of the *ferrariae Pannonicae* and the *ferrariae Dalmaticae* 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 f., 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 N(oricarum) P(annonicarum) D(almaticarum)* (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*.

²⁸ *ILLug* no. 83. – Ingots and plates produced in Sirmium: *IMS* IV p. 133 f.; E. POPESCU, *Inscriptiile grecești și latine din veacurile IV-XIII descoperite în România*, București 1976, no. 431 (cf. *Organization* 53 n. 361); J. KONDIĆ, *Kasnoantičko srebro. Ranovizantijsko srebro* (Late Roman Silver. Early Byzantine Silver), in: (I. POPOVIĆ ed.) *Antičko srebro u Srbiji* (Antique Silver from Serbia), Beograd 1994, 58-60, 120-122, 364 ff. (cf. B. BORIĆ-BREŠKOVIĆ, *ibid.*, 322 f.). – S. DUŠANIĆ (n. 3) 140 and 143 examines an ancient forger's die (copying Marcus Antonius' legionary *denarius*) that has been discovered in

explaining its decision to honour a *conductor publici portorii Illyrici et ripae Thraciae*²⁹, 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*³⁰.

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*³¹, covered the north-west of the province³²; 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 – Domavia), 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.

²⁹ CIL III 7429 (753) = ILS 1465. DE LAET (n. 10) 222 f.

³⁰ Cf. PATSCH, *Die Saveschiffahrt in der Kaiserzeit*, "Jahresh. Öst. Arch. Inst." 8 (1905) 139 ff.; DE LAET (n. 10) 222 n. 4, 223 n. 4 (these scholars, however, did not consider the factor of mining/metal transport here, which however explains, among so many things, the occurrence of bricks stamped TRIC and CLASIS(!) F[] in the Stojnik fortress [the Kosmaj *argentariae*], IMS I p. 104 n. 2). The Gorička inscription (AIJ I 524), found in the valley of the Colapis (navigable in Antiquity), not far from Siscia and at a place which seems to have belonged to the western part of the territory of the *ferrariae Pannonicae*, should be mentioned here also (*Organization* 20 n. 80; *Impact* 152 n. 46 and 54). To judge from the somewhat enigmatic wording of its lines 4-5, it records an Imperial slave who was a [*vik(arius)*] of a *vil(icus)* by name of Secundus serving in *Moes(ia)* (Superior?), its *r(ipa ?) s(uperior ?)* to be exact – probably Secundus performed the duty of a customs officer along that *ripa* (not *r(egio ?)*), despite *Impact* 152 n. 54). The abbreviations *r(ipa) s(uperior)* and the like – recalling the *r(ipa) T(hraciae)* – are met with also in the stamps of the fourth century military bricks and, in a similar form (*r(ipa ?) Aq(uensis)*), a Dardanian dedication of AD 225 (cf. J. ŠAŠEL, *Zur Inschrift eines Zollbediensteten aus dem Stadtgebiet der obermoesischen Ulpiana*, ZPE 49 (1982) 211-213, esp. 213). Obviously, the import to, and export from, the mining territories were complex affairs (wherein private tradesmen had important rôles), and there was more than one occasion to protect the State interest in them through the customs services.

³¹ ILS 1477 (above, n. 25), citing i.a. the (controversial) abbreviations (*conductor ferrariarum*) N(*oricarum*) P(*annonicarum*) D(*almaticarum*) and the name of the *conductor's procurator* who managed the *ferrariae Dalmaticae* themselves. A mine-coin with the symbols of the Dalmatian *ferrariae*: Mars / Metal. Delm. cuirass (BMC III p. 534 no. 1856). Cf. Cass. *Var.* III. 25 f.; Claudian. *B. Get.* 538 f.; *Exp. tot. mundi* (GLM, ed. RIESE, p. 119).

³² Centred perhaps on the iron-mine of (Stari) Majdan or Kamengrad (DAVIES, *Mines* 184 ff.; PAŠKVALIN (n. 25) 165-168; *ILLug* (1978) pp. 104 ff.; BOJANOVSKI (*Strassensystem*, n. 22) 231) to the south of Ljubija, iron-mine which is best known for its early modern activities (ČIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, ČUK 82 f. and 195). The central Bosnian mines around Fojnica/Kreševo/Vareš would present an alternative possibility to locate the *ferrariae Dalmaticae* but the Fojnica/Kreševo/Vareš region seems to have been traditionally called *aurariae Delmatae* (CIL III 1997, Salona; cf. *Aspects* 67, 69 and 83), according to what was its main and/or the most valued product.

that managed the most important affairs of the *ferrariae Dalmaticae*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 also³⁴. Its administrative *vicus* will have been situated in Ad Matricem (an eloquent name, alluding to the colons' list?), probably not far from Gornji Vakuf³⁵; the cities which took care of more sophisticated aspects of mining there could be identified with Bistue Nova, Bistue Vetus, even Naronna itself³⁶. In the east of the province, the activities of (C), *argentariae Dalmaticae* (later on, they joined the *argentariae Pannonicae* into one district³⁷), 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 lead³⁸. 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); Čadinje, Šuplja Stijena and Olovo(?) (silver and lead); Kozica (iron), et al.³⁹. Geographically speaking, all these

³³ *ILLug* no. 1655 (H.-Ch. NOESKE, *Studien zur Verwaltung und Bevölkerung der dakischen Goldbergwerke in roemischer Zeit* (Diss. Frankfurt am Main), BJ 177, 1977, 283 n. 64), as revised and commented upon by S. DUŠANIĆ, *Aspects* 85 f. n. 210.

³⁴ The evidence, varied and comparatively abundant, has been cited by DAVIES, *Mines* 186 ff. 195 ff., S. DUŠANIĆ (*Aspects* 67 f.; *Organization* 24 f.), and ĆIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, ĆUK 116 f. et passim (for the medieval period). Note *CIL* III 1997 (Salona, I cent.), recording the *aurariae Delmatae*; they are also alluded to in literary sources listed by S. DUŠANIĆ, *Aspects* 67 n. 77.

³⁵ *Aspects* 67 f. with n. 82; *Organization* 22 f. with n. 100 (against BOJANOVSKI (*Strassensystem*, n. 22) 167).

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

³⁷ Beginning with AD 161-169 at the latest: PFLAUM, *Carrières* no. 164 bis (Ti. Claudius Proculus Cornelianus); cf. *ILLug* no. 83 (*procurator argentariarum Delmaticarum*) and n. 23 above (*procuratores argentariarum Pannonicarum*). For a *b(ene)ficiarius co(n)s(ularis)* whose first *statio* (unfortunately, impossible to locate precisely) was that of *arg(entariae) Pan(nonicae) e[st] Del(maticae), pro[c]u[r]ato(ris)*, see G. ALFÖLDY, *Altar eines Benefiziars*, in: "Bölske. Römische Inschriften und Funde", Budapest 2003, 219-228 (with a slightly different interpretation of the *cursus*, datable in AD 191).

³⁸ WILKES (n. 27) 277 ff.; BOJANOVSKI (*Strassensystem*, n. 22) 186 ff.; M. BAUM-D. SREJOVIĆ, *Novi rezultati ispitivanja rimske nekropole u Sasama* (New Results of Excavations of Roman Cemetery at Sase), "Članci i grada", IV, Tuzla 1960, 29; *Aspects* 68 with n. 83, 90 f. with n. 246; *Organization* 43 f. – Medieval and later exploitation: ĆIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, ĆUK 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.

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 itself⁴¹. Its urban centre should be placed in the *municipium S(plonum?)* (Komini); one of its administrative *vici* in Kolovrat near Čadinje⁴². (D) seems to have had a customs-station close to Kolovrat, but the interpretation of the corresponding inscription is not conclusive⁴³.

Moesia Superior – constituted through Domitian's division of Moesia into two parts – was, for the Romans, the mining province *par excellence*; a testimony of the jurist Saturninus may be interpreted to that effect⁴⁴. The

(the mines of the whole area «were mainly lead and silver mines, though zinc, copper, iron and perhaps gold may have also been worked there»); ĆIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, ĆUK 21 ff. 47 et passim. – The geo-administrative position of Olovo remains disputable: it may be attributed either to the mining district of central Bosnia or to that managed from the *municipium S(plonum?)*. – Ancient traces are best known from Čadinje and its neighbourhood (BOJANOVSKI, *Gornje Podrinje dans le système des communications romaines* [in Serbo-Croatian with a French summary], “Godišnjak Centra za balkanološka ispitivanja” 23 (Sarajevo 1987) 99 f.; M. POPOVIĆ, *Kasnoantičko naselje u Polimlju – problemi istraživanja* (Late Roman Settlement in Polimlje – Some Problems), apud B. BORIĆ-BREŠKOVIĆ, *Kulturni identitet Polimlja* (The Cultural Identity of Polimlje), “Zbornik Matice srpske za klasične studije” 3 (Novi Sad 2001) 171 f.; S. LOMA, *Le princeps et les peregrini incolae dans le municipe S(plonistarum?)* (in Serbian with a French summary), *ŽA* 52 (Skopje 2002) 143-179; S. DUŠANIĆ, *Moesia Superior* [in preparation]); they include i. a. several eloquent inscriptions, notably *ILLug* no. 1685 (*argenti actor*).

⁴⁰ The altars dedicated *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?)*: *Organization* 24; S. LOMA (n. 39). For a similar case in Noricum, *CIL* III 5036 (*Aspects* 64).

⁴¹ The cognomen of the *S(plonum?)* procurator (*Aur. Argyrianus*), dedicatory of *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 (*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.

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 *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 (*Moesia Superior*) on the duties of the *S(plonum?) princeps municipii*). – The *S(plonum?)* Pacionii at the *metalla* of Rudnik (north Metohija): *Moesia Superior* (in preparation). – For the Kolovrat *vici*, S. LOMA, *Zur Frage des Munizipiums S. und seines Namens*, in: (M. MIRKOVIĆ et al. eds.) “Mélanges d'histoire et d'épigraphie offerts à Fanoula PAZOGLOU”, Beograd 1997, 189 et passim.

⁴³ M. MIRKOVIĆ, *Zur Geschichte des Limtales in römischer Zeit* (in Serbian with a German summary), «Godišnjak Centra za balkanološka ispitivanja» XIV-12 (Sarajevo 1975) 98 no. 1 (mentioning, in my opinion, a *tal[ularius]* of the portorium).

⁴⁴ Dig. 48.19.16.9-10: *evenit, ut eadem scelera in quibusdam provinciis gravius plectantur, ut in Africa messium incensores, 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 zones⁴⁵: Dardania in the south⁴⁶ and what seems to have been called the *ripa Danuvii*⁴⁷ 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*⁴⁸. Some districts (in Moesia Superior as well as elsewhere) may have developed mining subunits within their *finēs*, subunits each of which possessed its administrative *vicus metalli* and, perhaps, its

⁴⁵ S. DUŠANIĆ, *Army and Mining in Moesia Superior*, in: (G. ALFÖLDY-B. DOBSON-W. ECK eds.) “Kaiser, Heer und Gesellschaft in der Römischen Kaiserzeit”. Gedenkschrift für E. Birley, Stuttgart 2000, 344 ff.

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. PAPAZOGLU, *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* 27 f.; *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* (*AIJ* I 524, *Siscia: Mercurialis Secundi Aug(usti) n(o)stri Moes(iae) vil(ici) r(ipae) s(uperioris?)*; cf. the inscription cited by FITZ (n. 20) III 1091 no. 722/1 comm., where the reading *Moes(iae) r(ipae) Aq(uensis)* seems better than the *Moes(iae) r(egionis) Aq(uensis)*). For the legionary *ripa Danuvii* during the Principate and after, *Ann. ép.* 1926, 80; Milena DUŠANIĆ, *The Praepositus Ripae Legionis and Tile-Stamped 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 *r.s.* in *AIJ* I 524, just quoted, and the late Roman legionary documents studied by Milena DUŠANIĆ, *Ripa Legionis: Pars Superior* (in Serbian with an English summary), “Arheološki Vestnik» 29 (Ljubljana 1978) 343-345 (the brick-stamp *Leg. IIII Fl(avia), par(s) sup(erior)*, 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 (*Aquae*); 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 manager⁴⁹ 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 Dardanorum⁵⁰, (B) Ulpiana⁵¹, (C) Lopate (whose ancient

⁴⁹ Perhaps a *vilicus* or a *subprocurator* (on the latter in the *aurariae Dacicae*, see *CIL* III 1088; cf. NOESKE (n. 33) 348).

⁵⁰ On that *municipium* (and the *vicus metalli* in its immediate vicinity) see E. ČERŠKOV, *Municipium DD at Sočanica* (in Serbian with an English summary), Priština-Beograd 1970 (results of several years of excavations); J. ŠAŠEL, "Arheološki Vestnik" 21-2 (Ljubljana 1970-1) 307-310 (a review, in Slovenian, of ČERŠKOV's book); *Aspects* 72 and 87 f.; *Organization* 28 f. 50 f.; S. DUŠANIĆ, *An Imperial Freedman Procurator at Sočanica*, "Recueil du Musée National de Belgrade" XVI 1 (Beograd 211-216; ID., *The Administrative History of Roman Mines in North-Western Dardania: a Lost Document*, *ŽA* 47 (Skopje 1997) 31-42 et al. Rich epigraphical heritage of the site (usually called Sočanica after its modern name): ČERŠKOV, *l.c.*, 61-68 ("Supplementum epigraphicum") and the papers referred to in the opening of the present note; add Milena MILIN, *The Newly-Discovered Epigraphic Monuments from Sočanica (Kosovo)* (in Serbian with an English summary) "Starinar" n.s. LII (Beograd 2002 [2003]) 163-174. – Ancient and medieval workings of silver and lead on the neighbouring parts of Kopaonik (its southern and southeastern slopes, to be exact) and, still more important, Rogozna (northwestern ones): DAVIES, *Mines* 223 and *Ancient Mining in the Central Balkans* (n. 39) 406 f.; SIMIĆ, *Development* 208 ff. 223 f.; ČERŠKOV, *l.c.*, 70-72, 80 f.; ĆIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, *ČUK* 38, 100, 148 et passim; *Glas* (a daily newspaper), Beograd IV 953, March 30, 2001, p. 18. Both of these groups of workings (i.e. workings on the southern-southeastern Kopaonik [silver, lead] and the northwestern Rogozna [silver, lead, gold, copper] respectively) were probably managed from Sočanica; they can be labelled, together, as the mines of the R. Ibar area. See also *infra*, n. 56.

⁵¹ A major city (see e.g. *TIR*, K 34, p. 129 s.n. [VII c]; PAPAZOGLU (n. 46) 201 and n. 214 et passim; ČERŠKOV (n. 50) 34, 51 et passim; *Organization* 29 f.) close to modern Gračanica, with a customs-station of its own. It may have been a capital of sorts of the entire Dardania (*IMS* IV 69-72 + pp. 55-57, 102), including all the *Metalli Dardanici* (A-F). Ulpiana obviously owed its name to an estate (metalliferous?, agrarian?, combined?) organized by the Emperor Trajan. In the second century, it became a Municipium Ulpianum; later-on, a Colonia Ulpiana. Though direct proofs of its connection with the *res metallica* are still lacking, Ulpiana is best taken (thus e. g. ČERŠKOV (n. 50); S. DUŠANIĆ (*Organization*); M. PAROVIĆ-PEŠIKAN, S. STOJKOVIĆ, *Groupe des fours métallurgiques à Ulpiana*, in: *AMM* 213-217 and 225; M. PAROVIĆ-PEŠIKAN, *Furnace Complex at Ulpiana* (in Serbian with an English summary), "Zbornik radova Muzeja rudarstva i metalurgije Bor" 5-6 (1987-1990) 33-65) to have been the administrative centre of a rich mining region; for the evidence of medieval and modern workings there see DAVIES, *Mines* 222 f.; SIMIĆ, *Development* 225 ff.; ĆIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, *ČUK* 39-43, 100, 189, et passim (gold, auriferous silver, silver, lead, iron). The region (? called *Metalla Ulpianensia* but forming part of the large estate to which the coin-legend *Metalli Dardanici* refers [it is difficult to say whether the coin-legend *Metalli Ulpiani* (*Aspects* 57 n-p) and the stamp *me. Ulp.* on a lead ingot found in Sarmizegetusa (kindly signalled by Professor I. Piso) had any direct connection with Ulpiana]) will have embraced a number of localities with important traces of Hellenistic and/or Roman mining (*Moesia Superior*, in preparation); most but not all of them were situated in the immediate vicinity of Ulpiana (to the south and the east of the city). Note Janjevo, Novo Brdo, Donja Gušterica, the area Ajvalija-Kišnica, the upper reaches of the Južna Morava, perhaps even Rudnik (between Peć and Kosovska Mitrovica) and, on the other side of the domain, Kosovska Kamenica (if it did not belong to the Lopate district, see the next note).

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; Grizilevci, Kratovo [its identification with ancient Kratiskara remains disputable, see *IMS* IV p. 52 with n. 7], 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; ĆIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, ĆUK 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-medieval period (SIMIĆ, *Development* 290 f.; *Organization* 30).

⁵³ In Procopius' list of forts *De Aed.* IV 4, p. 123, 13-40 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 *πολίχνητον*) and the centre of a region (*χώρα*), not of a city territory (*ὑπὸ πόλιν*); the *Itin. Hier.* (p. 556, 6) cites it as a *mansio*, 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: Φερραρία (!) = Ferraria (123, 20) and Δάλματας (!) = Dalmatae (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 *aurariae Dacicae* 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 Božica (*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 *eruis aurum* shows that Paulinus did not think of "gold-washers" in his poem.

⁵⁴ P. PETROVIĆ, *Der römische Bergbau in Ravna: archaeologische Notizen*, in: *AMM* 95-202; cf. *IMS* III/2, pp. 18-21 (gold, copper, silver, lead and iron in the area of the Svrljiški Timok, Trgoviški 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 *χώρα* Ἀκυνέσιος [*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' *χώρα* Ἀκυνέσιος 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 metalli*. Three of them are especially eloquent: *IMS* III/2, nos. 31, 58 and 84. – In addition to the archaeological and metallurgical 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 Ἀκυνέσιος in the *χώρα* Ἀκυνέσιος (*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, Ἀυριλιανὰ (*De Aed.* IV 4, p. 124, 5), may have also preserved

– nothing to say of less important *vici metallorum* to be found in all five⁵⁵. The case of the (F) (east Kopaonik – Kuršumljica – Veliki Jastrebac – Lece) area remains mostly unclear, and the same may be said of the administrative relationship between (A) and some other mining terrains of the large Ibar-Kopaonik region, which, as a whole, attests to the intensity of Roman exploitation⁵⁶. In the *ripa* of the province there were three polycentric districts, covering the Šumadija⁵⁷ (Serbian name for the north-western part of Moesia Superior), the Mlava – Pek (Roman Pincus) – Porečka region⁵⁸, and

the memory of imperial *metalla*. The lead ingot from Jasenovik, *IMS* IV 135 (late Flavian?), was probably produced somewhere in that part of the *χώρα Ἀλευνίστιος* which was managed from Timacum Minus.

⁵⁵ In most cases, they are attested only archaeologically (and through meagre traces at that). Cf. however *IMS* IV 109 (near Lece), a dedication to Liber by Flavius Lucius and his son(?) Flavius Lucillus *pro salute suas(!) et vicinorum*. Probably a village of miners (though not a central one?), to judge from its geographical position (PETKOVIĆ 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 *intra fines metallorum* see Ž. PETKOVIĆ, *An Unpublished Dedication from the Mining District of Kosmaj (Moesia Superior)* (in Serbian with an English summary), *ŽA* 52, 2002, 219-224).

⁵⁶ (F) was rich mineralogically (gold, lead, iron: SIMIĆ, *Development* 239-241) and active during the Middle Ages (ČIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, 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 (SIMIĆ, *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 *χώρα Ῥεμισανίσια* and the districts of (C) and (D) respectively, formed a unit (centred at Naissus [S. DUŠANIĆ (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, Trepča, Plana, Koporić, and/or Kuršumljica (on them, *Moesia Superior* [in preparation]) are likely to have been subunits of (A) (cf. n. 50 *supra*).

⁵⁷ On the Šumadija *metalla* (history, inscriptions [including those of the *coloni*, mining officials and the stamped *massae plumbeae*], numismatic and archaeological evidence): S. DUŠANIĆ in: *IMS* I 93 ff. (for some recent archaeological publications see M. TOMOVIĆ, “Roman Mines and Mining in the Mountain of Kosmaj”, in: *AMM* 203-212; mineralogy [mostly silver and lead but also some gold and iron: SIMIĆ, *Development* 179-205; see also bibl. in: *Organization* 35 n. 216]). The Šumadija district united the Roman mines of Avala, Železnik, 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 Šumadija (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 Šumadija mines were closely connected with Tricornium (*Metalla Tricorn(i)ensia*) and Singidunum (*Impact* 148 ff.; S. DUŠANIĆ (n. 45) 344 ff.).

⁵⁸ Its name figures as (*Metalla Aeliana Pincensia* in the reverse legend of Hadrian’s mine-coin (*BMC* III, p. 533 no. 1853 [AD 128-138]). The *vicus metalli* was obviously Pincum (DUŠANIĆ (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. DUŠANIĆ (n. 3) 137 ff. [cf. the hoard of denarii from Žuto Brdo noted 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 Pi(n)censes/Pikensioi (Ptol. *Geogr.* III.9.2) must have been more or less the same as the relationship among Tricornium, the Šumadija mines and the Tricorn(i)enses / Trikonensioi

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 supporting the miners' activities as such⁶⁰. All these Upper Moesian districts, eight or nine in number and quite long-lived⁶¹, produced silver and lead⁶². Many of the Dardanian and the Timok *metalla* were also well-known for their gold⁶³; it should be noted that gold-washing was practised, too, along most of the Upper Moesian rivers⁶⁴. 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 Timok⁶⁵.

(S. DUŠANIĆ (n. 45) 344 f., 352 with n. 62). Geographical and mineralogical facts show that the Mlava valley formed a unity, from the miners' point of view, with that of R. Pincus/Pek (SIMIĆ, *Development* 242 ff. [cf. the map, Fig. 74] and 311 ff. [map, Fig. 107]). For a bibliography on various aspects of the Mlava-Pek-Porečka mining (Kučajna, Majdanpek, Vitovnica, Brodica, et al.: gold, silver, lead, iron, copper), whose importance must have been paramount, see *Organization* 34 f. notes 205-209 (esp. 205).

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 *cobors 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 Pi(n)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 southern-most slopes of Mt. Deli Jovan), were centered on Ravna/Timacus Minus (see note 54 above; *Organization* 35 n. 207, stresses our difficulties in tracing the boundaries between three neighbouring districts – those of Pincum, of Aquae, and of Timacum Minus). Also, Aquae probably controlled the terrains 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, Šaska, and Rusman (SIMIĆ, *Development* 267 ff. 340 ff. 346 ff.; V. KONDIĆ, in: *AMM* 191-193).

⁶⁰ *Impact* 148 ff.

⁶¹ S. DUŠANIĆ, in: *AMM* 219-225.

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 place⁶⁶. 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 century⁶⁷ and lasts till the late fourth⁶⁸. Its persistence into the epoch of the Later Empire shows that post-Severan *res metallica* had more vitality in Illyricum⁶⁹ 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 century⁷⁰.

What we know of the organizational patterns may be interpreted as follows (to quote the 1977 summary of our evidence⁷¹, 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 importance⁷², all the mines we know about in Noricum, Pannonia, Dalmatia, and Moesia Superior belonged to the category of fiscal domains⁷³.

As a rule, the *aurariae* and *argentariae* were managed by the imperial procurators and leased by small lessees⁷⁴; condoctorial mines of lead, active in Dardania under the Flavians⁷⁵, 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. Theod.* I 32, 5 = *Cod. Iust.* 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 f.

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 HAURY). 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. T(arius) R(ufus) ?*).

known to us⁷⁶) and the general economic factors (the relative cheapness of lead⁷⁷). 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*⁷⁸. The impact of the State control can be detected in all types and phases of exploitation⁷⁹; however, the presence of the *familia Caesaris* within the *territoria metallorum*⁸⁰ need not imply that the production itself was really transformed into a State activity during the conductorial period.

Written evidence⁸¹ 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 terrains⁸²) and the post-Severan epoch (the *damnati ad metalla*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 cities⁸⁴, collaboration whose principal aim was to promote the production of metals, directly or indirectly⁸⁵. There were analogous connections between the mines and military units also, thanks to the technical or clerical competences of certain soldiers⁸⁶. 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 communications⁸⁷. The

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

⁷⁷ *Organization* 50.

⁷⁸ *Aspects* 82 ff.

⁷⁹ *Ibid.* 82 with n. 197.

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.

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».

⁸² *Impact* 148 f.

⁸³ Cf. DAVIES, *Mines* 14-16.

⁸⁴ That collaboration produced i.a. the composite names such as *m(etalla) m(unicipii) D(ar)d(anorum)* and *col(onia) m(etallorum) D(omavianorum)*. Above, n.74 (*municipium Dardanorum*, AD 238-244) and *CIL* III 12728 f. (Domavia, AD 251-253).

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

⁸⁶ S. DUŠANIĆ (n. 45) 354 ff.

⁸⁷ *Ibid.* 347 ff.

chief mining officials, *procuratores*, were imperial freedmen till some date in the late second century, and knights thereafter⁸⁸. There is no evidence of the (frequently assumed⁸⁹) simultaneous use of a knight and a freedman as associated procurators of the same mine; at least the Ljubija *metalla* seem to have had the *vilici* directly under the procurator⁹⁰. The *equites* who superseded the freedmen were obviously *sexagenarii*, to become *perfectissimi* after the reign of Constantine I⁹¹; 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 Illyricum⁹². The case of the *procuratores centenarii* in the second-century *argentariae* of the Drina valley (which may have yielded some gold in addition to silver and lead) illustrates the mineral wealth of the region, famous in Antiquity and Middle Ages alike⁹³. Remarkable as it is, it need not have been wholly isolated.

Two districts in proximity could be united, even if belonging to different provinces⁹⁴, 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 complexes of iron-mines scattered throughout Illyricum as well as some more distant countries during the period of the conductariate. Of course, the system of conductariate – traditional in the *ferrariae*, with their comparatively cheap products – made such complexes easier to organize and maintain, both economically and administratively. A Norican altar (*ILS* 1477) cites therefore a *con(ductor) fer(rariarum) N(oricarum) P(annonicarum) D(almaticarum)* together with the conductor's three *proc(uratores) fer(rariarum)* who obviously managed the workings of one of the three provinces each⁹⁵. The metalliferous areas leased by another large lessee (*c.* AD 200: *C. Iul(ius) Agathopus c(onductor) f(errariarum) Pannoniar(um) itemq(ue) provinciar(um) transmari(nar(um))*⁹⁶) were still more complex but, again, shared the main quality of producing iron, in Pannonia and the (?)East⁹⁷. 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

⁸⁸ *Aspects* 195 ff.; S. DUŠANIĆ (n. 50) 211 ff.

⁸⁹ E.g. by NOESKE (n. 33) 300 f.

⁹⁰ *Aspects* 83 f. note 202, nos. 2-8 (AD 209-253/68 (?)).

⁹¹ S. DUŠANIĆ, in: *AMM* 221, on *IMS* I 151.

⁹² Text and note 3 *supra*.

⁹³ ČIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, ČUK 116.

⁹⁴ The case of the *argentariae Pannonicae et Delmaticae* (text and note 37).

⁹⁵ *Aspects* 82 f.; note 25 above.

⁹⁶ FITZ (n. 25) II 740 no. 2.

⁹⁷ Sardinia and/or Gaul being the alternatives.

the *nummi metallorum* indicate that the province⁹⁸ had something to do with the distribution of that currency. Not later than Domitian's reign⁹⁹, 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*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 Pannonia¹⁰¹. The *comes metallorum per Illyricum* of the Later Empire must have been a distant successor of his¹⁰²».

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 itself¹⁰³.

The diggers of ores as well as the smelters of metals were exposed to both exceptional difficulties and exceptional dangers, which generated specific fears¹⁰⁴; such fears deeply influenced the religious emotions *intra fines metallorum* (let us note that miners passed for notoriously superstitious people in all epochs¹⁰⁵). 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)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. Liber¹⁰⁷, Silvanus, Diana, Ceres), the underworld (e.g. Dis Pater, Terra Mater, Orcia, Aeracura), and the patrons of the work in galleries and the metallurgical *officinae* (e.g. Hercules, Vulcanus, Neptune)¹⁰⁸. The cultural climate of Illyrican mines owed much to that religiosity which was psychologically intensive, rich in monu-

⁹⁸ I.e. Noricum, Pannonia, and Dalmatia. *Aspects* 57 a, b-e, f-h.

⁹⁹ Statius, *Silvae* III 3, 86 ff.

¹⁰⁰ *Aspects* 93.

¹⁰¹ In Siscia or Sirmium?

¹⁰² *Not. Dign. Or.* XIII 11. *Impact* 154 with n. 89.

¹⁰³ S. MROZEK, *Zur Religion der römischen Bergleute in der Prinzipatzeit*, "Eos" 70 (1982) 139-148; S. DUŠANIĆ, *The Miners' Cults in Illyricum*, "Pallas" 50 (Toulouse 1999, Mém. C. Domergue) 129-139.

¹⁰⁴ Cf. e.g. Statius' verses, *Silvae* IV. 7, 144 ff..

¹⁰⁵ H. WILSDORF, *Bergleute und Hüttenmänner im Altertum bis zum Ausgang der römischen Republik*, Berlin 1952, 150 ff. («Der 'fromme' Bergmann und die religiöse Namengebung im laurischen Grubenbezirk»); ĆIRKOVIĆ, KOVAČEVIĆ-KOJIĆ, ĆUK 179 (XVI cent. Siderokapsa: the miners' fear of the *daemon metallicus*), et al.

¹⁰⁶ S. DUŠANIĆ (n. 103).

¹⁰⁷ PETKOVIĆ (n. 55).

¹⁰⁸ S. DUŠANIĆ (n. 103).

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 teacher¹⁰⁹.

III.

The *res metallica* of Roman Illyricum was a phenomenon of prime importance. To begin with, isolated ancient data¹¹⁰ 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 mining¹¹¹). 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 *metalla 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 centuries¹¹². 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, ČUK 118 f.

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 BC¹¹⁴. The Dardanian lead ingots were transported by sea, under Domitian, to Caesarea Palestinae¹¹⁵.

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 century¹¹⁶. This region, garrisoned after c. AD 169 by a *cobors equitata* one thousand men strong, whose formation was part of Marcus’ wider measures to protect the Illyrican mining from the effects of the Marcomannic War¹¹⁷, possessed an active customs station of its own¹¹⁸. 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 metallorum*, possessed a large number of customs posts¹²⁰. Obviously, their task was to prevent various forms of *dardanariatus*, speculation in corn¹²¹ and related commodities, rather typical of ancient and medieval mining economy¹²².

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.

¹¹⁵ *Ann. ép.* 1999, 1683.

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 f. 156.

¹²² *Impact* 153 n. 62. ČERŠKOV, *Les Romains en Kosovo et Metobija* (in Serbian with summaries in French and Albanian), Beograd 1969, 95 n. 164, registers important concentration of corn *pitvoi* in certain metalliferous parts of Dardania.

wreck discovered at Valle Ponti, not far from Comacchio¹²³. 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 debated¹²⁴, 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)¹²⁵, must have been produced somewhere in Illyrian land: a neglected piece of evidence attests to the existence of (Metal-la) Agrippi(a)na not far to the south of Sirmium¹²⁶. 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 Augustus¹²⁷. Legally and otherwise, there was nothing unusual about such a collaboration between the “barbarian” smelters and Roman commerce¹²⁸. The whole enterprise (behind which we should assume massive production of lead pipes?) may have been connected with Agrippa's (and Augustus')

¹²³ C. DOMERGUE, *Les lingots de plomb de l'épave romaine de Valle Ponti (Comacchio)*, “Epigraphica” 49 (Bologna 1987) 109-175.

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 Latinae (Barcelona, Sept. 3-8, 2002); what follows is based upon the results of that discussion.

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. Cae(cilius) Bat(o, -onianus* or a similar Illyrian name)).

¹²⁶ See below, text and n. 133.

¹²⁷ Other stamps cite names that offer additional indications of interest here, prosopographical and chronological. Let us note those of *C. Matius* (the businessman who was Caesar's and Augustus' friend), *P. Li(vineius) R(egulus)* (moneyer c. 8-10 BC; a *Li(vius)*, related to the Empress, being an alternative possibility?), and *L. No(nius) 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.

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, too¹²⁹. 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 recorded¹³⁰. 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*¹³¹. 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 Illyrican¹³² mines and quarries in AD 293-294. Thanks to the evidence of subscriptions to the then laws in the *Codex Iustinianus* 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)rac(es) (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)¹³³. 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).

¹³⁰ Plin. *NH* XXXIV. 3. W. ECK-A. CABALLOS-F. FERNÁNDEZ, *Das Senatus consultum de Cn. Pisone patre*, München 1996, 205-207 (who also stress the frequency of imperial gifts of domains in Egypt); A. MATEO, *Observaciones sobre el régimen jurídico de la minería en tierras públicas en época Romana*, Santiago de Compostela 2001, 72 ff.

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.

¹³³ For the evidence see Th. MOMMSEN, *Über die Zeitfolge der Verordnungen Diokletians und seiner Mitregenten*, "Abh. Ak. Berlin" 1860 (Berlin 1861) 428-441, and my paper mentioned *supra*, note 124.

project to promote Sirmium into another Rome¹³⁴; 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 buildings¹³⁵. 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*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 area¹³⁷.

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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,

¹³⁴ Cf. e.g. F. MILLAR, *The Emperor in the Roman World (31 BC-AD 337)*, Ithaca-New York 1977, 52; V. POPOVIĆ, *Sirmium, a Town of Emperors and Martyrs*, in: (D. SREJOVIĆ ed.) "Roman Imperial Towns and Palaces in Serbia", Belgrade 1993, 20 ff.; M. JEREMIĆ, *Architectural Stone Decoration of Sirmium in the First Half of the 4th Century*, in: (D. SREJOVIĆ ed.) "The Age of Tetrarchs", Belgrade 1993-5, 141.

¹³⁵ All these, mint especially, demanded metals. A mint at Sirmium seems to have been active as early as Gallienus; it will certainly be reopened by Constantine I, who made it a considerable success. Silver plates and gold bars were produced in the Sirmian *officinae* of the fourth century. Above, n. 28.

¹³⁶ Lact. 7. 8-10.

¹³⁷ BOJANOVSKI (n. 3) 99 has taken (little more than a conjecture), that Septimius Severus – while at Sirmium – had visited the Domavian mines. Cf. *IMS* I 168 with comm.

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' strategy¹³⁸, 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 metaliferous estates in Illyricum reflects the priority of the *res metallica* in the hierarchy of the State's vested interests in general.

¹³⁸ Julian, *Ep.* V. 13 (p. 287 a), of AD 361. S. DUŠANIĆ, *Julian's Strategy in AD 361*, "Recueil des travaux de l'Institut d'études byzantines" 41 (Belgrade 2004), forthcoming.