

Das ist eine digitale Ausgabe von / This is a digital edition of

Calomino, Dario

## Supplies for the Army: Bithynian Coins in the Balkans in the 3rd Century AD.

aus / from

Chiron : Mitteilungen der Kommission für Alte Geschichte und Epigraphik des Deutschen Archäologischen Instituts, 49 (2019) 131-160

DOI: https://doi.org/10.34780/7196-q168

**Herausgebende Institution / Publisher:** Deutsches Archäologisches Institut

Copyright (Digital Edition) © 2022 Deutsches Archäologisches Institut

Deutsches Archäologisches Institut, Zentrale, Podbielskiallee 69–71, 14195 Berlin, Tel: +49 30 187711-0

Email: info@dainst.de | Web: https://www.dainst.org

Nutzungsbedingungen: Mit dem Herunterladen erkennen Sie die Nutzungsbedingungen (https://publications.dainst.org/terms-of-use) von iDAI.publications an. Sofern in dem Dokument nichts anderes ausdrücklich vermerkt ist, gelten folgende Nutzungsbedingungen: Die Nutzung der Inhalte ist ausschließlich privaten Nutzerinnen / Nutzern für den eigenen wissenschaftlichen und sonstigen privaten Gebrauch gestattet. Sämtliche Texte, Bilder und sonstige Inhalte in diesem Dokument unterliegen dem Schutz des Urheberrechts gemäß dem Urheberrechtsgesetz der Bundesrepublik Deutschland. Die Inhalte können von Ihnen nur dann genutzt und vervielfältigt werden, wenn Ihnen dies im Einzelfall durch den Rechteinhaber oder die Schrankenregelungen des Urheberrechts gestattet ist. Jede Art der Nutzung zu gewerblichen Zwecken ist untersagt. Zu den Möglichkeiten einer Lizensierung von Nutzungsrechten wenden Sie sich bitte direkt an die verantwortlichen Herausgeberinnen/Herausgeber der entsprechenden Publikationsorgane oder an die Online-Redaktion des Deutschen Archäologischen Instituts (info@dainst.de). Etwaige davon abweichende Lizenzbedingungen sind im Abbildungsnachweis vermerkt.

Terms of use: By downloading you accept the terms of use (https://publications.dainst.org/terms-of-use) of iDAI.publications. Unless otherwise stated in the document, the following terms of use are applicable: All materials including texts, articles, images and other content contained in this document are subject to the German copyright. The contents are for personal use only and may only be reproduced or made accessible to third parties if you have gained permission from the copyright owner. Any form of commercial use is expressly prohibited. When seeking the granting of licenses of use or permission to reproduce any kind of material please contact the responsible editors of the publications or contact the Deutsches Archäologisches Institut (info@dainst.de). Any deviating terms of use are indicated in the credits.

# **CHIRON**

MITTEILUNGEN
DER KOMMISSION FÜR
ALTE GESCHICHTE UND
EPIGRAPHIK
DES DEUTSCHEN
ARCHÄOLOGISCHEN
INSTITUTS

Sonderdruck aus Band 49 · 2019



DE GRUYTER

#### Inhalt des 49. Bandes (2019)

- Снязторн Begass, Kaiser Marcian und Myra. Ein Beitrag zu Geschichte und Epigraphik Lykiens in der Spätantike
- Dario Calomino, Supplies for the Army: Bithynian Coins in the Balkans in the  $3^{\rm rd}$  Century AD
- STEFANO G. CANEVA LAURENT BRICAULT, Sarapis, Isis et la continuité dynastique lagide. À propos de deux dédicaces ptolémaïques d'Halicarnasse et de Kaunos
- HÉLÈNE CUVIGNY, Poste publique, renseignement militaire et citernes à sec: les lettres de Diourdanos à Archibios, *curator Claudiani*
- WERNER Eck, Beinamen für stadtrömische Militäreinheiten unter Severus Alexander und dessen angeblicher Triumph über die Perser im Jahr 233
- ULRIKE EHMIG, Das Gleiche immer anders: Zum regional- und inhaltstypischen Schriftduktus von Tituli picti auf römischen Amphoren der Kaiserzeit
- ROLAND FÄRBER, Der *accensus* Lucius Iunius Aeschylus in einer unveröffentlichten Inschrift aus Pergamon
- PIERRE FRÖHLICH, Institutions des cités d'Éolide à l'époque hellénistique. Décrets honorifiques et proximités institutionnelles entre cités
- RUDOLF HAENSCH PETER WEISS, L. Egnatius Victor Lollianus, zum Dritten. Ein weiteres (Statthaltergewicht) aus Nikomedeia in Pontus et Bithynia
- KLAUS HALLOF, Alte und neue Inschriften aus Olympia II
- Herbert Heftner, Roms Kontakte zu Hieron II. und den Mamertinern während der Belagerung von Rhegion 270 v.Chr. Überlegungen zu Dio fr. 43, 1 Boissevain und Zonaras 8, 6, 14–15
- Andrea Jördens, Reflexe kaiserlichen Wirkens in ägyptischen Papyri und Ostraka
- CHRISTOPHER P. JONES, Messene in the last years of Augustus
- MAIT KÕIV, Reading ancient tradition: the rulers of Archaic Corinth
- François Lefèvre, Privilèges honorifiques ou avantages contractuels? Observations sur quelques documents épigraphiques ambigus

- ISABELLE MOSSONG JUAN MANUEL ABASCAL, Dos damnationes memoriae de Commodo en Asturica Augusta (Astorga, León, Hispania citerior)
- KARL PRAUST KARIN WIEDERGUT, I.Milet VI 2, 570: Rekonstruktion und Interpretation einer bemerkenswerten Grabinschrift
- MICHAEL WÖRRLE, Epigraphische Forschungen zur Geschichte Lykiens XII: Schutz für Kallias. Ein rätselhaftes Fragment aus dem frühhellenistischen Limyra
- MICHAEL WÖRRLE, Neue Freunde von Antoninus Pius. Ein Kaiserpriester und ein *proconsul Asiae* in Hierapolis
- BERNHARD WOYTEK, Inschriften und Legenden auf Münzen des Augustus im Kontext. Eine numismatisch-epigraphische Studie

#### DARIO CALOMINO

### Supplies for the Army: Bithynian Coins in the Balkans in the 3<sup>rd</sup> Century AD

#### 1. The state of research

The last twenty years of numismatic research in Serbia and Romania have produced an unprecedented set of published data from excavations in different parts of the countries, largely from archaeologically documented contexts, providing new insight into the coin circulation in the territories of Roman Moesia Superior and Dacia. The publication of these materials allows for novel considerations on various aspects of the monetary economy of this area of the Empire, including one of the most puzzling phenomena in the provincial coinage of the 3<sup>rd</sup> century: the exceptionally large presence of Bithynian issues, mainly from Nicaea, dating from the reign of Severus Alexander

#### Abbreviations:

AMNG: Die antiken Münzen Nord-Griechenlands, I–III, unter Leitung von F. IMHOOF-BLUMER, 1898–1935.

CCHBulg II/1: S. FILIPOVA – I. PROKOPOV – E. PAUNOV (eds.), Coin collections and coin hoards from Bulgaria, II. The Numismatic collection of the Regional Historical Museum at Kyustendil (ancient Ulpia Pautalia), 1: Greek, Thracian, Macedonian, Roman Republican and Provincial coins, 2009.

CCHBulg IV: M. Andonova – S. Filipova – E. Paunov (eds.), Coin collections and coin hoards from Bulgaria, IV. The Numismatic collection of the Regional Historical Museum at Blagoevgrad (Ancient Skaptopara): Greek, Thracian, Macedonian, Roman Republican, Imperial and Provincial coins from the 5<sup>th</sup> century BC to the 5<sup>th</sup> century AD, 2014.

CCHBulg V: S. Ignatova – S. Filipova – A. Tenchova – I. Prokopov (eds.), Coin collections and coin hoards from Bulgaria, V. The Numismatic collection of the Regional Historical Museum at Pazardzhik: Greek, Thracian, Macedonian, Roman Republican, Roman Provincial and Byzantine coins from the 4<sup>th</sup> century BC to the 7<sup>th</sup> century AD, 2015.

FMRU I: K. Fejér, Die Fundmünzen der römischen Zeit in Ungarn, I, 1990.

Recueil I/2: W. WADDINGTON – E. BABELON – T. REINACH, Recueil général des monnaies grecques d'Asie mineure, I, 2: Bithynie (jusqu' à Juliopolis), 1908.

Recueil I/3: W. WADDINGTON – E. BABELON – T. REINACH, Recueil général des monnaies grecques d'Asie mineure, I, 3: Nicée et Nicomédie, 1910.

RPC: A. BURNETT - M. AMANDRY et al., Roman Provincial Coinage, I-X, 1992-.

SNG Turkey III: SNG Çanakkale. Çanakkale Museum. Roman Provincial Coins, 1: Roman Provincial Coins of Mysia, Troas, etc., 2009.

SNG Turkey V: SNG Tire. Tire Museum (Izmir), 1: Roman Provincial Coins from Ionia, Lydia, Phrygia, etc., 2011.

132 Dario Calomino

to that of Gordian III (AD 222–244). The aim of this contribution is to look at this new material evidence within the broader picture of the provincial coinages of this period, in order to gain a better understanding of this unusual long-distance movement of bronze civic coins across the Bosporus. I shall start with a summary of the current state of the question in the light of both old and newer researches. I will then look more analytically at the data provided by the recently discovered materials to try and reassess the scope and significance of this phenomenon.

Even if no complete study has yet been devoted to this topic, it has drawn much scholarly attention and has been variously discussed in the numismatic literature of the last forty years. It might be useful to recapitulate here the main argumentations used in the past to try to explain it, bearing in mind that they were based on a much smaller and more poorly documented sample of published specimens than the one on which we can now comment. The survey of the civic coinages in the Eastern provinces undertaken by Callu in 1969 was the first opportunity to attempt an interpretation of this phenomenon within the broader analysis of the changing monetary economy of the Empire in the 3<sup>rd</sup> century AD. He believed that these finds were the result of an «axe» (direct link) between Nicaea and Viminacium and «entre l'Asie et l'Europe», which should be seen in the context of a particular historical period in which some civic mints were acting as «outils du pouvoir impérial».3 A few years later this view was received favourably by CRAWFORD, who maintained that the sudden increase in production of civic bronze coins in the Severan age resulted from direct taxation being imposed by the Empire on the civic administrations to face fiscal expenditure. Within this framework, he concluded that the «surprising domination» of Nicaean coins in the Balkans can be explained in terms of imperial use. <sup>4</sup> This view clashed with the new approach to the study of Roman provincial coins proposed by Howgego in 1985,

This study is largely based upon the research undertaken at the British Museum Department of Coins and Medals as part of my project on Roman Provincial Coinage VI (funded by the Leverhulme Trust in 2014–2017). The project is still in progress and a temporary version of the catalogue is currently available on the RPC online website (http://rpc.ashmus.ox.ac.uk) hosted by the Ashmolean Museum of Oxford and curated by J. Mairat. Shorter versions of this paper were presented at the International Colloquium organised by the Archaeological Institute of Belgrade at the Viminacium Park (Kostolac) in September 2017, and at the Warwick University Numismatic Day in May 2018. I would like to thank all the colleagues who shared their thoughts with me on the themes discussed in this article, especially A. Burnett, C. Howgego, B. Woytek, K. Butcher and R. Aby, alongside the anonymous Chiron reviewers for their useful comments. Nevertheless, I take responsibility for any interpretations, mistakes or omissions that this study may include. Photo credits: P. Van Alfen, New York American Numismatic Society (ANS); K. Vondrovec, Vienna Kunsthistorisches Museum (VKHM); B. Weisser, Berlin Staatliche Museen Münzkabinett (SMB); Aktionshaus H. D. Rauch, Wien; CNG London; Helios Numismatik GmbH, München; Numismatik Lanz, München.

<sup>&</sup>lt;sup>2</sup> See also Vojvoda – Crnobrnja 2018 with full bibliography.

<sup>&</sup>lt;sup>3</sup> CALLU 1969, 35 (cf. also 28).

<sup>&</sup>lt;sup>4</sup> Crawford 1975, 573f.

who showed that civic coins were produced essentially to meet civic expenditures. Even though he agreed with CRAWFORD that extraordinary military movements of civic coins could be an exception, he thought that the finds of Nicaean coins in the Balkans «were part of a general pattern of contact across the Bosporus and required no special explanation». 5 Yet other scholars continued to follow CRAWFORD's interpretation. Kos believed that the spread of these coins to the Alps (Emona and Poetovio) brought evidence of their «supra-provincial character»,6 and in 1997 REBUFFAT reprised the idea that they were issued as a form of taxation imposed by the Empire to pay the troops (the cities being responsible for the payment of tributes within their own region) and suggested that they were «transportée[s] en fonction des besoins impériaux là où se trouvaient stationnées les troupes».7 On the other hand, more recent comments on the phenomenon have opted for an economic explanation instead of a military one. TouratsogLou assumed that Bithynian coins were «brought in by professional people from the East who had settled in the Balkans for one reason or another»,8 and HOOVER suggested that «eastern coins moved west as a result of trade», concluding that «Bithynia was an obvious partner for cities such as Tomis, Odessus, Anchialus and Deultum, all of which had ports on the Black Sea littoral». Lastly, a more focussed study by Benea was dedicated to this phenomenon in 2006, mostly based on coin finds in modern Romania. The author considered the presence of issues from three Bithynian mints in the Balkans, Nicaea, Nicomedia and Iuliopolis. Once again, they were seen as connected to the movements of the army and interpreted as military wage, which may have been used by troops recruited by Severus Alexander in Dacia for his Parthian campaign in AD 231-232,10 following Herodian's broad use of the «Illyricum» as the region where they had been enrolled. 11 The main unresolved question about the nature of this phenomenon is still the contrast between what could be loosely labelled as a «military» (and imperial) explanation and an «economic» (and local) explanation. Two aspects will be addressed in particular in this article to try to give an answer: the class of issues that were involved in this process and the geographical distribution and concentration of finds.

<sup>&</sup>lt;sup>5</sup> Howgego 1985, 25.

<sup>6</sup> Kos 1986, 108.

<sup>&</sup>lt;sup>7</sup> Rebuffat 1997, 345 f.

<sup>&</sup>lt;sup>8</sup> Touratsoglou 2006, 151.

<sup>&</sup>lt;sup>9</sup> Hoover 2007.

<sup>&</sup>lt;sup>10</sup> Benea 2006.

<sup>&</sup>lt;sup>11</sup> Herodian VI 4, 3: «Traveling rapidly, he came to Antioch after visiting the provinces and the garrison camps in Illyricum; from that region he collected a huge force of troops» (translation following E. C. Echols, Herodian of Antioch's History of the Roman Empire, 1961). On the use of Illyricum in a broader sense for the Balkans, see Mocsy 1975, 200.

#### 2. Designs and Denominations

The vast majority of Bithynian coins found in the Balkans were issued by Nicaea. These issues approximately date to between the reigns of Caracalla and Gordian III (c. AD 217-244), although the coins of Severus Alexander alone account for around 65% and those of Gordian for around 30%, so that all other emperors together are represented by less than 5% of these issues. Nicaea was an extremely prolific mint throughout the first half of the 3<sup>rd</sup> century AD up until Gallienus, <sup>12</sup> so this apparent peak of attestations during the reigns of Alexander and Gordian does not depend on the general pattern of production of the civic workshop but was related to particular circumstances. The almost total lack of coins of Maximinus Thrax (AD 235-238) among these finds, in spite of Nicaean coinage in his name being rather substantial, as opposed to the exceptionally large presence of coins of his predecessor and especially of his successor, confirms that these issues arrived in the Balkan regions not as part of the customary contacts with northern Anatolian cities, but probably in response to specific needs. The key to explaining this peculiar pattern is to look at the class of issues to which these coins belonged. Of the three bronze denominations struck by the mint after the death of Septimius Severus, only the smallest one (since AD 222 measuring around 19-21 mm and 3-4.5 g) is attested in large numbers among these finds, and within the very broad range of reverse designs used on Nicaean coins of this period, the one showing three or four military standards has an absolute predominance over all the others within the Balkans (figs. 1-3). 13

<sup>&</sup>lt;sup>12</sup> The standard reference for the coinage of Nicaea is still Recueil I/3, nos. 395–511, along-side Weiser 1983.

<sup>&</sup>lt;sup>13</sup> Cf. Recueil I/3, nos. 571, 574, 580 (Elagabalus), 616–617, 628 (Severus Alexander), nos. 711–717, 723–724 (Gordian III). There are seven main varieties of designs: three standards, one *aquila* between two standards, one *aquila* between two Capricorns, four standards, two *aquilae* between two standards, two *aquilae* between two Capricorns. A taxonomy including all the minor variations (28 types) is published in Vojvoda 2011



The tables below show the sample of Nicaean coins found at the best documented archaeological sites (or held in museum collections based on local finds) in Serbia and Romania, comparing the figures of issues featuring «military» designs (standards) with those featuring any other reverse type («non-military» designs). It is apparent that issues characterised by military designs dominated the local circulation accounting for c. 95 % of the Nicaean coins in Moesia Superior and the eastern part of Pannonia Inferior – in the region stretching between Viminacium and Sirmium (table 1), <sup>14</sup> and c. 94 % in Dacia (table 2).

<sup>&</sup>lt;sup>14</sup> These figures do not include all the Nicaean specimens on which the obverse bust is too worn to identify the emperor. Nevertheless, nearly all of them (around 120) feature the standards as a reverse type, so the actual ratio between military and non-military designs is even more unbalanced.

	Požarevac		Više grobalja	. T	Pećine		Sremska Mitrovica	trovica	Banovo Polje	je
	military standards	non- military designs								
Caracalla	ı	ı	r.	1	ı	1	ı	ı	ı	ı
Elagabalus	3	5	5	2	1	2	ı	ı	ı	ı
Severus Alexander	112	10	194	9	82	2	14	ı	16	I
Maximinus Thrax	1	I	1	I	2	I	ı	ı	I	I
Gordian III	81	2	39	ı	99	ı	7	ı	28	ı
Total	197	17	244	6	151	5	21	-	44	ı

Table 1: Sample of Nicaean coins from three sites and two museum collections based on local finds in Serbia

and	non- military designs	ı	ı	I	ı	ı	ı
Porolissum and Arcobadara	military standards	ı	ı	4	I	ı	4
	non- military designs	ı	ı	I	I	ı	ı
Apulum	military standards	I	I	15	I	5	20
	non- military designs	1	ı	4	I	1	9
Drobeta	military standards	ı	I	56	I	6	65
	non- military designs	2	2	3	I	ı	7
Orlea	military standards	I	9	28	I	5	39
na Isa	non- military designs	ı	ı	2	ı	ı	2
Ulpia Traiana Sarmizegetusa	military standards	ı	I	20	I	9	26
		Caracalla	Elagabalus	Severus Alexander	Maximinus Thrax	Gordian III	Total

Table 2: Sample of Nicaean coins from six sites in Romania

Issues from various other Bithynian mints occur occasionally among the finds in these regions, but the coins of another two cities in particular, Nicomedia and Iuliopolis, are found more often than the others, even though still on a much smaller scale than the ones from Nicaea. All these coins belong to the same denomination as the Nicaean issues and they also feature three military standards on the reverse, sometimes in the variant having a Capricorn or an eagle, too (figs. 4–7).<sup>15</sup>



<sup>&</sup>lt;sup>15</sup> Coins of Iuliopolis recorded in the main sites: 6 at Više grobalja (Vojvoda – Mrđić 2015: Caracalla? no. 2154, Severus Alexander nos. 2155–2157, Gordian III no. 2158–2159); 2 at Pećine (Vojvoda – Mrđić 2017: Severus Alexander no. 3097, Gordian III no. 3098); 2 at Drobeta (Găzdac et al. 2015: Severus Alexander nos. 360–361); 1 at Apulum (Găzdac et al. 2009: Gordian III no. 1226); 1 at Brigetio (Bíró-Sey 1977: Severus Alexander no. 627); 1 at Poetovio (Găzdac 2010: Gordian III); 1 at Ratiaria (Găzdac 2010: Severus Alexander); 1 at Durostorum (Dima – Elefterescu 2009: Maximinus Thrax no. 539). Coins of Nicomedia recorded in the main sites: 8 at Više grobalja (Vojvoda – Mrđić 2015: Severus Alexander nos. 2450–2452, also 5 non-military designs); 5 at Pećine (Vojvoda – Mrđić 2017: Severus Alexander nos. 3089–3092, Gordian III no. 3095, besides 2 non-military designs); 6 at Drobeta (Găzdac et al. 2015: Severus Alexander nos. 421–426); 6 at Orlea (Winkler – Băloi 1973: Severus Alexander nos. 443–448); 5 at Ratiaria (Găzdac 2010: Severus Alexander?).



Fig. 7

Most of these bronzes from Nicomedia<sup>16</sup> and Iuliopolis<sup>17</sup> date to the first part of the reign of Severus Alexander, and the imperial portrait represented on their obverses is stylistically very similar to the one used on the coins of Nicaea of the same period (figs. 8–10),<sup>18</sup> so it is possible that the three cities were supplied by the same workshop for this part of their production.



<sup>&</sup>lt;sup>16</sup> Cf. Recueil I/3, nos. 327–330.

<sup>&</sup>lt;sup>17</sup> Cf. Recueil I/2, nos. 45-46.

<sup>&</sup>lt;sup>18</sup> The coins of the three mints that fall into this group can be dated to the early part of Severus Alexander's reign, not only because they show a youthful portrait of the emperor, but also because the reverse legend on the Nicomedia ones advertised three neokorates of the city, while all the other issues only mentioned two. The 3<sup>rd</sup> neokorate, granted by Elagabalus, was withdrawn under Alexander as a result of the damnatio memoriae of his predecessor, but probably not quite so promptly as to prevent the city from mentioning the title on the very earliest coins minted in honour of the new emperor; cf. Burrell 2004, 156–159.

Later on (as suggested by the portrait of Alexander looking more mature, as in fig. 2), Nicaea became the only city to mint these military issues on a regular basis and on a much bigger scale than before, as if it had taken on the whole production alone. This is the phase of minting to which the majority of coins found in the Balkans belong. Afterwards, both Nicaea and Iuliopolis produced extremely rare issues featuring the military standards on the reverse under Maximinus Thrax (fig. 7)<sup>19</sup> and then resumed a more regular production under Gordian III,<sup>20</sup> again the former city on a much larger scale than the latter.

#### 3. Geographical distribution

The territories affected by this phenomenon are often indistinctly regarded as «Balkan» or «Danube» provinces. Yet a more accurate look at the distribution of coin finds seems to indicate that the movement of Bithynian coins outside Asia Minor did not have the same impact on all these regions. This may be related to the function of these coins in the local circulation and perhaps depended on whether they were used in sites of commercial and economic relevance or in sites of military relevance. Benea based her interpretation on the bulk of evidence from Romania, thus putting a special emphasis on the role that Bithynian coins played in Dacia. She assumed that they were largely aimed at the legions stationed at Potaissa (Turda) and Apulum (Alba Iulia), the V Macedonica and XIII Gemina respectively, alongside various auxiliary troops based for example at Ilişua, Mehadia and Râşnov.<sup>21</sup> It is certainly true that the majority of Romanian sites where these coins were found were Roman forts, mainly Ulpia Traiana Sarmizegetusa, Orlea and Drobeta. Nevertheless, Serbian excavations in the territory of two major military settlements of Moesia Superior such as Viminacium (Kostolac) and Singidunum (Belgrade), as well as coin finds from the territory of Sirmium (Sremska Mitrovica), have yielded a much larger number of Bithynian coins than the ones of Dacia. So if on the one hand this evidence supports the hypothesis that these coins were linked to the movement of the army, on the other hand it shows that a comparative analysis of the coin finds of each province, also including Upper Pannonia in the west and Moesia Inferior and Thrace in the east, can give a better understanding of this phenomenon (see chart 1). The following breakdown of finds recorded in each province shows the diverse incidence of Bithynian coins on the local circulation of these regions (cf. chart 2).

<sup>&</sup>lt;sup>19</sup> Cf. Recueil I/3, no. 685 (Nicaea) and Recueil I/2, no. 49 (Iuliopolis).

<sup>&</sup>lt;sup>20</sup> Cf. Recueil I/3, nos. 711–717, 723–724 (Nicaea) and Recueil I/2, nos. 56–57 (Iuliopolis).

<sup>&</sup>lt;sup>21</sup> One major piece of evidence in Benea's interpretation is that both these legions and auxiliary troops aquired the nickname of Severiana Alexandriana during the reign of Severus Alexander; Benea 2006, 696 f.

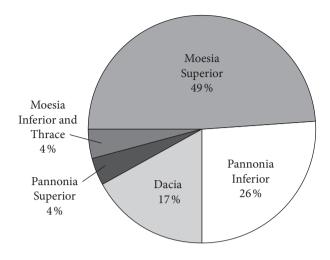


Chart 1: Proportion of Nicaean coins found in each province in the Balkans

#### Moesia Superior and Pannonia Inferior

The vast majority of Nicaean coins come from northern Serbia, where the Danube marks the border with Romania, within Moesia Superior and in the south-eastern corner of the neighbouring territory of Pannonia Inferior (cf. map p. 150). Most of the recorded finds (over 750) have been discovered in Moesia in the territory of Viminacium (largely forming the collection of the Požarevac Museum),<sup>22</sup> especially in the south necropolis excavated at the sites of Više grobalja<sup>23</sup> and Pećine,<sup>24</sup> besides some smaller settlements nearby, such as Pincus (Veliko Gradište).<sup>25</sup> Another large group of finds come from localities around the territory of ancient Singidunum (surrounding modern Belgrade),<sup>26</sup> especially to the north-west of the city, across the border with

<sup>&</sup>lt;sup>22</sup> 294 specimens; Vojvoda – Banković 2016.

 $<sup>^{23}</sup>$  289 specimens dating to the  $3^{rd}$  century and one coin of Antoninus Pius; Vojvoda 2013 and Vojvoda – Mrđić 2015, 17.

<sup>&</sup>lt;sup>24</sup> 163 specimens; Vojvoda 2017; Vojvoda – Mrđić 2017.

<sup>&</sup>lt;sup>25</sup> Cf. Borić-Brešković 2011, 421f., n. 37 and Ivanović 2009. Further finds within the territory of Upper Moesia also come from sites in central and southern Serbia, including, for example, Rimski izvor (Vrnjačka Banja), the ancient Fons Romanus (currently in the National Museum of Belgrade); Borić-Brešković 2011, 442f., n. 46 (40 specimens).

<sup>&</sup>lt;sup>26</sup> See especially Crnobrnja 2011 for an overview of the geographical distribution of the find spots. Some specimens (around 10?) may come from the ancient city itself; cf. Borić-Brešković 2011, 421f., n. 37 and Vojvoda – Mrđić 2015, 17; Crnobrnja – Vasić Derimanović 2017, 42.

Lower Pannonia. Some of them, currently in the Belgrade City Museum,<sup>27</sup> were found in the territory crossed by the roads leading to Sirmium in Pannonia Inferior, including the settlement of Taurunum (Zemun), the mutationes Idiminium and Noviciani<sup>28</sup> and Sirmium itself (Sremska Mirtovica).<sup>29</sup> Some others come from sites lying along the nearby river-bank of the Danube, such as Rittium (Surduk) and Burgenae (Novi Banovci).<sup>30</sup> Similarly, another large group of finds cluster in the valley of the Sava river, especially around Ušće, Obrenovac (possibly Municipium Spodent[...]),31 and Banovo Polje (Šabac).<sup>32</sup> Overall, nearly 1300 coins of Nicaea have been recorded so far in the Serbian territories of Moesia Superior and the neighbouring district of Sirmium in Pannonia Inferior, from at least 30 different sites<sup>33</sup> – but more are known whose provenance is not definite or awaiting publication.<sup>34</sup> This pattern changes completely in the northern part of Pannonia Inferior, where the incidence of Nicaean coins on the local circulation appears to be minimal in comparison with the Serbian territories of the Lower Danube region. The highest concentration of finds (18 specimens) has been recorded in the territory of Aquincum (Dunaùjvàros).<sup>35</sup> Other specimens come from the Roman settlements of Intercisa and Gorsium,<sup>36</sup> adding up to round 40 Nicaean coins from 8 sites.

The actual incidence of Nicaean issues on the monetary economy of the Danubian regions that have yielded the largest proportion of specimens can be better appreciated from the breakdown of data recorded at the Više grobalja and Pećine sites at

<sup>&</sup>lt;sup>27</sup> The collection of the Belgrade City Museum holds 246 Nicaean coins; cf. Vojvoda – Crnobrnja 2018, 131, n. 1.

<sup>&</sup>lt;sup>28</sup> Crnobrnja 2011. Cf. also Crnobrnja 1981.

<sup>&</sup>lt;sup>29</sup> Vojvoda – Jersetić 2012.

<sup>&</sup>lt;sup>30</sup> Cf. Borić-Brešković 2011, 421f., n. 37. The Nicaean coins from Novi Banovci (119 out of 182 in total, according to Brunšmid 1906), Surduk, Srijem and part of those from Sremska Mirtovica are held in the Archaeological Museum of Zagreb. I am very grateful to Miroslav Nað for this information. Cf. also Vojvoda – Crnobrnja 2018, 133, n. 9.

 $<sup>^{31}\,</sup>$  Cf. Crnobrnja 2011, Crnobrnja 2013 and especially Crnobrnja – Vasić Derimanović 2017.

<sup>&</sup>lt;sup>32</sup> This is an assemblage of single finds all coming from Duge Njive, which are held in the Šabac Museum; Vojvoda – Petrović 2011.

<sup>&</sup>lt;sup>33</sup> The total of finds from Upper Moesia (834) and from this region of Lower Pannonia (452) is 1286 (1326 if we also include the specimens found in the rest of Lower Pannonia). These figures are necessarily approximate, though, because occasionally there might be minor discrepancies between the information provided in different publications on some sites (especially about stray finds); for this reason, numbers have been slightly rounded in the charts.

<sup>&</sup>lt;sup>34</sup> This figure does not include another 75 specimens recorded together from a diverse range of contexts in Serbia (both from excavations and from private collections) and around 370 specimens held in six Serbian museums (357 in the National Museum of Belgrade) that are still unpublished; Vojvoda – Crnobrnja 2018, 132f., notes 8–9. I owe most of the information and the bibliographical references on coin finds from Serbia to Mirjana Vojvoda, who has my gratitude for her assistance in this research.

<sup>35</sup> FMRU I, 56-202.

<sup>&</sup>lt;sup>36</sup> Cf. GĂZDAC 2010 (site finds), 3, 8.

Viminacium, which have been thoroughly published, also allowing to compare the proportion between imperial and provincial coins. Više grobalja has yielded 503 provincial specimens (excluding the illegible ones), dating almost exclusively to the 3<sup>rd</sup> century AD, out of over 3100 coins found at the site. If we look only at the period AD 193–244, to which the Bithynian coins belong, we have 288 coins from Nicaea out of 386 provincial issues, accounting for around 75 % of the total.<sup>37</sup> Since the proportion of bronze denominations among the imperial coins found at the site is minimal (23 as opposed to 171 silver denarii), these figures give a clear indication of the extent to which the local monetary economy hinged on the regular supply of Nicaean issues for daily transactions in base-metal coinage. At Pećine, where 334 provincial coins have been found in total, the proportions in the same period are similar to those recorded at Više grobalja: Nicaean coins are 161 out of 255 provincials, accounting for around 63 % (c. 55 % if we consider also the 34 bronze imperial denominations out of 98 imperial coins).<sup>38</sup>

#### Dacia

The finds from several Roman sites in Romania, mostly military settlements, have been published in the last ten years and the monetary economy of Dacia has been largely investigated, particularly in the monographs published by GĂZDAC<sup>39</sup> and PETAC<sup>40</sup> in recent years. Besides the sites already mentioned above (Table 2), small numbers of specimens (no more than five per site) have also been recovered from other military forts such as Porolissum (Moigrad)<sup>41</sup> and Arcobadara (Ilişua).<sup>42</sup> Larger clusters of finds come from both *castra*, such as Sucidava (Corabia),<sup>43</sup> and civilian settlements, such as Gârla Mare,<sup>44</sup> which lay in the south of the region along the Danube. As opposed to the main forts in the north, also including Sarmizegetusa, Apulum and Potaissa, where the incidence of Nicaean coins on the local economy seems to

<sup>&</sup>lt;sup>37</sup> The other provincial mints attested are: Viminacium (34); Stobi (30), Nicomedia (9), Iuliopolis (6), Pautalia (6), Asia Minor mints (3), Perinthus (2), Hadrianopolis (2), Macedonian Koinon (1), Marcianopolis (1), Nicopolis (4). Uncertain mints and pseudo-autonomous issues of uncertain date have been omitted. Data based on Vojvoda – Mrdić 2015.

<sup>&</sup>lt;sup>38</sup> The other provincial mints attested are: Stobi (39), Viminacium (28); Nicomedia (7), Asia Minor mints (4), Hadrianopolis (3), Pautalia (2), Perinthus (2), Nicopolis (2), Iuliopolis (2), Serdica (1), Anchialus (1), Deultum (1), Achaian mints (1), Macedonian mints (1). Uncertain mints and pseudo-autonomous issues of uncertain date have been omitted. Data based on Vojvoda 2017.

<sup>&</sup>lt;sup>39</sup> GĂZDAC 2010, especially the catalogues of site finds in each province. I am very grateful to Cristian GĂZDAC for helping me with the analysis of finds in Dacia.

<sup>&</sup>lt;sup>40</sup> Petac 2011.

<sup>&</sup>lt;sup>41</sup> Găzdac – Gudea 2006, 25, 163.

<sup>&</sup>lt;sup>42</sup> Găzdac et al. 2011, 14, 151.

<sup>&</sup>lt;sup>43</sup> Bordea 1998, 42.

<sup>44</sup> Cf. Găzdac 2010, 27.

have been very low,<sup>45</sup> the sites located near the river have yielded the largest numbers of Nicaean coins in the province, above all Drobeta (72)<sup>46</sup> and Orlea (56).<sup>47</sup> Overall, around 300 Nicaean coins have been recorded in around 23 sites across the province.<sup>48</sup>

#### Pannonia Superior to Noricum

Our analysis of the coin circulation in Pannonia Superior and Noricum (modern Hungary, Slovenia and Austria) and in Dalmatia (Croatia, Bosnia and Herzegovina)<sup>49</sup> is based on a much smaller sample of provincial coins than in Moesia Superior and Dacia, because they played a minor role in the local monetary economy as compared to Roman imperial issues. A recent study by Šemrov on the incidence of Roman provincial coins in the territories of modern Slovenia (stretching from Pannonia Superior to Noricum) recorded only 14 coins of Nicaea from 8 different sites out of 39 during the period from AD 14 to 240. Yet this accounts for 35.9% of the total and makes it the largest sample of coins from a single mint.<sup>50</sup> The figures are similar if we consider Pannonia Superior as a whole. Out of 234 specimens recorded so far, 57 come from Bithynian mints, c. 24% of the total, which is the highest proportion of provincial coins;<sup>51</sup> 52 of these specimens date to AD 193–244, which accounts for 71% of the

<sup>&</sup>lt;sup>45</sup> On Ulpia Traiana Sarmizegetusa, see GĂZDAC – COCIŞ 2004, 20 and the catalogue; GĂZDAC 2010 (site finds), 27. On Apulum, see GĂZDAC et al. 2009, 11, 75 f., 83, 104 f., 138, 148 f., 162, 205–208. On Potaissa (Turda), see GĂZDAC 2010 (site finds), 4.

<sup>&</sup>lt;sup>46</sup> Găzdac et al. 2015, 27, 101-105, 150-154, 173-183, 202-208.

<sup>47</sup> WINKLER - BĂLOI 1973, 199-203. Cf. GĂZDAC 2010 (site finds), 28.

<sup>&</sup>lt;sup>48</sup> This is the full breakdown of published finds of Nicaean coins in the main sites excavated in Romania (270 in total). Ulpia Traiana Sarmizegetusa: 30 (GĂZDAC 2010, 1); Gârla Mare: 31 (GĂZDAC 2010, 27); Orlea: 56 (GĂZDAC 2010, 28); Drobeta: 72 (GĂZDAC 2010, 9); Apulum (Alba Iulia): 26 (GĂZDAC 2010, 2); Porolissum (Moigrad): 6; Potaissa (Turda): 3 (GĂZDAC 2010, p. 4); Dierna (Orsova): 1 (GĂZDAC 2010, 10); Ilişua: 2 (GĂZDAC 2010, 14); Urluieni: 2 (GĂZDAC 2010, 21); Acidava (Enosesti): 2 (GĂZDAC 2010, 23); Slaveni: 18 (GĂZDAC 2010, 23); Cluj Napioca: 1 (GĂZDAC 2010, 4); Sucidava (Corabia): 9 (BORDEA 1998, 41–81); Tibiscum: 11 (BENEA 2006). The following finds of Nicaean coins are also listed in Petac 2011 (32 in total not mentioned in other reports): Bals: 1 (no. 178, p. 266); Campulung: 1 (no. 246, p. 275); Cioroiu Nou: 4 (no. 268, p. 277); Sucidava (Corabia): 21 (no. 282, p. 280; cf. BORDEA 1998 on the same site); Gornea: 1 (no. 358, p. 292); Maglavit: 2 (no. 416, p. 300); Racarii de Jos: 1 (no. 503, p. 314); Resca: 7 (no. 515, p. 316); Vetel: 2 (no. 632, p. 334). Additionally, 1 bronze of Nicaea was found within a hoard of 58 denarii (all coins dating to the reign of Gordian III) found in Jeledinti (Hunedoara) (Touratsoglou 2006, hoard no. 27). See above on the approximation of figures due to some contrasting information among the published reports.

<sup>&</sup>lt;sup>49</sup> Around 50 Nicaean coins in the Archaeological Museum of Zagreb come from Croatian sites such as Osijek, Sotin, Vinkovci, Stari Jankovci, but most of the collection has yet to be recorded (data provided by M. NAĐ). Around 70 specimens are in the National Museum of Bosnia and Herzegovina; cf. Vojvoda – Crnobrnja 2018, 133, n. 9.

<sup>&</sup>lt;sup>50</sup> ŠEMROV interpreted this data as «evidence of the fast economic progress of the province and immigration from the East»; ŠEMROV 2011, 1016.

<sup>&</sup>lt;sup>51</sup> GĂZDAC 2010, 104, tab. Q2.

finds in AD 218–238 and nearly 60 % in AD 238–244. This confirms the role played by Nicaean coins of this period in the broad circulation of small bronze denominations also in the western Balkans, but they still represent only a very small proportion of finds in comparison with the mass of imperial coins in use in this region. A significant cluster of finds is recorded at Carnuntum, where Nicaean coins are the majority amongst the 3<sup>rd</sup> century provincial specimens issued before the beginning of the Viminacium and the «Provincia Dacia» series. Out of 48 specimens, 32 date to AD 218–244 (nos. 33951–33982). Other finds come, yet again, from military settlements such as Brigetio, Vindobona, Vincentia, Mursella and Tokod.<sup>52</sup> A total of around 70 specimens have been recorded from 8 sites in Pannonia Superior.

#### Moesia Inferior and Thrace

In Moesia Inferior and Thrace, Nicaean coins of the late and post-Severan period are found sporadically. As in Pannonia and Noricum, issues of Nicaea represent the majority of non-local coins in circulation, with the difference that this was based almost exclusively on civic issues from the Balkans, above all from Marcianopolis and Nicopolis ad Istrum, rather than on imperial issues. Even though our documentation on the coin circulation in Lower Moesia and Thrace (modern Bulgaria and south-eastern Romania) is still largely incomplete,<sup>53</sup> the mismatch in scale with the figures of Nicaean coins found in Upper Moesia and Dacia suggests that these were rarely used in local transactions.

Very few Nicaean coins are recorded among the published site-finds of the two most important settlements in northern Moesia Inferior, Nicopolis ad Istrum (Veliko Tarnovo) and the legionary camp of Novae (Svishtov), accounting for c. 1 %.<sup>54</sup> The proportion of Nicaean coins is similar in inland Thrace, where the local circulation was dominated by issues struck by both Thracian and Lower Moesian cities. Some

<sup>&</sup>lt;sup>52</sup> Cf. GĂZDAC 2010 (site finds), 3-64.

<sup>&</sup>lt;sup>53</sup> M. VOJVODA has gathered information on the presence of around 140 specimens of Nicaea in Bulgarian museums, but they are mostly not catalogued (and unpublished) and their provenance is not known.

<sup>&</sup>lt;sup>54</sup> One bronze of either Severus Alexander or Gordian III featuring military standards out of 89 provincial coins was found at Nicopolis; Butcher 1995, 270–279. The published coins found in the excavations at Novae include all together 10 specimens from Nicaea, accounting for c. 3 % of the civic bronzes struck in AD 193–253 (290 specimens), and they are mostly issues of Elagabalus, Severus Alexander and Gordian III carrying military standards (otherwise small-medium bronzes of the early Severans or Macrinus). Cf.: Kunisz 1992, 114; Ciołek – Dyczek 2011; Mihaylov 2016; Dimitrov 2008, nos. 29–31. No Nicaean issues were found among the recently published group of provincial coins discovered in the north of Bulgaria at Vladinya, in the Lovech district (Gushterakliev 2012), at Belintsi, in the Razgrad district (Dzanev 2011, listing only one large bronze of Geta struck at Creteia-Flaviopolis, p. 145) and at the fort of Sexaginta Prista, near Rousse (Varbanov 2015, also listing only one large bronze of Caracalla struck at Creteia-Flaviopolis, no. 36).

recently published excavation reports and museum collections (largely based on local finds) from the south-western part of the region, near Radomir, in the territory of Serdica, <sup>55</sup> Kyustendil, ancient Pautalia, <sup>56</sup> and in the Pazardzhik region, in the territory of Philippopolis (Plovdiv), <sup>57</sup> include 18 Nicaean issues featuring military designs (out of 23 coins of Nicaea in total), accounting for less than 3 % of the provincial issues. It is possible that these Nicaean coins did not arrive there from Bithynia but from other neighbouring provinces in which they played a major role in the local monetary economy. This evidence clashes with the argument supporting the «economic» explanation of the movement of Bithynian coins to the Balkans; their incidence in the circulation of this region was only marginal and probably only indirectly linked to the mainstream flow of coins from across the Bosporus.

Yet a different picture seems to emerge from the find reports of the Black Sea coast, in the Dobrogea region, embracing the territories of ancient Istrus, Tomis, Callatis and Odessus. Some published reports of stray finds from this area show extremely few or no coins of Nicaea at all.<sup>58</sup> Some other larger groups of published material from sites that have been excavated extensively do include coins of Nicaea, but they belong to a different class of issues. For example, the finds at Istrus (modern Istria) include 122 provincial coins, mostly dating to AD 138–244, among which Nicaea is represented by 8 specimens, 5 of which dating to the age of Caracalla and Geta.<sup>59</sup> Further evidence is provided by the publication of the coins found at Durostorum (Ostrov), including 362 provincial coins. Bithynian coins include a rare issue of Iuliopolis featuring military standards under Maximinus, and 22 specimens of Nicaea: 15 belong to the reign of Septimius Severus, while only 4 military designs of the later period are attested (1 of Julia Mamaea and 3 of Gordian). All the early Severan issues belong to a very small denomination measuring around 1.8 g and 13-15 mm, which disappeared after the death of Septimius Severus. 60 Although the sample of materials published so far is still too small to generalise, it seems to show that the pattern of coin circulation attested in most of this region, the northern and inland territories of Moesia and Thrace (largely part of modern Bulgaria), was different from the one attested in the coastal district of the Black Sea (stretching along the eastern shores of both modern Romania and Bul-

<sup>&</sup>lt;sup>55</sup> Filipova 2012 nos. 48, 53, 55–56.

 $<sup>^{56}\,</sup>$  CCHBulg II/1, nos. 471–479. See also one large Nicaean bronze of Septimius Severus at Blagoevgrad; CCHBulg IV, no. 352.

<sup>&</sup>lt;sup>57</sup> CCHBulg V, nos. 274–282 (see also the Sestrimo hoard, nos. 681, 704–706). SLAVOVA 2012 (include no coins of Nicaea among the finds at Merichleri).

<sup>&</sup>lt;sup>58</sup> See for example: Ocheșeanu – Papuc 1973 (no Nicaean coins); Dima 2012, nos. 56 at p. 17 (one coin of Geta) and 52 at p. 36 (one issue of Severus Alexander having military standards); Bordea et al. 1998, no. 54 at p. 86 (issue of Gordian having military standards found at Ostrov); Isvoranu 2012, no. 14 (one coin of Salonina).

<sup>&</sup>lt;sup>59</sup> Preda – Nubar 1973, 154, nos. 996–1003.

<sup>&</sup>lt;sup>60</sup> Dima - Elefterescu 2009, 126-130, nos. 541-557.

garia), where perhaps economic factors, such as trade, did play a role in the movement of these coins from Bithynia.<sup>61</sup>

This sample of published stray finds and site-finds in Bulgaria is smaller than the ones from Serbia and Romania, but the number of Nicaean (and generally Bithynian) coins attested must be seen in proportion to the volume of provincial coins from other local mints, which is much larger than anywhere else in the Balkans. From around 20 sites in Moesia Inferior we have 46 coins of Nicaea out of around 1200 provincial bronzes, while the three samples from Thrace considered here have yielded 23 specimens out of around 770.

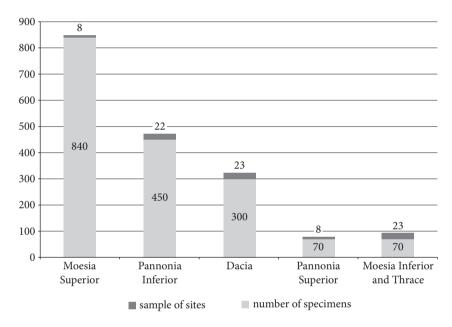


Chart 2: Breakdown of Nicaean issues per number of sites recorded in each province

<sup>&</sup>lt;sup>61</sup> Further clues may come from the analysis of hoards, although their composition might not necessarily reflect the differences in the pattern of coin circulation within the region. There are no Nicaean coins within the hoards composed almost exclusively of Roman provincial bronzes from Moesian and Thracian mints recorded in Touratsoglou 2006 (p. 158). On the other hand, another 26 recorded (and largely unpublished) hoards found in these regions include 116 Bithynian coins of Roman age: 75 are from Nicaea, 31 from Nicomedia, 3 from Iuliopolis and 7 from other Bithynian cities. The largest groups of Nicaean finds come from Ratiaria (Archar) on the Bulgarian side of the Danube (30) and from Malinovo, Lovech district (20). Notably the ratio between early Severan coins (up to Macrinus) and late and post-Severan coins is 32: 40, showing a balance between «non-military» and «military» designs in this part of the Balkans that we do not find in the other Danubian provinces. For this set of data I wish to thank Varbin Varbanov (Rousse Museum of Regional History).

#### 4. Small change for the army

The low denominational value of the late and post-Severan Bithynian bronze coins found in the Balkans, probably serving as local light asses, indicates that they were intended as small change for minor transactions, so they were not suitable for use in long-range exchanges. The exceptional volume of finds of these issues in the Balkans suggests that they did not simply travel across the Bosporus as a result of trade or contacts of people, but that they were transported or shipped to one or more destinations. The imbalance between regular but quantitatively limited finds of Nicaean coins in most of the Balkan regions, especially in the west, and clusters of hundreds of specimens found in Upper Moesia and in the adjacent portion of Lower Pannonia, suggests that this was the destination to which the bulk of coins were directed and from which they might have later spread to the surrounding areas. The spread of these coins towards the most western Danubian provinces and the Dalmatian region can probably be seen as a result of the movement of people coming from Upper Moesia and Dacia rather than Bithynia itself, and is only a reflection of the core circulation of small bronzes in these provinces. In a similar way we can also read the data from the adjacent X Regio in North-Eastern Italy, where Nicaean coins are attested in smaller numbers (7 specimens from Elagabalus to Gordian III), but they still represent the majority of 3<sup>rd</sup> century provincial coins in circulation before the opening of the Viminacium mint, even outnumbering the bronzes from Antioch in Syria.<sup>62</sup>

The use of foreign civic coins (besides the imperial ones) within the territories of provincial cities that had their own coinage, which served as the official currency in daily payments and transactions, was probably tolerated to a certain extent, <sup>63</sup> especially when more than one prominent centre of production supplied the same region or province. <sup>64</sup> Conversely, the proportion of civic coins coming from a different region or province is always minimal, with the exception of those provincial issues, especially in silver, designed to serve almost as subsidiary imperial currency – see for instance the tetradrachms and the «SC» bronze series produced in northern Syria but circulating throughout the Levant and beyond. <sup>65</sup> Civic coins travelling beyond their province of origin on a larger scale, such as the Peloponnesian and Pontic issues of the Severan age found in Syrian sites, have been traditionally explained as moving along with the

<sup>&</sup>lt;sup>62</sup> Cf. Gorini 2017, 164 and 169f. This is also the picture emerging from the recent study of Pfahl on the archaeological finds of Roman provincial coins along the limes territories (between the left bank of the Rhein and the Barbaricum); cf. Pfahl 2015.

<sup>63</sup> Cf. Butcher 2004, 18 and 148 and, more generally, Howgego 1985, 84.

<sup>&</sup>lt;sup>64</sup> This is visible, for instance, in the proportion of Marcianopolis coins at Nicopolis ad Istrum (over 13%), where the city's coinage accounts for nearly 50% of the finds (out of 88 civic coins found at the site, 43 are from Nicopolis, 12 from Marcianopolis, 2 from Viminacium, 2 from Odessus, 7 from Anchialus, 1 from Deultum, 3 from Hadrianopolis, 1 from Serdica, 1 from Augusta Traiana, 1 from Nicaea, 15 are illegible); BUTCHER 1995, 270–279.

<sup>&</sup>lt;sup>65</sup> Butcher 2004, especially 239–250.

troops, although not being specifically struck for that purpose.<sup>66</sup> The phenomenon of Bithynian issues of AD 222-244 dominating the coin circulation in Upper Moesia and Dacia can only fit within a scenario whereby the absence of local civic mints had caused a dramatic shortage of small change in circulation, possibly enhanced by the drop in production of smaller bronze imperial denominations under Septimius Severus, which might have partially filled this gap in the past.<sup>67</sup> The different pattern of coin use in most of Lower Moesia and Thrace, where Bithynian coins are recovered in much smaller numbers, can be explained as a consequence of the fact that many cities were producing their own small bronze denominations on a regular basis, therefore foreign issues were not needed. Although a minor proportion of Bithynian coins might have travelled across the Bosporus as part of the regular movement of people involved also (but not exclusively) in trade, they mostly belonged to a different period (early Severan age) and a different class of issues (featuring non-military designs), and they circulated in a different area of the Balkans (the Black Sea) than the Nicaean coins discussed in this article. Conversely, in Upper Moesia we are faced with a phenomenon that must be put in relation with the presence of the army. This is suggested by the geographical concentration of finds that, within an extensively militarised area, has its core in Viminacium and in similar military settlements lying in its surroundings along the Danube, such as Singidunum and Sirmium in the west and Drobeta and Orlea in the east (see the map below). Rather than the legions based at Turda and Alba Iulia in central and upper Dacia (from which only less than 30 specimens have been recorded in total), the Legio VII Macedonica, better known as Claudia Pia Fidelis, based at Viminacium, and the Legio IV Flavia Felix, stationed at Singidunum, should be probably seen as the main recipients of these coins.<sup>68</sup>

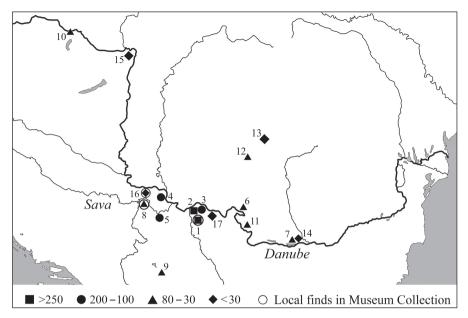
This is also ultimately confirmed by the designs adopted on their reverses. Their military character appears to address expressly the recipients for whom they were intended: the legions and the auxiliary troops. However, in contrast with the traditional «military explanation» of this phenomenon, I believe that these issues were neither produced nor supplied specifically to pay the army. Again, in the light of their low denomination value, the connection between this production and the Danubian troops should not lie directly in the legionary wages but in the demand for small change supply for daily use generated by the spending power of the legions in the region. <sup>69</sup> If they were used, as it is possible, also as an integration of the core military salary paid in silver and gold, this may have been one of the many mechanisms through which the markets were provided with the much-needed currency for basic transactions and

<sup>66</sup> Cf. Howgego 1985, 25-28, again discussing Callu's and Crawford's argumentations. It must be stressed that these phenomena are not nearly as well documented as the presence of Bithynian coins in the Danube area.

<sup>&</sup>lt;sup>67</sup> GĂZDAC 2010, 189f., with previous bibliography.

<sup>&</sup>lt;sup>68</sup> On the positioning of these legions, see Farnum 2005, 19–23.

<sup>&</sup>lt;sup>69</sup> For a similar interpretation on the minting of bronze civic coins in connection with the presence of the army, see Ziegler 1996 and Butcher 2004, 267, focusing on Syria.



Map: Main clusters of Nicaean issues having military designs found in the Danube region (number of specimens in brackets). 1. Viminacium, National Museum in Požarevac (294); 2. Viminacium, Više grobalja (290); 3. Viminacium, Pećine (170); 4. Novi Banovci (119); 5. Ušće, Obrenovac (112); 6. Drobeta (71); 7. Orlea (56); 8. Banovo Polje in the Šabac Museum (44); 9. Vrnjačka Banja (40); 10. Carnuntum (33); 11. Gârla Mare (31); 12. Ulpia Traiana Sarmizegetusa (30); 13. Apulum, Alba Iulia (26); 14. Corabia (21); 15. Dunaùjvàros, Aquincum (18); 16. Sirmium in the Srem Museum (21); 17. Pincus, Veliko Gradište (15).

payments.<sup>70</sup> The volume of coins penetrating the local markets seems to suggest that they were being shipped in stocks, perhaps being carried along by the troops themselves as they moved west.

This interpretation makes sense within the scenario that led to the establishment of a colonial mint at Viminacium in AD 239, followed by the opening of a Dacian mint (probably Apulum or Sarmizegetusa) immediately afterwards, which has been rightfully interpreted as a provincial or imperial response to the increasing demand for small bronze supply in the region.<sup>71</sup> It is important to stress that the starting of the Viminacium and the «Provincia Dacia» bronze coinages on a large scale and a regular

The possibility that small bronze denominations found in military camps were used also as part of the army pay has been discussed recently in VAN HEESCH 2009, 136f., and particularly with regards to the eastern provinces in VAN HEESCH 2014, 145f., where it is interestingly pointed out that, other than as through the salary, «bronze could be made available to the soldiers in great quantities and one may assume that, when small amounts were withdrawn from their (accounts) in the camp, the paymaster was actually paying out in bronze coins» (VAN HEESCH 2014, 140).

<sup>71</sup> Cf. Găzdac - Alföldy-Găzdac 2008.

yearly basis did not simply cause the flow of coins from Bithynia to stop at once during the reign of Gordian, but actually led to the almost complete end of the production of these military designs as a whole.<sup>72</sup> This marks a sharp difference between the process that involved the Severan civic coins travelling with the army to Syria and the Bithynian issues found in the Balkans, which were minted specifically for this purpose, probably as a separate production within the mainstream Nicaean coinage. Two aspects of this production are particularly meaningful. Firstly, even in the periods in which they were produced on a much smaller scale, as it happened under Maximinus Thrax, the military designs were the only category of Bithynian coins arriving in the Balkans. Furthermore, while they are found in excavations in European provinces, including Germany<sup>73</sup> and Britain,<sup>74</sup> they seem to hardly feature among the coin finds in Asia Minor and the Levant. The published finds at the two sites in Bithynia that have been investigated more extensively in recent years, Iuliopolis and Tium, confirm this pattern. Only one Iuliopolis coin of Severus Alexander featuring three standards on the reverse has been recovered in the city's necropolis out of 24 provincial coins.<sup>75</sup> There are no military designs, either from Nicaea or from Nicomedia or Iuliopolis, among the 86 provincial coins found at Tium.<sup>76</sup> No specimens at all are recorded in other major sites excavated in Turkey, such as Troy, Assos and Sinope, in the neighbouring territories of Troas and Pontus, Pergamum in Mysia or Side and Tarsus in the south.<sup>77</sup> The differentiation in the pattern of circulation between the series featuring

These military designs were no longer adopted at Nicaea under Philip but were resumed under Trajan Decius, even if their incidence on the coinage of his reign is statistically irrelevant; cf. RPC IX 280 and 284 (listing five known specimens in total). Figures appear to be similar under Valerian and Gallienus reigns; Recueil I/3, nos. 849 and 866 (I am grateful to W. Metcale, who is covering this period with his work on RPC X, for confirming this). The production of issues featuring military designs at Iuliopolis under Gordian III and Philip seems to have been very small too (I thank M. Spoerri Butcher for confirming this on the basis of her catalogues of Bithynia for RPC VII and VIII, although they are both still in progress).

<sup>&</sup>lt;sup>73</sup> See for example the presence of one Nicaean bronze of Severus Alexander featuring three military standards among the 16 coins found at the battlefield of Harzhorn (Lower Saxony), being the only provincial issue within a group of imperial coins consisting of 13 Severan denarii and two sestertii; Berger 2013.

<sup>&</sup>lt;sup>74</sup> The Portable Antiquities Scheme website currently records 8 specimens of the Nicaean series featuring military designs (5 of Severus Alexander and 3 of Gordian III) out of 10 Bithynian provincial coins found in the UK: https://finds.org.uk/database/search/results/q/nicaea+bithynia. I wish to thank A. Brown for his help with the PAS database.

<sup>75</sup> Devecioğlu 2016, no. 24, listing 15 Iuliopolis coins in total, one of Nicaea (Commodus) and one of Nicomedia (Caracalla). See also Arslan 2014 for a broader outline of the finds.

<sup>&</sup>lt;sup>76</sup> SAVAŞ LENGER 2015, listing two coins of Nicaea (no. 13, Papirius Carbo, no. 14, Faustina II).

<sup>&</sup>lt;sup>77</sup> Some Bithynian coins were recovered in the excavations of Dura-Europos (2 Nicaean coins of Commodus and Maximus and 1 Nicomedian coin of Maximinus; Bellinger 1949, 98, nos. 2050–2052), but not at Antioch on the Orontes. None of these samples include specimens featuring military designs. These issues are also extremely rare in recently published Turkish collections that are largely based on provincial coins acquired or confiscated from local finds and collectors. The Tire Museum (modern Thyatira), near Ephesus and the Ionian coast, has 3

military designs and the rest of the mint's production is the clearest indicator of the fact that these Bithynian and especially Nicaean coins were designed for a specific purpose and for a certain category of users in a particular region of the Empire, in a way that would have probably required centralised planning and control. The fact that the main recipient of this dedicated production was the territory of Viminacium, which was later designated to host the provincial centre of coin production that superseded the Bithynian supply, and only a few decades later became a new imperial mint,<sup>78</sup> seems to suggest that all these measures were part of the same plan and resulted from provincial and/or imperial decision. And, in fact, there are meaningful imperial precedents for the production of certain categories of bronze denominations specifically for use as small change in select regions where the legions were stationed. One is the «consignments» of quadrantes to the Rhine limes in Upper and Lower Germany under Domitian;<sup>79</sup> the other is the supply of the «Lupa Traiana» semisses in the Balkans, especially in Thrace and Lower Moesia. 80 In both cases it has been proposed that these issues, which are hardly found in excavations elsewhere, were shipped «en bloc» from Rome to their military destinations.<sup>81</sup> The imperial administration occasionally also followed a similar procedure to supply specific regions of the Empire with «provincial» issues - i.e. featuring Greek legends, made in Rome or in Antioch, for the local circulation, even if this was not connected with the presence of the army. 82 This was an attempt to support the provincial monetary economy by introducing coins that looked like local currency and fit well into the local system of linguistic and visual codes. For instance, the dupondii and asses of Trajan and Marcus Aurelius struck in Rome for Cyrenaica, featuring Greek legends and a local type on the reverse (the head of Zeus Ammon),83 can be seen as a way of «targeting» the provincial audience through designs and inscriptions that looked familiar to them. The military designs adopted on the 3<sup>rd</sup> century Bithynian coins used in the Danubian provinces seem to have also been deliberately chosen to target the audience for whom they were intended, the soldiers, hence a large segment of the society rather than a well-defined regional group, so they could be potentially used elsewhere, too. The great anomaly here is, of course, the

Nicaean coins of Commodus, Septimius Severus and Gordian III (SNG Turkey V 1–3), and the Çanakkale Museum in the north-western corner of the country, again much closer to Bithynia, has only one coin of Elagabalus struck at Nicaea (SNG Turkey III 38), as opposed to 33 coins coming from the Balkan cities of Macedonia, Moesia Inferior and Thrace. This is also the only one that features three standards as a reverse design.

- <sup>78</sup> Cf. AMNG I, 21–60 (on the colonial coinage) and VASIĆ 2012 (on the imperial mint).
- <sup>79</sup> Kemmers 2006, 215–219.
- <sup>80</sup> Woytek 2012, 18-21.
- $^{81}$  See again VAN HEESCH 2009, 137, stating that only imperial asses could be suitable denominations to pay the wages, whereas «semisses and quadrantes were probably used on a dower- level».
  - 82 Cf. Butcher 2004, 81–88; van Heesch 2014, 155.
- <sup>83</sup> Cf. Asolati 2011, nos. 176–178 and 183–191 (also including silver issues of Hadrian and Marcus Aurelius, nos. 179–182).

fact that, unlike all examples of «regional» issues made in Rome and other provincial mints, the Bithynian issues retained their own civic name in the reverse legends, because they were indeed issued by a local administration. On the long term this might have looked like an aberration that needed to be fixed. So the colonial coins of Viminacium and of «Provincia Dacia» designed to serve this purpose did not only bear «military» designs like their predecessors, but they also featured explicitly the name of the respective local mints in the legend. This is a crucial element to consider when assessing the possibility that the central authority was directly involved in this process since the late Severan age, when the coins of Nicaea started to be massively supplied, rather than later under Gordian III, only to «fix» the problem.

So this is, in my opinion, the most plausible scenario in which the supply of Bithynian coins to the Balkans can be framed, but a number of questions remain unresolved. One concerns the chronology of these issues. Why did this production start under Elagabalus but surged under Severus Alexander? And again why did it cease almost completely under Maximinus Thrax but then resumed on a substantial scale under Gordian III? In her attempt to link these issues to Severus Alexander's Parthian campaign in AD 231-232, Benea suggested that they were minted in AD 232/233, soon after the return of the troops to the Balkans, when Alexander celebrated his triumph in Rome. This is entirely possible, but the scale of this production and the evolution of the numismatic portrait of Alexander on the obverse dies (from a youthful to a more mature one) suggest that it might have started earlier in his reign. Also, there is no particular reason to assume, as Benea did, that the Nicaean coins circulated in the region only for a very short time,84 as the figures of finds recorded in the Serbian sites of Moesia and Pannonia seem to suggest otherwise. The lack of supply under Maximinus may in fact result from the large volume of Severus Alexander issues being still in circulation after his death. Again, if we are to consider Herodian's reference to the territory of Illyricum as a broad denomination for the Danubian provinces in general, we should also take into account that he mentions another journey of Alexander to this region on his way to the German front in AD 235; if there is any relation between the imperial campaigns and the supply of Nicaean military issues, it is possible that new series were produced and arrived in the region also in the very last years of his reign.85 Within this same perspective one could also interrelate the new surge in the

<sup>84</sup> Benea 2006, 696.

<sup>&</sup>lt;sup>85</sup> HERODIAN VI 7, 2–3 (translation following E. C. ECHOLS, Herodian of Antioch's History of the Roman Empire, 1961). In the same passage, Herodian also emphasises the role of soldiers from Illyricum in his army and their concern about their homeland being threatened by the Germans' and Alamans' raids in their absence: «The governors informed the emperor that it was absolutely necessary that he and his entire army come to them. The revelation of these developments terrified Alexander and aroused great concern among the soldiers from Illyricum, who seemed to have suffered a double disaster; the men who had undergone many hardships in the Persian expedition now learned that their families had been slaughtered by the Germans. They were naturally enraged at this and blamed Alexander for their misfortunes because he had

output of Nicaean military issues under Gordian III with his own Parthian campaign, as he crossed the Balkans in AD 242 and had to face the Goths in «Moesia and Thrace» on his way to the East.<sup>86</sup>

The other main unresolved question about the presence of Nicaean coins in the Balkans concerns the city by which they were issued: Nicaea itself. Why would civic coins from a different province be struck for such a purpose when several cities minting on a large scale in the much closer region of Moesia Inferior could have easily done the same job? The involvement of military units recruited in Bithynia and sent to the Balkans is not documented epigraphically (at least not of entire contingents designated to serve in this area), and even if this were the case, it would only explain how the «military» issues arrived in the region, not why they were produced in Bithynia. As mentioned before, this point is particularly hard to explain if we maintain that the central authority was directly responsible for this process, unless we also assume that Nicaea played a special role in the provincial strategy of the Empire in this period. Because there is no substantial evidence to support this, other potential factors shall also be considered. Perhaps the military authorities alongside the local administration at Viminacium itself were responsible for this process in the first place, and the «Bithynian solution» may not be the first one to which they resorted. A substantial number of early Severan coins from the Macedonian colony of Stobi are also found in excavations in Serbia and Romania, 87 suggesting that a more local «supplier» was initially involved, although apparently not quite as methodically as the later one from Bithynia. So this phenomenon may well be connected to the shortage of small-change in the region, but we cannot determine whether it was part of an organised provision of bronze coins, and the minting activity at Stobi stopped permanently under Caracalla, anyway – after reaching its highest peak of production. 88 Nicaea was definitely a much more established and productive mint, even in comparison with Nicomedia, in spite of this becoming more politically prominent than its rival after the civil clash between Septimius Severus and Pescennius Niger. The workshop of die-engravers that served Nicaea supplied many other cities on a fairly wide geographical range, reaching

betrayed affairs in the East by his cowardice and carelessness and was hesitant and dilatory about the situation in the North.» Although this reference does not provide information on the relation between the coins used in these regions and the army, it adds further evidence on the crucial role played by the legions travelling back and forth from the Parthian front within the imperial policy of this period and perhaps allows for more speculations on why they might have deserved the production of a «dedicated» coinage.

<sup>86</sup> SHA Gordiani XXVI 4.

<sup>87</sup> Cf. the figures reported in notes 37 and 38. There is still no comprehensive set of published data to assess the incidence of Stobi coins on local circulation in the Danube regions. Cf. Josifovski 2001, 125–131, for a broad outline. For a preliminary account on the finds in Serbian sites, see Borić-Brešković 2011 and Borić-Brešković – Vojvoda 2017. All the major sites in Romania have yielded Severan coins of Stobi (Sarmizegetusa, Apulum, Porolissum, Potaissa, Drobeta, Romula, Gârla Mare), cf. Găzdac 2010.

<sup>88</sup> Cf. Josifovski 2001, 61-65 and 135-137.

as far as Phrygia in the south and even Byzantium in the west. Obverse dies of Severus used at Nicaea were also employed on coins of Sagalassos in Pisidia, which is one of the longest-distance die-sharing connections attested in Asia Minor. The capability of the «Nicaea workshop» to cope with a large minting demand and with a geographically expanded network of customers may have made it a qualified candidate to devote a special branch of its production to the supply of small-change for the legions. Before the opening of the Viminacium mint, perhaps only the provincial military powers (such as legionary commanders) were involved in this process and responsible for the decision to hire a foreign workshop to face the problem of liquidity along the Danube. Also, the still uncertain nature of provincial «travelling» workshops such as Nicaea allows for the possibility that private contractors were managing this production and even the transportation of the coins. Furthermore, the possibility that at least part of these issues were struck in the Balkans on an imitative basis should not be ruled out, as suggested by the increasing evidence for the production of light-weight cast copies (limesfalsa) of Nicaean coins of Severus Alexander and Gordian III.

In conclusion, three main aspects of the phenomenon analysed in this contribution, the chronology and the geographical concentration of Bithynian coins found along the Danube, and the specific class of issues to which they belonged, suggest that they were not only transported in this region but probably also struck on a large scale for the purpose of being used in the local circulation as small-change. Such an exceptional movement of civic coins from a different province may have been requested by the military authorities that were faced with a critical shortage of small denominations supply in an area where the Roman soldiers formed a very large part of the local pop-

<sup>89</sup> See Kraft 1972, 67–78.

<sup>&</sup>lt;sup>90</sup> An element of commercial speculation could also be taken into account in this context. This has been recently proposed by K. Butcher to explain the unusual concentration of low value foreign coins in certain regions of the Empire, such as the barbarous radiates and Gallic issues found in western Turkey. He envisaged that «shortages of small-change in one region also led to the authorities or individuals in that place being willing to part with high denomination coins in order to acquire low value coins for everyday use»; Butcher in press. In our case, the mediation of private contractors could have encouraged the deliberate export of base-metal coins to a region where they were in high demand on the market, hence more valuable. But this is, of course, entirely hypothetical. For similar thoughts on the possibility that «private persons, middlemen or local authorities played a role» in the introduction of small-change into the local circulation, see VAN HEESCH 2009, 137.

<sup>&</sup>lt;sup>91</sup> This is how I have proposed to interpret, for example, a very rare bilingual issue among the Nicaean series for Severus Alexander having three military standards, which features a Latin legend on the obverse, as well as specimens of Nicomedia of the same type and period, characterised by a rough «barbarous» style. Calomino 2014, 208–212, figs. 12–13.

<sup>&</sup>lt;sup>92</sup> These issues seem to have been particularly popular in Pannonia. VIDA ISTVÁN (whom I thank for this information) has recorded 98 coins of Nicaea among the limesfalsa held at the Hungarian National Museum of Budapest, although part of them might in fact come from sites in modern Serbia. On other provincial and especially Bithynian limesfalsa, also copying earlier issues, see Vondrovec 2007, 145, n. 484, and Pfisterer 2007, 847–849.

ulation. The extent to which provincial and especially imperial authorities became directly involved in this process is hard to define, but it seems apparent that this «experiment» preluded the resolution to establish a new centre for local supply in situ, at Viminacium. For reasons that we still ignore, this coinage was supplied primarily by the workshop of Nicaea, which may have served the same purpose for other Bithynian cities as well, such as Nicomedia and Iuliopolis. The fact that these coins are found also in the farthest reaches of the Balkan peninsula attests that they were indeed regarded as a «supra-provincial» currency for minor transactions elsewhere, but it does not necessarily imply that they were designed to be accepted as local currency everywhere across the Empire. In fact they seem to have been used regularly only where they were needed as subsidiary coinage, in the absence of small-change either supplied from Rome or produced by civic mints.

H2.06
Humanities Building, University Road
University of Warwick
Coventry CV4 7AL
UK
D.Calomino@warwick.ac.uk

#### **Figures**

- Figure 1: Nicaea, bronze coin of Elagabalus (22 mm, 5.77 g); Aktionshaus H. D. Rauch 97, April 2015, lot 329.
- Figure 2: Nicaea, bronze coin of Severus Alexander (22 mm, 4.26 g); CNG 399, June 2017, lot 394
- Figure 3: Nicaea, bronze coin of Gordian III (22 mm, 5.39 g); Helios Numismatik 3, April 2009, lot 198
- Figure 4: Nicomedia, bronze coin of Severus Alexander (19 mm, 3.90 g); VKHM.GR15837.
- Figure 5: Nicomedia, bronze coin of Severus Alexander (20 mm, 5.01 g); CNG 145, August 2006, lot 189
- Figure 6: Iuliopolis, bronze coin of Gordian III (17 mm, 2.36 g); ANS.1944.100.42150.
- Figure 7: Nicaea, bronze coin of Maximus (19 mm, 3.10 g); VKHM.GR33231.
- Figure 8: Nicaea, bronze coin of Severus Alexander (21 mm, 4.74 g); CNG 213, July 2009, lot 297.
- Figure 9: Nicomedia, bronze coin of Severus Alexander (20 mm, 4.45 g); SMB (Rauch Coll.).
- Figure 10: Iuliopolis, bronze coin of Severus Alexander (23 mm, 6.21 g); Numismatik Lanz 121, November 2004, 519.
- Figures 1–10: scale 1:1.

#### **Bibliography**

- Arslan 2014: M. Arslan, Iuliopolis Nekropolü Kharon Sikkeleri, in K. Dörtlük O. Tekin R. Boyraz Seyhan (eds.), First International Congress of the Anatolian Monetary History and Numismatics, 25–28 February 2013. Proceedings, 2014, 1–6.
- ASOLATI 2011: M. ASOLATI, Nummi Aenei Cyrenaici: Struttura e cronologia della monetazione bronzea cirenaica di età greca e romana (325 a.C. 180 d.C.), 2011.
- Bellinger 1949: A. R. Bellinger, The Excavations at Dura Europos. Final report, 4. The Coins, 1949.
- Benea 2006: A. Benea, Dakien im Orientfeldzug des Severus Alexander. Die in Nicäa geprägten Münzen, in C. Gaiu C. Găzdac D. Protase (eds.), Fontes Historiae. In Honorem Demetrii Protase, 2006, 693–698.
- Berger 2013: F. Berger, Die römischen Münzen am Harzhorn, in H. Pöppelmann K. Deppmeyer W.-D. Steinmetz (eds.), Roms vergessener Feldzug. Die Schlacht am Harzhorn, 2013, 285–293.
- Bíró-Sey 1977: K. Bíró-Sey, Coins from identified sites of Brigetio and the question of local currency, 1977.
- BORDEA 1998: G. P. BORDEA, Monnaies de l'Empire romain de la collection de l'école Celeiu de la ville de Corabia, dépt. d'Olt, Studii și cercetări de numismatică 12, 1997 (1998), 41–81.
- BORDEA et al. 1998: G. P. BORDEA R. OCHEȘEANU A. POPESCU, Monnaies greques, romaines et byzantines de la Dobrudja dans la collection du Musée de Brăila, dépt. d'Olt, Studii și cercetări de numismatică 12, 1997 (1998), 83–117.
- BORIĆ-BREŠKOVIĆ 2011: B. BORIĆ-BREŠKOVIĆ, Coin hoard from the Stobi mint found in South Serbia, Recueil du Musée National de Belgrade 20/1, 2011, 415–439.
- BORIĆ-BREŠKOVIĆ VOJVODA 2017: B. BORIĆ-BREŠKOVIĆ M. VOJVODA, Coins of the Municipium Stobi mint from the necropolises of Viminacium Više grobalja and Pećine, Numizmatičar 35, 2017, 7–31.
- Brunšmid 1906: J. Brunšmid, Unedierte Münzen von Dazien und Moesien im Kroatischen Nationalmuseum in Agram, NZ 38, 1906, 1–16.
- BURRELL 2004: B. BURRELL, Neokoroi. Greek Cities and Roman Emperors, 2004.
- BUTCHER 1995: K. BUTCHER, The coins, in A. G. POULTER (ed.), Nicopolis ad Istrum. A Roman, Late Roman and Byzantine City: Excavations, 1985–1992, 269–314.
- BUTCHER 2004: K. BUTCHER, Coinage in Roman Syria: Northern Syria, 64 BC AD 253, 2004. BUTCHER in press: K. BUTCHER, «This extravagant trade of false money»: commercial speculation and coin distribution, in S. Krmnicek J. Cmeroy (eds.), Fundmünzen Trouvailles monétaires Coin Finds. Tübinger Numismatische Studien (in press).
- CALLU 1969: J.-P. CALLU, La politique monétaire des empereurs romains de 238 à 311, 1969.
- Calomino 2014: D. Calomino, Bilingual coins of Severus Alexander in the Eastern provinces, AJN 26, 2014, 199–222.
- СІОŁЕК DYCZEK 2011: R. СІОŁЕК P. DYCZEK, Novae. Legionary fortress and late antique town, II. Coins from sector IV, 2011.
- ÇIZMELI ÖĞÜN 2017: C. ÇIZMELI ÖĞÜN, Les monnaies provenant des fouilles archéologiques en Asie Mineure, in L. BRICAULT et al. (eds.), Rome et les provinces: monnayage et histoire: Mélanges offerts à Michel Amandry, 2017, 273–290.
- Corsten 1996: T. Corsten, Katalog der bithynischen Münzen der Sammlung des Instituts für Altertumskunde der Universität zu Köln, II, 1996.
- Crawford 1975: M. H. Crawford, Finance, coinage and money from the Severans to Constantine, in ANRW II/2, 1975, 560–593.
- Crnobrnja 1981: N. Crnobrnja, Coins of the town of Nicaea in the numismatic collection of the Museum of the City of Belgrade, Annual of the City of Belgrade 28, 1981, 5–23.

- Crnobrnja 2011: A. Crnobrnja, Archaeological topography of finds of Nicaean coins in the territory of the City of Belgrade, Numizmatičar 29, 2011, 309–318.
- Crnobrnja 2013: A. Crnobrnja, Finds of Roman coins from the archaeological excavations in 1967, at the locality of Ušće near Obrevovac (municipium Spodent?), Numizmatičar 31, 2013, 197–238.
- Crnobrnja Vasić Derimanović 2017: A. Crnobrnja J. Vasić Derimanović, New finds of coins of the Nicaea mint in the territory of the City of Belgrade, Numizmatičar 35, 2017, 33–61.
- Devecioğlu 2016: Ü. Devecioğlu, Iuliopolis nekropolü 2009–2013 Kazıları Sikke Buluntuları, in Z. Çizmeli Öğün (ed.), Kaunos / Kbid Toplantıları 3, Anadolu Nümismatik Araştırmaları Çalıştayı, 2016, 89–112.
- DIMA 2012: M. DIMA, Insights about the monetary circulation in Dobrudja in the first half of the 3<sup>rd</sup> century A.D., Studii şi cercetări de numismatică 14, 2011 (2012), 7–36.
- DIMA ELEFTERESCU 2009: M. DIMA D. ELEFTERESCU, Monnaies de Durostorum Ostrov (4º siècle av. J.-C 6º siècle ap. J.-C.).
- DIMITROV 2008: K. DIMITROV, On the development of the complex extra muros (sector VIIIA) of Novae (Moesia Inferior and Moesia Secunda), in D. GERGOVA (ed.), Phosphorion: studia in honorem Mariae Čičikova, 2008, 405–427.
- DZANEV 2011: G. DZANEV, A deposited coin find from Belintsi, region of Razgrad, in Terra antiqua Balcanica et Mediterranea miscellanea in honour of Alexander Minchev: international conference 23.02.2007 Varna (Acta Musei Varnaensis 8/2), 2011, 103–146.
- FARNUM 2005: J. H. FARNUM, The positioning of the Roman imperial legions, 2005.
- FILIPOVA 2012: S. FILIPOVA, Roman provincial coins from the excavations in the Arbanas quarter of Radomir, district of Pernik, in E. Paunov S. Filipova (eds.), Studia in honorem Iliae Prokopov sexagenario ab amicis et discipulis dedicata, 2012, 513–538.
- GĂZDAC 2010: C. GĂZDAG, Monetary Circulation in Dacia and the Provinces from the Middle and Lower Danube from Trajan to Constantine I (AD 106–337), 2010.
- GĂZDAC COCIȘ 2004: C. GĂZDAC S. Cociș, Ulpia Traiana Sarmizegetusa, 2004.
- Găzdac Gudea 2006: C. Găzdac N. Gudea, Porolissum, 2006.
- GĂZDAC ALFÖLDY-GĂZDAC 2008: C. GĂZDAC Á. ALFÖLDY-GĂZDAC, The management of a monetary crisis? The «P M S COL VIM» and «PROVINCIA DACIA» coinages in the Roman monetary policy of the 3<sup>rd</sup> century, NZ 116/117, 2008, 135–171.
- GĂZDAC et al. 2009: C. GĂZDAC V. SUCIU Á. ALFÖLDY-GĂZDAC, Apulum, 2009.
- Găzdac et al. 2011: C. Găzdac C. Gaiu E. Marchis, Arcobadara (Ilișua), 2011.
- GĂZDAC et al. 2015: C. GĂZDAC Á. ALFÖLDY-GĂZDAC M. NEAGOE O. NEAGOE, Drobeta. The never abandoned City of Roman Dacia, 2015.
- GORINI 2017: G. GORINI, Monete romane provinciali della X regio, in L. BRICAULT et al. (eds.), Rome et les provinces: monnayage et histoire. Mélanges offerts à Michel Amandry, 2017, 163–174.
- GUSHTERAKLIEV 2012: R. GUSHTERAKLIEV, Bronze coins from a settlement near Vladinya, region of Lovech, in E. Paunov S. Filipova (eds.), Studia in honorem Iliae Prokopov sexagenario ab amicis et discipulis dedicata, 2012, 565–580.
- HOOVER 2007: O. D. HOOVER, Review of TOURATSOGLOU 2006, ANS Magazine 6/3, 2007.
- Howgego 1985: C. J. Howgego, Greek imperial countermarks. Studies in the provincial coinages of the Roman Empire, 1985.
- ISVORANU 2013: T. ISVORANU, Coins found in the district Viile Noi of Constan(t)a, Studii şi cercetări de numismatică 15, 2012 (2013), 19–72.
- IVANOVIĆ 2009: I. IVANOVIĆ, Coins from the town Nicaea from the numismatic collection in the National Library «Vuk Karadži» in Veliko Gradište, Petničke sveske 67, 2009, 361–369. JOSIFOVSKI 2001: P. JOSIFOVSKI, Roman Mint of Stobi, 2001.

- KEMMERS 2006: F. KEMMERS, Coins for a legion. An analysis of the coin finds from the Augustan legionary fortress and Flavian canabae legionis at Nijmegen, 2006.
- Kos 1986: P. Kos, The monetary circulation in the Southeastern Alpine Region ca. 300 B.C.–A.D. 1000, 1986.
- Kraft 1972: K. Kraft, Das System der kaiserzeitlichen Münzprägung in Kleinasien, 1972.
- Kunisz 1992: A. Kunisz, La monnaie et les camps des légionnaires romains le long du bas Danube aux I<sup>er</sup>, II<sup>ème</sup> et III<sup>ème</sup> siècles: l'exemple de Novae, LNV 4, 1992, 107–114.
- MIHAYLOV 2016: S. MIHAYLOV, Coins from sector X–P., in A. B. BIERNACKI (ed.), The large legionary thermae in Novae (Moesia Inferior) (2<sup>nd</sup>–4<sup>th</sup> centuries A.D.), 2016, 119–186.
- Mocsy 1975: A. Mocsy, Pannonia and Upper Moesia. A history of the Middle Danube provinces of the Roman Empire, 1975.
- Ocheșeanu Papuc 1973: R. Ocheșeanu G. Papuc, Monede grecești, romane și bizantine, discoperite în Dobrogea, Pontica 6, 1973, 351–381.
- Petac 2011: E. Petac, Aspects de la circulation monétaire en Dacie romaine (106–275 après I.-C.), 2011.
- PFAHL 2015: S. F. PFAHL, Provinzialprägungen des Ostens aus der Zeit von Augustus bis Gallienus im römischen Westen. Kaiserzeitlich-griechische Münzen innerhalb des Limesgebietes, in Carnuntum, im Linksrheinischen sowie im Barbaricum, 2015.
- PFISTERER 2007: M. PFISTERER, Limesfalsa und Eisenmünzen Römisches Ersatzkleingeld am Donaulimes, in M. Alram F. Schmidt-Dick (eds.), Numismata Carnuntina. Forschungen und Material II, 2007, 643–875.
- Preda Nubar 1973: C. Preda H. Nubar, Histria III. Descoperirile monetare, 1914–1970, 1973.
- Rebuffat 1997: F. Rebuffat, Les enseignes sur les monnaies d'Asie Mineure: des origines à Sévère Alexandre, 1997.
- SAVAŞ LENGER 2015: D. SAVAŞ LENGER, Coins from the Tios excavation, in S. ATASOY Ş. YILDIRIM (eds.), An ancient city in Zonguldak: Tios. General assessment of works between 2006 and 2012, 2015, 381–415.
- ŠEMROV 2011: A. ŠEMROV, Roman provincial coins in the money circulation of the south-eastern Alpine area and western Pannonia, in N. Holmes (ed.), Proceedings of the XIV<sup>th</sup> International Numismatic Congress, Glasgow 2009, I, 2011, 1013–1018.
- SLAVOVA 2012: M. SLAVOVA, Coin finds from the town of Merichleri (mid-2<sup>nd</sup> late 4<sup>th</sup> century AD), in E. PAUNOV S. FILIPOVA (eds.), Studia in honorem Iliae Prokopov sexagenario ab amicis et discipulis dedicata, 2012, 547–564.
- Touratsoglou 2006: I. Touratsoglou, Greece and the Balkans before the end of antiquity, 2006.
- VAN HEESCH 2009: J. VAN HEESCH, Providing markets with small change in the early Roman empire: Italy and Gaul, RBN 155, 2009, 125–142.
- VAN HEESCH 2014: J. VAN HEESCH, Paying the Roman soldiers in the East (1st-2nd century AD), in M. Reddé (ed.), De l'or pour les braves! Soldes, armées et circulation dans le monde romain, 2014, 139–159.
- VARBANOV 2015: V. VARBANOV, Roman coins from the excavations of Sexaginta Prista (I–III c. AD), in Sexaginta Prista et Vicinia. Proceedings of the XXII Limes (Roman Frontiers) Congress, September 2012, 2015, 209–248.
- Vasıć 2012: M. Vasıć, Imperial and Colonial Mint in Viminacium during the Reign of Trajan Decius (249–251 AD), 2012.
- VOJVODA 2011: M. VOJVODA, Reverse motifs with military symbols from Nicaea mint based on specimens from Necropolis Više grobalja, Viminacium, Journal of the Serbian Archaeological Society 25, 2009 (2011), 243–256.

- VOJVODA 2013: M. VOJVODA, Coins of the Bithynian mint of Nicaea from the Više grobalja necropolis in Viminacium, Numizmatičar 31, 2013, 155–196.
- VOJVODA 2017: M. VOJVODA, Coins of the Bithynian mint of Nicaea from the Viminacium necropolis of Pećine, Starinar 67, 2017, 131–152.
- VOJVODA BANKOVIĆ 2016: M. VOJVODA T. BANKOVIĆ, Coins of the Bithynian mint of Nicaea from the Roman Numismatic Collection of the National Museum in Požarevac, Numizmatičar 34, 2016, 103–142.
- VOJVODA CRNOBRNJA 2018: M. VOJVODA A. CRNOBRNJA, Circulation of coinage from the Bithynian mint of Viminacium in the territory of present day Serbia, in V. IVANIŠEVIĆ B. BORIĆ-BREŠKOVIĆ M. VOJVODA (eds.), Circulation of Antique Coins in Southeastern Europe. Proceedings of the Conference held in Viminacium, September 15<sup>th</sup>–17<sup>th</sup> 2017, 2018, 131–142.
- VOJVODA JERSETIĆ 2012: M. VOJVODA M. JERSETIĆ, Money of the Bithynian mint of Nicaea in the Museum of Srem in Sremska Mitrovica, Numizmatičar 30, 2012, 115–135.
- Vojvoda Mrđić 2015: M. Vojvoda N. Mrđić, Coin finds from the Viminacium necropolis of Više grobalja and their role in funerary ritual, 2015.
- VOJVODA MRĐIĆ 2017: M. VOJVODA N. MRĐIĆ, Coin finds from the Viminacium necropolis of Pećine and their role in funerary ritual, 2017.
- VOJVODA PETROVIĆ 2011: M. VOJVODA S. PETROVIĆ, Coins of the Bithynian Mint of Nicaea from Banovo Polje in Mačva, Numizmatičar 29, 2011, 283–307.
- Vondrovec 2007: K. Vondrovec, Gesamtdarstellung und Auswertung des antiken Fundmünzmaterials im Museum Carnuntinum, in M. Alram F. Schmidt-Dick (eds.), Numismata Carnuntina. Forschungen und Material I, 2007, 55–340.
- Weiser 1983: W. Weiser, Katalog der bithynischen Münzen der Sammlung des Instituts für Altertumskunde der Universität zu Köln I. Nikaia, 1983.
- WINKLER BĂLOI 1973: I. WINKLER C. BĂLOI, Circulația monetară în așezările antice de pe teritoriul comunei Orlea (II), Acta Musei Napocensis 10, 1973, 181–212.