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REKA DEVNIA (BULGARIA): THE CHALLENGES OF CREATING A DIGITAL DATASET OF 80,000 COINS

Abstract

The hoard of Reka Devnia (Bulgaria) was found in 1929 on the site of ancient Marcianopolis. It comprised more than a 100,000 coins, mainly denarii, with some antoniniani and a minority of provincial silver. Issues range from Republican denarii of Mark Antony (32/31 BC) to antoniniani of Trajan Decius (AD 251). 81,096 coins were transferred to two Bulgarian museums and subsequently published by the Bulgarian numismatist N. A. Mouchmov.
A digital dataset, based on the publication of Mouchmov, has now been made available within the Coin Hoards of the Roman Empire project (http://chre.ashmus.ox.ac.uk/hoard/3406). It gives details of entries at type level, providing references to Cohen, used in the original publication, updated RIC references, and web links to online portals presenting standard typologies of republican, imperial or provincial coinages.
This paper will look at the challenges of such an enterprise, from providing updated references for coin types solely known from the brief descriptions given by Mouchmov, to providing links to online portals such as OCRE.

Keywords

Reka Devnia, Roman coin hoard, linked open data, digital dataset

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Reka Devnia is one of the largest hoards of Roman silver coins ever found whose content has been recorded in detail. As such, its value for statistical evaluation is immense and it is no surprise that this hoard has been extensively used in order to estimate relative coin production over time or investigating coin propaganda by looking at coins as a medium of mass communication[1].

Having an accurate digital dataset of a hoard that seems to be systematically included in any kind of statistical analysis of Roman imperial coinage became one of the priorities of the *Coin Hoards of the Roman Empire* (CHRE) project[2]. Based at the Ashmolean Museum in Oxford, our project aims to collect information about hoards of all coinages in use in the Roman Empire between approximately 30 BC and AD 400. It is co-directed by Prof. Chris Howgego and Prof. Andrew Wilson. Imperial coinage forms the main focus of the project, but Iron Age, Roman republican and provincial coins are also included. The data we collect will provide the foundations for a systematic Empire-wide study of hoarding and is intended to promote the integration of numismatic data into broader research on the Roman economy.

THE HOARD ITSELF

The hoard was found on 10 November 1929, in the village of Reka Devnia (current Devnia, in Bulgaria, ca. 20 km away from Varna) on the site of ancient Marcianopolis (Moesia Inferior). The discovery was completely accidental and attracted immediate attention. Two clay jars were extracted from the ground, in the back yard of a house. However, before the content of the hoard could be handed over to the authorities, some of it was dispersed among the local population and sold to collectors who apparently even came from abroad[3]. The remaining coins were consigned in three bags weighing 289 kg and sent to Varna. There, coins were split up in seven crates. Six of them were sent to the National Museum in Sofia and one stayed in the Museum in Varna. Subsequently, these coins were catalogued and published in 1934 by N. A. Mouchmov, the leading Bulgarian numismatist at that time[4].

Figures about the coins collected by the authorities, given in terms of weight and number of specimens, look relatively precise[5]:

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1 See for example Duncan-Jones 1994 or Noreña 2011.

2 http://chre.ashmus.ox.ac.uk/

3 Mouchmov 1934, p. 1.

4 Mouchmov 1934. In addition to the bibliography quoted here, see now as well Lazarenko 2014 (non vidi).

5 Mouchmov 1930, p. 49 and Mouchmov 1934, p. 6.

– The six crates sent to the museum in Sofia weighed 236 kg and contained 68,783 coins.
– The weight of the crate remaining in Varna approximated 50 kg and 12,261 coins were recorded. It should however be noted that the figure relating to the weight must be wrong, as every single coin would then weigh on average 4 g.

The total number of recorded coins amounts therefore to 81,044 specimens and, according to the figures given by Mouchmov, a weight of ca. 286 kg[6], although this last figure should be treated with caution considering that the weight given for the Varna lot is implausible.

The percentage of lost coins is rather more difficult to estimate, as quite different figures were given at different times:

– The first estimate states that 'approximatively a third of the find' was dispersed among the local population, which implies that 40,000 coins were lost[7].
– A second estimate gives a smaller figure, stating that 'more than 20,000 coins' were dispersed[8].

In any case, the original content of the hoard certainly amounted to more than 100,000 coins.

Chronologically, the hoard covers the period between Mark Antony (32/31 BC) and Trajan Decius, with a *terminus post quem* of AD 251. It has however been argued that the coins dating from the reign of Trajan Decius (3 antoniniani of Trajan Decius, AD 249-51, and one of Herennius Caesar, AD 250-1) could be intrusive and that a more accurate *terminus post quem* would be in the reign of Gordian III (AD 238-244). The reason for this is that coins of Philip the Arab seem to be entirely missing, and that the coins of Gordian III stop in AD 241, with specimens from the fourth issue[9].

All the coins are silver coins, mostly denarii (80,188 specimens), with only a relative small percentage of antoniniani (821 specimens), and an even smaller number of provincial silver issues (Lycian drachms, drachms from Caesarea in Cappadocia, Amisus, Arabia and Edessa: 58 specimens).

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6 This is obviously 3 kg less than the 289 kg mentioned as the total weight of coins originally sent to Varna, Mouchmov 1930, p. 49 (both quotes being on the same page).

7 Mouchmov 1930, p. 49

8 Mouchmov 1934, p. 1.

9 Metcalf 2002, pp. 148-149

FROM THE PAPER PUBLICATION TO ONLINE LINKED DATA

The creation of a digital dataset

N. A. Mouchmov's publication of the Reka Devnia hoard in 1934 was certainly exemplary at the time. The author gives a cursory list of all the coins arranged chronologically by persons and then by reverse inscriptions in alphabetical order, specifies for each entry how many specimens were given to either the museum in Sofia or the one in Varna and gives a bibliographical reference to the second edition of Henri Cohen's *Description historique des monnaies frappées sous l'Empire romain*[10], following *de facto* Cohen's classification. In case of deviations from a standard Cohen description, an explanatory note is given. Only very few coins are illustrated on five plates at the end of the publication.

The first task of anybody wanting to use this body of material for research purposes obviously consists of updating every coin description and converting the Cohen references to the standard modern publications of RIC for Roman imperial, RRC for Roman republican and RPC for Roman provincial coins.

The requirement for this was clearly seen by G. Depeyrot, who in 2004 published a new list of the Reka Devnia hoard with *ad hoc* updated references[11]. In parallel to this, W. E. Metcalf started assembling for his own research purposes information at coin level from more than 150 hoards of Roman denarii, including Reka Devnia and covering roughly the period between Nero and the mid-3rd century AD. This dataset was generously donated by Prof. Metcalf to the *Coin Hoards of the Roman Empire* project and enabled us to create a first digital version of the Reka Devnia hoard in our database. Working with W. E. Metcalf's dataset came with the further advantage that references for each coin type were not only given according to RIC, but included also citations of Cohen.

Once the data had been imported into our database, it was carefully checked against the original publication and any missing coin types inserted[12]. The result, presenting 3,353 type entries, can be seen online at http://chre.ashmus.ox.ac.uk/hoard/3406.

Just as in the original publication, we give a list of number of specimens per coin type. Our data is however presented in a different way, as coins are separated by pe-

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[10] Cohen 1880-92.

[11] Depeyrot 2004.

[12] The data was imported by Dr Jerome Mairat, Oxford, and the author of this contribution checked the entire dataset for accuracy and consistency. Katharina Huber, PhD candidate at the University of Vienna, has to be credited for inserting all the pre-Neronian references, as these were outside of W. E. Metcalf's original research focus.

riod, clearly differentiating republican, imperial and provincial issues. Furthermore, our list is organised by reign, person and then mint and denomination (Fig. 1). These two last types of information did not appear in the original publication, as they were not yet viewed as relevant in numismatic research at the time when Cohen published his classification. Introducing the concept of reign allows a clear distinction between for example coins of Titus Caesar, issued under Vespasian, and coins of Titus as Augustus. We also decided not to give any indication of the disposition of the coins. This level of detail would make more sense if somebody wanted to reconcile the list published by N. A. Mouchmov with the coins that can be securely attributed to Reka Devnia, either in the museum of Sofia or the one in Varna[13].

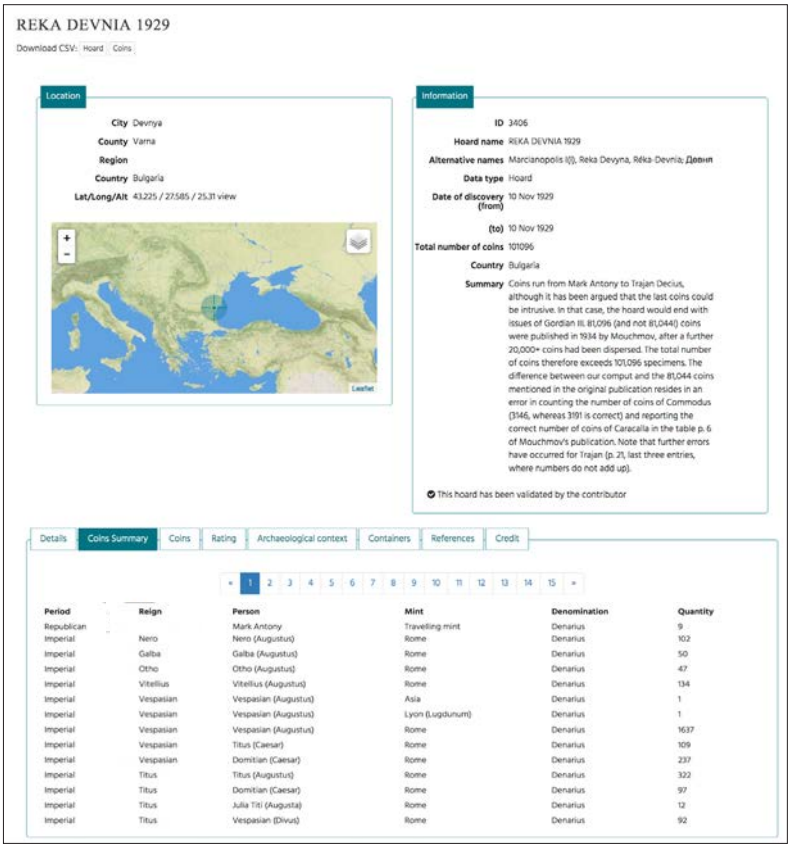

Figure 1 – Reka Devnia, Coins Summary view on http://chre.ashmus.ox.ac.uk/hoard/3406

[13] Thanks to information collected by Varbin Varbanov as part of his doctoral thesis, inventory numbers of coins belonging to Reka Devnia in the Museum in Varna are known, with 12,086 coins recorded. This number is only slightly lower than the 12,261 specimens recorded by N. A. Mouchmov.

The advantages of linked data

For each coin type, several bibliographical references are given including to Cohen, as this was the only way to establish a clear link between our list and the original publication which unfortunately did not have continuous numbering.

Beyond this, coin types are whenever possible also linked to online numismatic portals presenting standard coin typologies: CRRO (http://numismatics.org/crro/) based on M. Crawford's RRC publication for Roman republican coins, OCRE (http://numismatics.org/ocre/) based on RIC for Roman imperial coins and RPC online for provincial coinages (http://rpc.ashmus.ox.ac.uk). This enables us to be part of a world of online linked data, referring the user from one web site to another in order to access a larger range of information connected to his initial query.

Furthermore, OCRE and CRRO are digital corpora with downloadable catalogue entries, in which data is presented according to the principles of the semantic web with stable numismatic identifiers established by the Nomisma.org project. As data on these two portals is machine readable and can be reused by other projects, we have drawn on these resources in order to populate, through an automated and extremely fast process, several of our fields at the level of the coin type, namely date, obverse and reverse inscriptions, as well as obverse and reverse descriptions. This look-up facility allows us to easily present a full description of all coins at type level, ensuring at the same time a high level of data consistency.

THE CHALLENGES

None of the coins described by Mouchmov has been seen since their publication and only 84 specimens, collated on five plates, are illustrated. Our knowledge of the composition of this hoard relies therefore solely on the assumed accuracy of the original publication which has been digitised here[14].

Some inaccuracies pertaining to numbers were noticed. Thus, the total number of coins described, given by Mouchmov as 81,044, is in reality 81,096. The difference comes from an error in counting the coins of Commodus (3,146, whereas 3,191 is correct) and carrying forward the accurate number of coins of Caracalla[15]. Also, for Trajan, quantities of specimens in Sofia and Varna do not add up for three Cohen references[16]:

[14] For an example of a possible misidentification in Mouchmov's list, see Hellings – Spoerri 2016, pp. 63-64, about coins of Nerva (RIC II, 25-33).

[15] Mouchmov 1934, p. 117 counts 5,736 coins of Caracalla, but only 5,729 have been carried forward in the general table 'Liste des empereurs', p. 6.

[16] Mouchmov 1934, p. 21.

Cohen 154: Sofia 4 + Varna 0 = 3 coins

Cohen 156: Sofia 11 + Varna 2 = 17 coins

Cohen 188: Sofia 6 + Varna 1 = 4 coins.

Another challenge consisted of trying to give a precise RIC number to every coin type listed by Mouchmov. Establishing a one to one match between coin descriptions given according to Cohen numbers, including multiple variants not listed in Cohen's publication, and RIC numbers proved a tricky exercise, although admittedly this depends on the degree of accuracy one hopes to achieve. Obverse busts variants matter little if one is only interested in broad typologies of reverse types or number of coins per issuing person. A couple of examples should suffice the demonstrate this.

Three denarii of Vespasian are listed by Mouchmov with the Cohen number 361 (IMP CAESAR VESPAS AVG sa tête laurée à droite. Rs. PON MAX TR P COS V caducée ailé)[17]. This coin type is described in RIC II 1st edition, p. 22 under the number 74, with direct reference to Cohen, but did not receive an entry in RIC II 2nd edition, with the explanatory statement that RIC 74, i.e. Cohen 361, is 'unverified' and might be a 'plated hybrid'[18].

Six denarii of Lucius Verus are described by Mouchmov with a reference to Cohen 21 (IMP CAES L AVREL VERVS AVG sa tête nue à droite. Rs. CONCORD AVG TR P COS II, même type [la Concorde assise à gauche, tenant une patère; sous son siège, une corne d'abondance] de mauvaise fabrique)[19]. All six coins are actually variants of Cohen 21, reading on the obverse IMP L AVREL VERVS AVG. Furthermore, the first ones (4 specimens) have a 'tête nue' (bare head) as described by Cohen, but the fifth is described as 'buste nu' (bare-headed bust) and the sixth as 'buste drapé' (draped bust). This raises the delicate question of knowing what the difference between head and bust implies. Such subtle differentiation did certainly not find its way into RIC III, where the only obverse descriptions for a matching reverse type are 'head r., bare' (RIC III, 444, 446, 447) and 'bust r., laur., dr., cuir.' (RIC III, 445). Furthermore, none of these RIC types offers the required combination between obverse and reverse legends (IMP L AVREL VERVS AVG / CONCORD AVG TR P), as IMP L AVREL VERVS AVG is only listed with a reverse reading CONCORDIA AVG COS II (RIC III, 446).

The potential inability to provide a single RIC reference for each type entry highlights a further problem. Online type portals like CRRO or OCRE give a static typology of their respective coinages. Although taking advantage of the semantic web

[17] Mouchmov 1934, p. 10.

[18] RIC II², p. 363.

[19] Mouchmov 1934, p. 78.

enormously speeds up data entry, in neither of the cases described above have we decided to provide a link with OCRE, as an exact match does not exist. It also obliges us to follow the standard RIC classification, which is a problem for RIC volumes that are clearly outdated.

CONCLUSION

Digitising the 81,096 coins of Reka Devnia and creating 3,353 type entries, freely downloadable as a CSV file at http://chre.ashmus.ox.ac.uk/hoard/3406 was certainly worthwhile.

Starting this exercise with a digital dataset established by another scholar has certainly helped, even if the dataset was not complete and did not have all the information we wanted it to have.

Working in an environment of linked data and using open source downloadable information about coin types in order to supplement the information we already had has enabled us to present the whole dataset with adequate descriptions that would have been impossible to fill in by hand within a reasonable timeframe.

Working with such open source information therefore has obvious advantages. It comes with the downside that it can be rather more difficult to present the most up-to-date state of research in terms of classification, mint attribution or dating of issues.

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