Thracian Numismatics in the Light of the SILVER Website
(Die Studies Database and Greek Overstrikes Database)

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Abstract: *This presentation aims to illustrate the benefits one can expect using the two ERC SILVER databases: DSD (Die Studies Database) and GOD (Greek Overstrikes Database) (see https://silver.kbr.be/SILVER). For the circumstance, it focuses on the territory of ancient Thrace.*

Keywords: coin die studies, Greek overstrikes, digital humanities, ERC Silver, numismatic website

Ключови думи: проучвания на монетните печати, гръцки контрамарки, дигитална хуманитаристика, проект ERC Silver, нумизматичен уебсайт

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The SILVER website (https://silver.kbr.be/SILVER) is a by-product of the ERC advanced grant SILVER (2017-2024), a generously funded European project led by geophysicist Francis Albarède (Lyon, Ecole Normale Supérieure). This SILVER project itself aims to study the flow of silver in the ancient world through two innovative approaches: analyzing the isotopic compositions of both coins and ores and examining lead isotopes as well as the often-neglected silver isotopes.

The SILVER website, however, does not focus on metallographic analysis. Instead, it concentrates on two types of numismatic data: die-studies and overstrikes ("surfrappes", "Überprägungen", "riconazioni"), with the goal of better understanding the production and circulation of money throughout the Mediterranean basin. I am deeply grateful to Francis Albarède for generously funding this website through the European Research Council's grant. This support has allowed me to fulfill a long-standing ambition: to make accessible the databases I have been developing for over three decades – the Die Studies Database (DSD) and the Greek Overstrikes Database (GOD)[1].

The Die Studies Database (DSD) sig-

[1] Here in a long collaboration with David MacDonald (see *MacDonald* 2009).

nificantly expands upon the two quantitative compilations published in 1997 and 2003, which already offered standardized information for approximately 630 cases[2]. The Greek Overstrikes Database (GOD) aims to compile and edit all recorded instances of overstrikes in the Greek world in the broadest sense, spanning from Spain to the India[3].

As we write, the site is still in the preparatory phase but already contains the equivalent of 8,500 pages (of which two-thirds can be considered edited) and 640,000 property values.

1. COMMON FEATURES

The SILVER website and its two databases are built entirely upon the ontology created by NOMISMA, driven by the visionary efforts of Andrew Meadows. Through NOMISMA, stable URLs are assigned to each workshop, individual, and authority name. NOMISMA's goal is not to subsume other sites but to ensure that all entities within this digital ecosystem utilize its framework. Today, the field of Greek numismatics benefits immensely from a shared lexicon and digital tools[4]. Similarly, all entries in DSD and GOD are referenced by a unique number (some 12,000 to date).

Adopting this ontology and establishing as many connections as possible with NOMISMA, the SILVER website itself was developed by Bernhard Krabina, the IT specialist, who crafted the site using the MediaWiki technology as he had previously done for the FINA (*Fontes Inediti Numismaticae Antiquae*) website[5]. Similar to FINA, the SILVER site offers various navigation methods, providing a plethora of options (especially for maps and statistics) (**Fig. 1**).

The two databases open with a map that encompasses all cases mentioned in the database. For DSD, over 2,770 die studies have already been entered, with over 2,600 pertaining to the Greek world (May 2024). The objective here is to also integrate coin studies from the Celtic, Roman (imperial and provincial), and even Byzantine worlds. For GOD, over 2,950 overstrikes from the Greek world have already been incorporated (May 2024), with more than 2,000 considered fully edited.

In the example shown here, number 3196

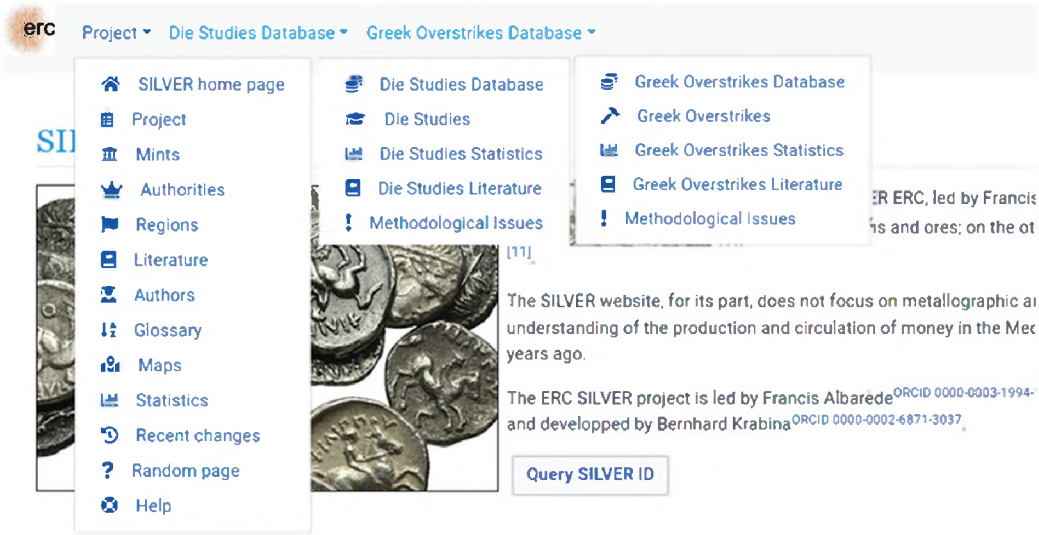

Figure 1. Main menus of the SILVER website (https://silver.kbr.be/SILVER).

[2] *Callataÿ* 1997 and 2003. For Sicily as a case-study of the DSD, see *Callataÿ* (to appear).

[3] For a general presentation, see *Callataÿ* 2017b; for a general explanation, see *Callataÿ* 2018a; for the historiography of the topic, see *Callataÿ* 2023a; for studies focusing on more precise issues or areas, see *Callataÿ, Carrier, Hanczack, Albarude* (to appear) (Sicily), *Callataÿ* 2017a (late Mesembrian Alexanders), *Callataÿ* 2021a (late Hellenistic tetradrachms in Thrace and Macedonia), *Callataÿ* 2023b (Pontic kingdom) *Callataÿ* 2018b and 2022 (5th-4th c. Pamphylia-Cilicia) *Callataÿ* 2021b (Alexander tetradrachms from Tyre).

[4] https://numishare.blogspot.com/2023/07/greek-types-from-iris-integrated-into.html

[5] Focusing on unpublished sources related to ancient coins before 1800, this site, with its nearly 6,000 letters and 2,500 characters, now stands as the foremost source of information for numismatic antiquarianism (https://fina.oeaw.ac.at/FINA#!).

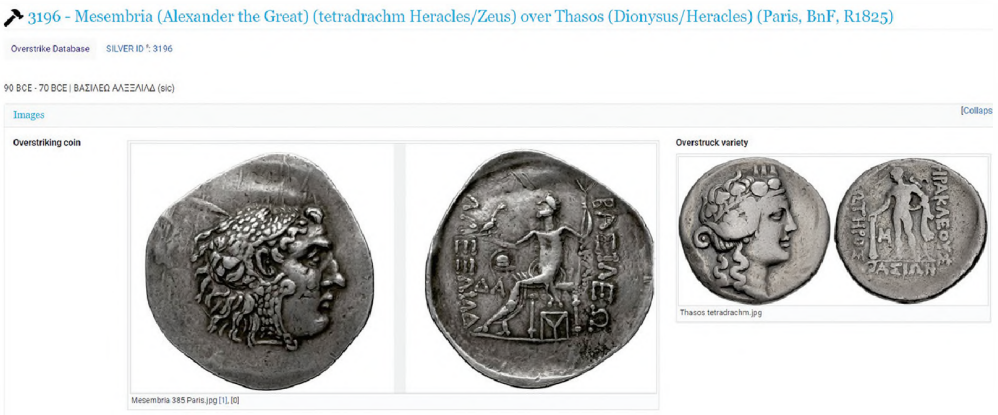

Figure 2. ID 3196 – Overstrike of a late tetradrachm of Mesembria in the name of Alexander the Great over a late tetradrachm in the name of the Thasians. (https://silver.kbr.be/Special:URIResolver/?curid=3196).

corresponds to the overstrike of a late tetradrachm of Mesembria in the name of Alexander the Great over a late tetradrachm in the name of the Thasians (**Fig. 2**). Every entry provides the description of both types as well as their printed and digital references (referring to IRIS) (**Fig. 3**).

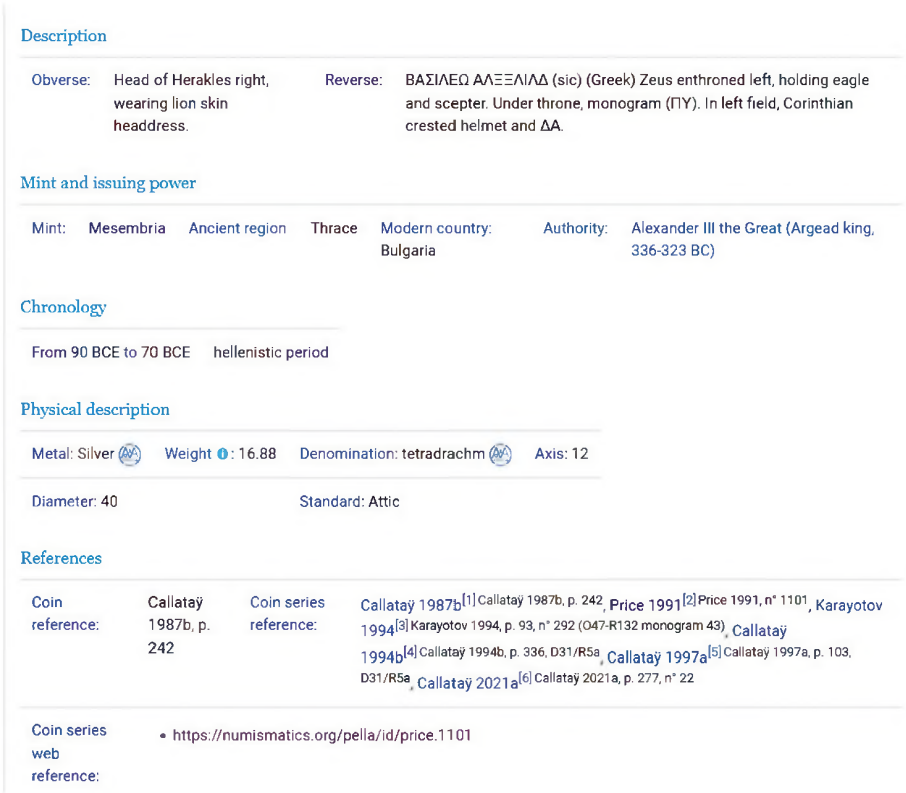

Figure 3. Description of the overstriking coin (ID 3196). (https://silver.kbr.be/Special:URIResolver/?curid=3196).

From there, it is possible to click on each entry (the workshop, the authority, or the bibliographic references). For example, here, you are taken directly to the bibliographic entry "Karayotov 1994" (**Fig. 4** – also providing all the entries where this reference is used [in this case, a few die studies and several dozens of overstrikes]) and from there to its author "Ivan Karayotov." (**Fig. 5**).

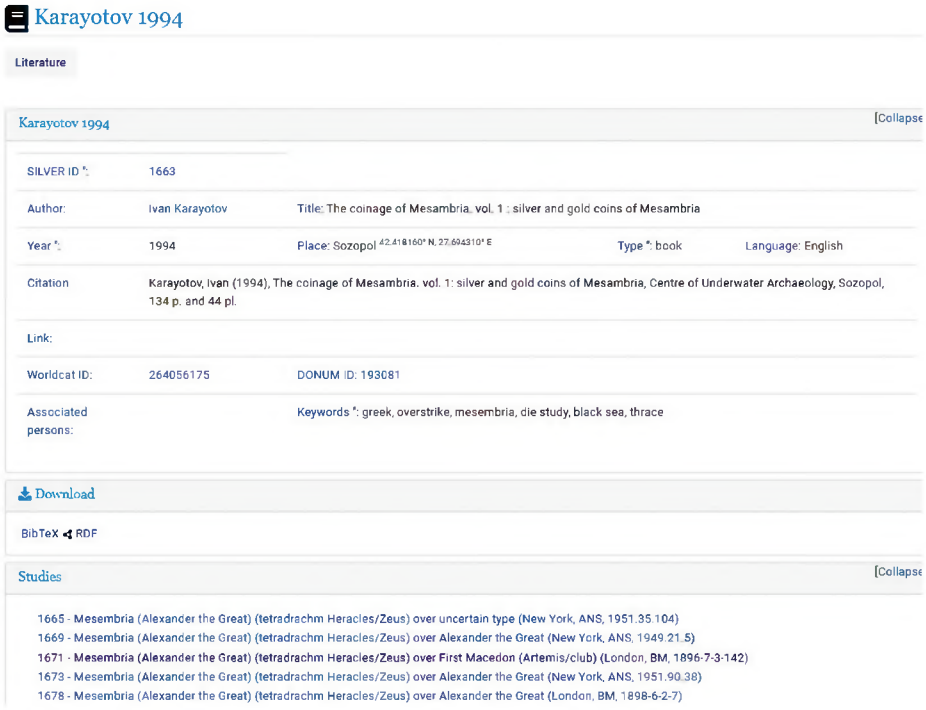

Figure 4. ID 1663: Karayotov 1994.
(https://silver.kbr.be/Special:URIResolver/?curid=1663).

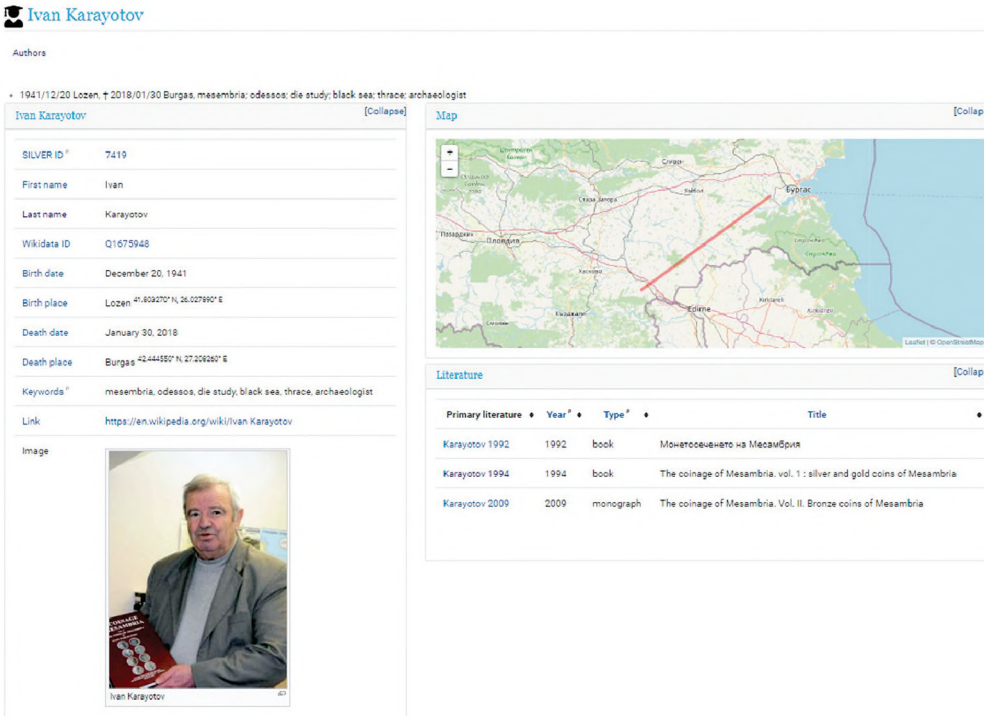

Figure 5. ID 7419: Ivan Karayotov.
(https://silver.kbr.be/Special:URIResolver/?curid=7419).

2. The Die Studies Database (DSD)

The DSD database was designed to aid in the economic understanding of the monetary phenomenon in antiquity. With already ca 2,800 die studies integrated, DSD offers a comparative power that has been lacking in the scientific community until now. Special attention has been given to the automatic generation of statistics (**Fig. 6**).

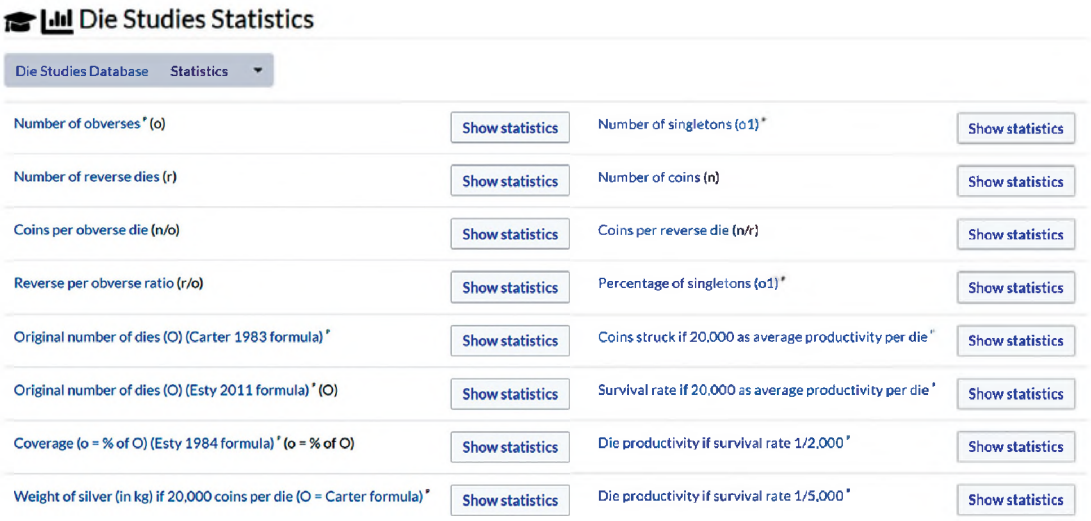

Figure 6. Die studies statistics offered by DSD.
(https://silver.kbr.be/Die_Studies_Statistics).

Its most striking yet speculative advancement is perhaps the proposal of a table depicting production volumes calculated in tons of coined silver. Included here are only the coinages in gold and silver with a ratio "number of coins/number of obverse dies" greater than two. For the sake of necessary simplification, the gold/silver ratio has been set at 10:1 for all coinages, and the average coin production per obverse die at 20,000 specimens. These assumptions are, of course, subject to significant qualification (see methodological remarks provided on the website), but they serve the purpose of enabling a general comparison by at least providing an order of magnitude. The overall table indeed reinforces the plausibility of such estimations, with amounts exceeding the equivalent of 100 tons of coined silver only achieved by the very large producers: Carthage, Rome, Athens, Alexander the Great, and the Ptolemies (**Fig. 7**).

Figure 7. Map of estimating coin production sizes (DSD).
(https://silver.kbr.be/Map_of_Estimated_Coin_Production_Size).

For the Thracian territory, the productions are of limited scale, with none reaching 50 tons of coined silver (indicated in orange or red). The only production exceeding 20 tons (in yellow) is from the late Alexanders minted in Mesembria, amounting to nearly 35 tons (**Fig. 8**).

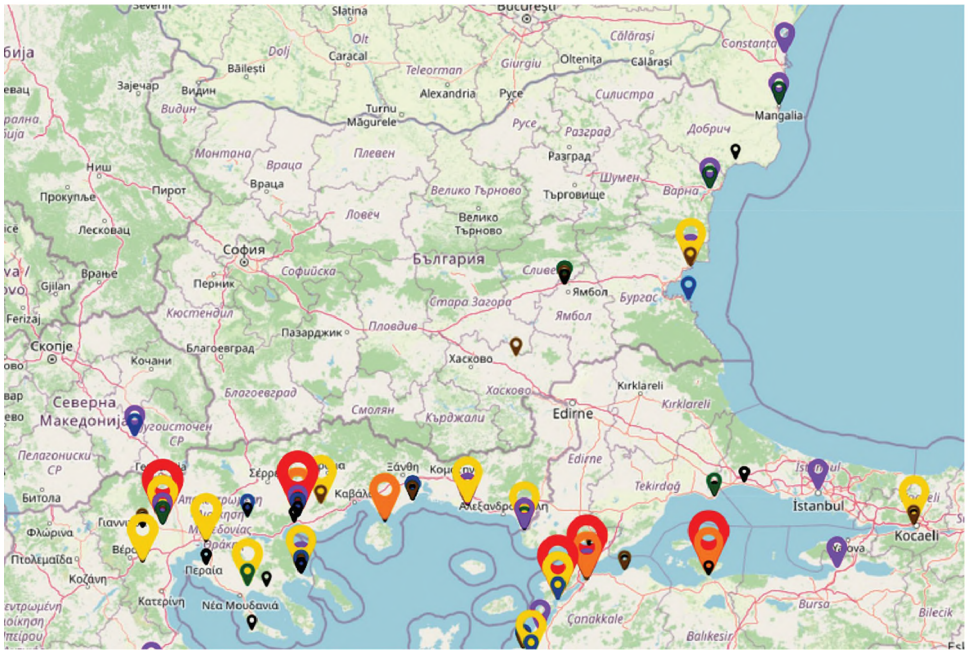

Figure 8. Map of estimating coin production sizes – Thrace (DSD).
(https://silver.kbr.be/Map_of_Estimated_Coin_Production_Size).

Out of the 2,770 die studies already entered into DSD, 84 originate from the geographic areas occupied by Bulgaria today (38 for "Thrace (uncertain mint)," 22 for "Mesembria," 12 for "Cabyle," 7 for "Seuthopolis,", 2 for "Dionysopolis" and "Odessus," and 1 for "Apollonia Pontica") (**Fig. 9**).

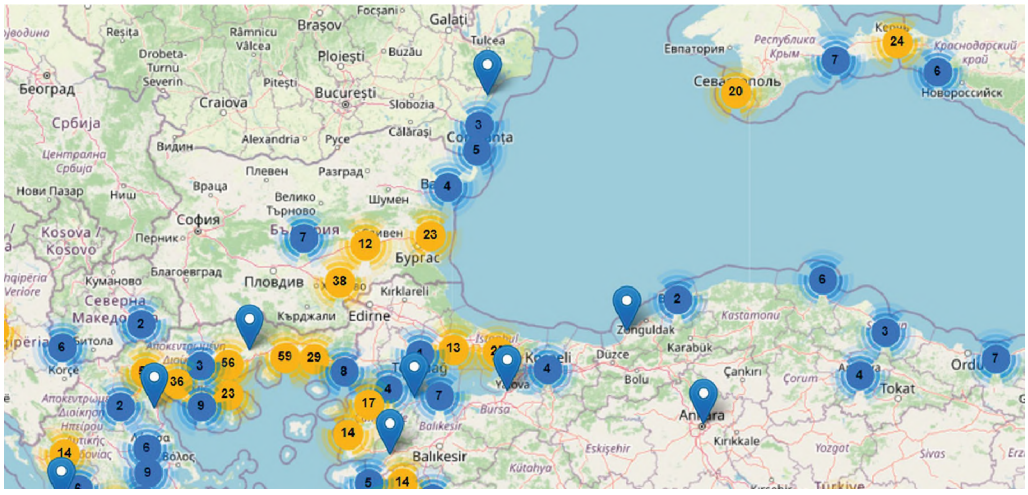

Figure 9. Die studies for Bulgaria (DSD).
(https://silver.kbr.be/Die_Studies_Database_Map).

An interesting feature provided by SILVER is the ability to create maps by adjusting a variety of parameters, including start and end dates, mint, authority, metal, and weight. Additionally, it offers two criteria that require some interpretation:

1) The number of workstations, with three options: likely one workstation, likely two workstations, and likely more than two workstations.

2) The nature of coinage, with four possibilities: undefined, likely non-military, likely military, and surely military.

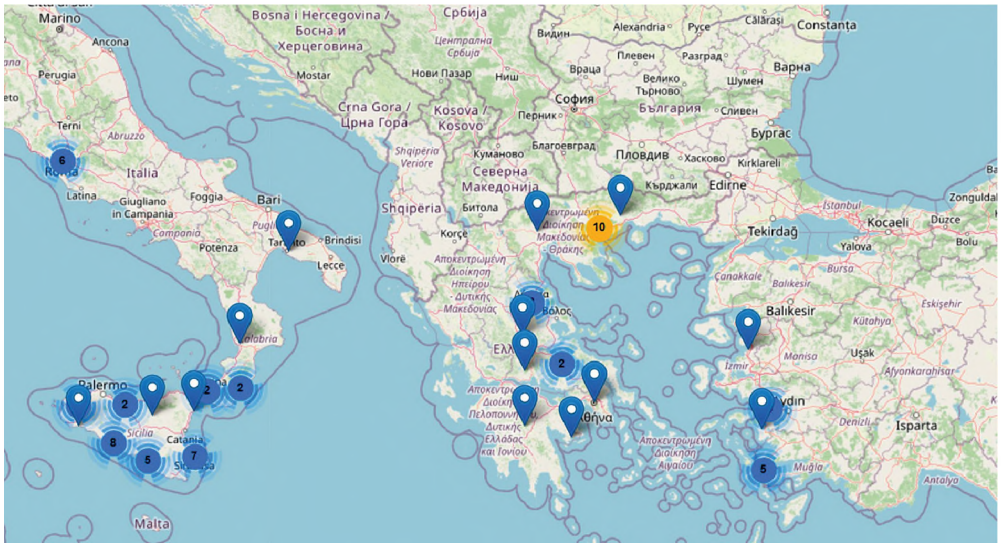

Figure 10. The distribution map (central part) for coin issues with two or more workstations working at the same time (DSD). (https://silver.kbr.be/Special:BrowseData/Die_Study).

The map provided here includes the 92 cases identified so far where the complexity of the die links suggests that there were multiple teams working simultaneously (**Fig. 10**). It can be observed that this phenomenon is quite widespread in Sicily but relatively rare in Asia Minor and unobserved so far for the coinages supposed to have been issued on the territory of modern Bulgaria.

By using the authority criterion, one can create maps displaying all coin issues featuring the types of Alexander the Great or Lysimachus (**Fig. 11**), with detailed lists available for each request.

Figure 11. Dispersion map of all the Alexander and Lysimachus coin issues (DSD). (https://silver.kbr.be/Die_Studies_Database_Map).

However, this filter can be combined with one or more others (metal, weight, chronology). For instance, if we limit the selection to coin issues minted after 150 BC, we get the following map, which clearly shows that the Alexanders and Lysimachus coins were only minted in the west Black Sea area during that period (**Fig. 12**).

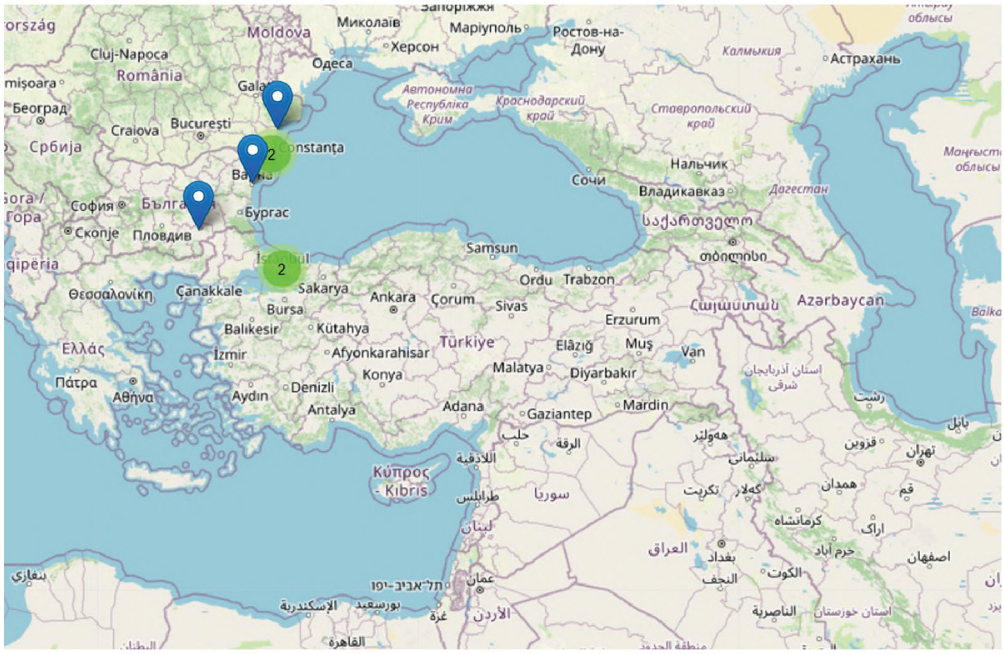

Figure 12. Dispersion map of all the Alexander and Lysimachus coin issues struck after 150 BCE (DSD). (https://silver.kbr.be/Die_Studies_Database_Map).

3. THE GREEK OVERSTRIKES DATABASE (GOD)

Navigating into the Greek Overstrikes Database (GOD) is easy with the help of three maps: the first offers numerous filter options; the second allows for the visualization of all overstriking coins, while the third does the same for all identified cases of overstruck coins (**Fig. 13**).

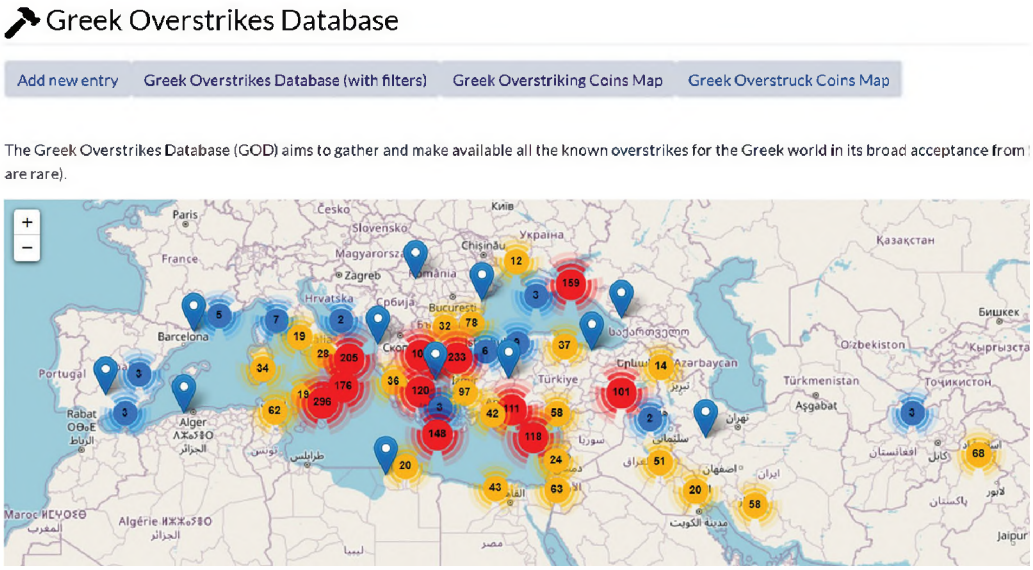

Figure 13. Homepage for navigating the GOD portal. (https://silver.kbr.be/Greek_Overstrikes_Database).

GOD already includes over 110 cases for the territory of present-day Bulgaria, with the majority originating from the Mesembria mint (**Fig. 14** – for an example, see also **Fig. 2**). It should be noted that in instances of widespread occurrences, a decision was made to limit the record to 30 examples for each type of overstrike (involving the same coinages, both overstruck and overstriking).

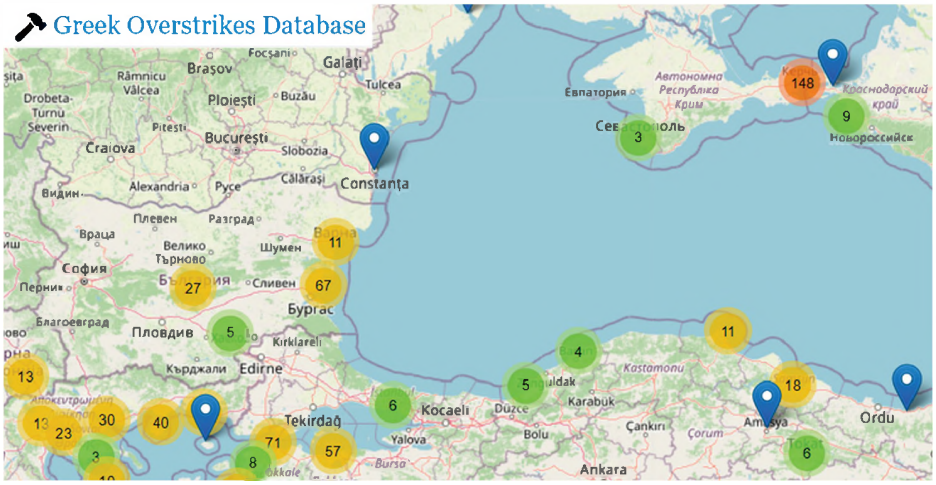

Figure 14. Dispersion map of the Thracian overstrikes (GOD).
(https://silver.kbr.be /Overstriking_Coins).

Considering the quantities issued, the tetradrachms in the name of Alexander the Great were rarely overstruck (**Fig. 15**).

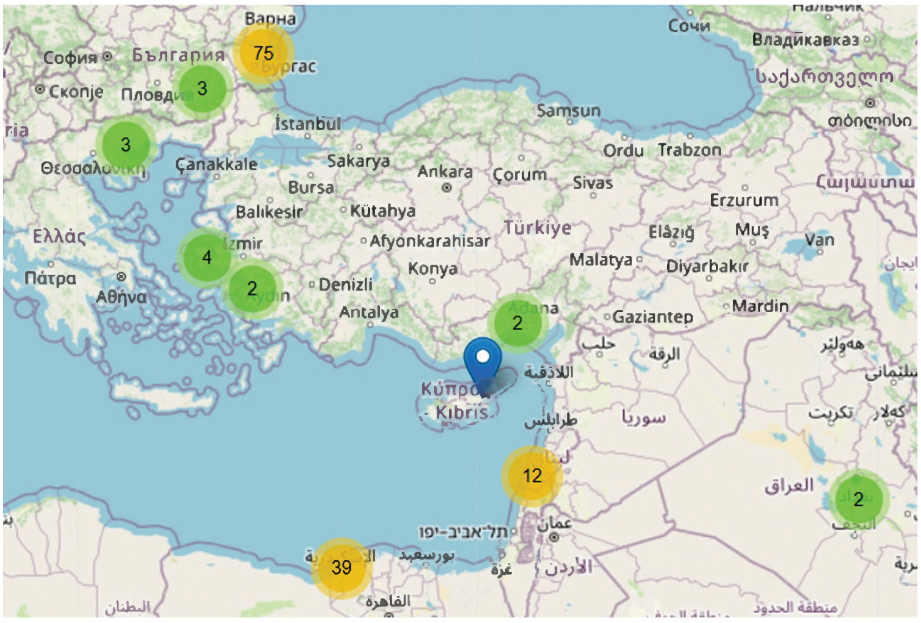

Figure 15. Dispersion map for all the tetradrachms in the name of Alexander the Great
(https://silver.kbr.be/Overstriking_Coins).

More precisely, they were almost never overstruck except in a few specific cases: in Phoenicia in the years 330-320, in Egypt (i.e., Alexandria) after Ptolemy I Soter established a closed monetary economy with a change of weight standard in 305, and in Mesembria after 150 BCE.

The map of overstruck coins allows for the visualization of phenomena by indicating the direction of certain metal flows, from their initial place of production to their subsequent reuse. For the horizon of the northern Aegean Sea, the movement of a series of coinages can thus be traced. For example, it is observed that the stephanephoric tetradrachms of Athens, massively imported into Macedonia in the second half of the 120s, were primarily overstruck in Mesembria (as Alexanders), Thasos (as coins featuring Heracles), and Thessalonica (as coins in the name of Aesillas) (**Fig. 16**). Conversely, no stephanephoric tetradrachm has yet been detected as overstruck anywhere other than in the northern Aegean.

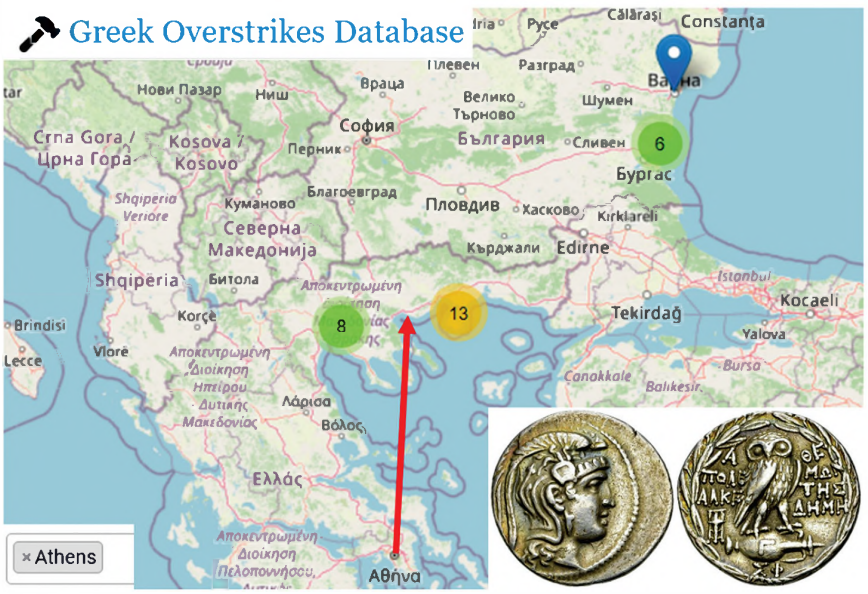

Figure 16. Dispersion map for overstruck stephanephoric tetradrachms of Athens. (https://silver.kbr.be/Overstruck_Coins).

For the coinages of Macedonia and Thrace issued at the end of the Hellenistic period under Roman authority, the movement consistently pushes eastward. This is the case for the Macedonian tetradrachms of the First Region (**Fig. 17**), whose overstruck examples are found in Mesembria and – much more significantly – in Asia Minor, in Ephesus and Tralles, in the form of cistophoric tetradrachms issued by Attalus III, shortly before he bequeathed his kingdom to Rome.

Figure 17. Dispersion map for overstruck tetradrachms of the First Macedonian Meris. (https://silver.kbr.be/Overstruck_Coins).

And the same phenomenon is observed, on a larger scale, for the last Hellenistic tetradrachms in the name of the Thasians, whose principal quantities were issued in the first decades of the 2nd century with 18 occurrences for the mints along the Black Sea (11 for Mesembria and 7 for Odessus), 5 for the Troad (4 for Tenedos and 1 for Alexandreia Troas) and 3 for Ionia (2 for Ephesus and 1 for Tralles) (**Fig. 18**).

Figure 18. Dispersion map for overstruck late tetradrachms in the name of the Thasians. (https://silver.kbr.be/Overstruck_Coins).

As for the tetradrachms in the name of Aesillas, which for convenience have been assigned an issuing location of Thessalonica here, they also follow an eastern route: they are primarily found overstruck in Thasos (11 cases) and Maroneia (8 cases), but occasionally even further afield in Abydos and Byzantium (**Fig. 19**).

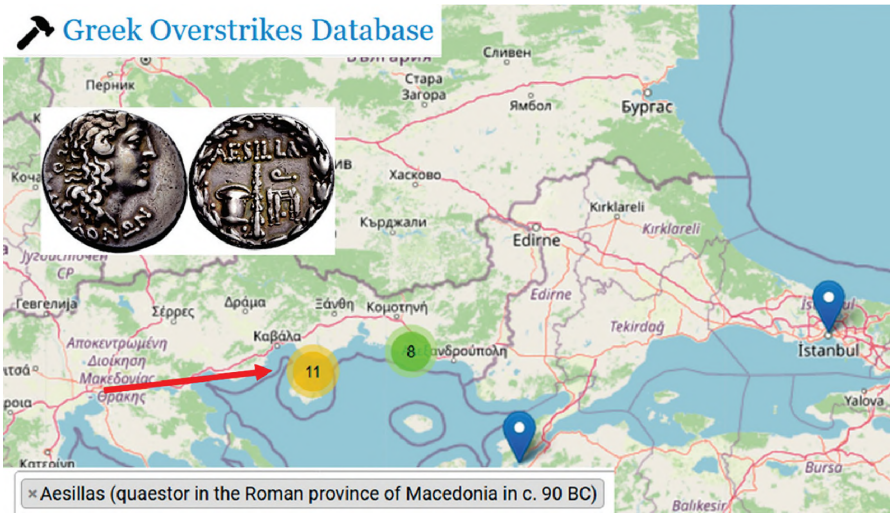

Figure 19. Dispersion map for overstruck tetradrachms in the name of Aesillas. (https://silver.kbr.be/Overstruck_Coins).

Finally, it is interesting to note that the rare three instances of overstrikes on tetradrachms in the name of Mithridates Eupator are also found at the same time in the same region at the intersection of Europe and Asia: Maroneia, Abydos, and Byzantium (**Fig. 20**)[6].

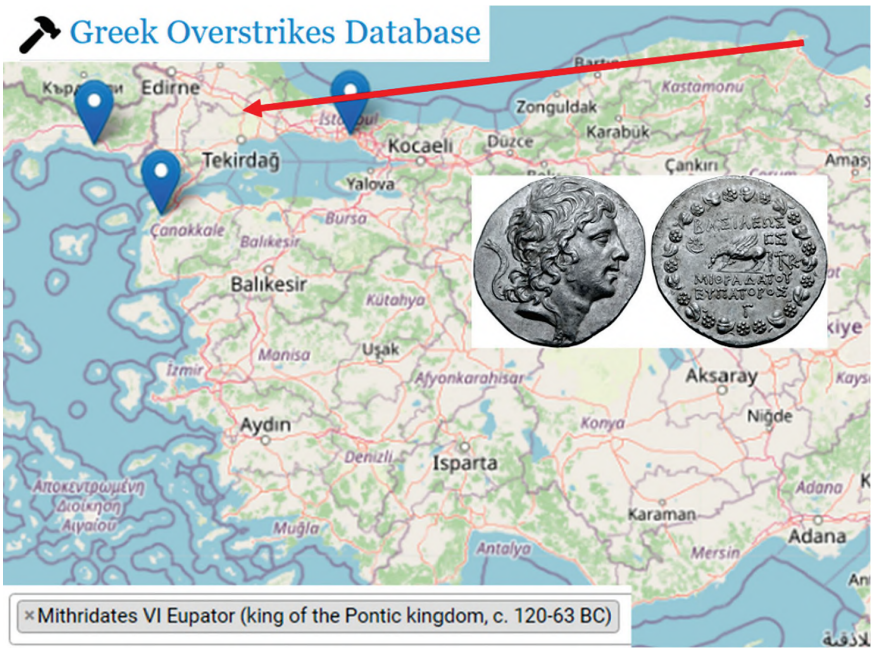

Figure 20. Dispersion map for overstruck tetradrachms of Mithradates Eupator. (https://silver.kbr.be/Overstruck_Coins).

The few results presented here are merely indicative of the richness of these two databases, which offer many other possibilities, particularly through statistical tools that have only been partly evoked here (see **Fig. 6**).

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Тракийската нумизматика в светлината на уебсайта SILVER (база данни на монетните печати и база данни на гръцките контрамарки)

Франсоа дьо Калатай

Целта на настоящия текст е да илюстрира ползите от използването на двете ERC SILVER бази данни: DSD (Die Studies Database / база данни за монетни печати) и GOD (Greek Overstrikes Database / база данни за гръцките контрамарки) (вж. https://silver.kbr.be/SILVER). Тук фокусът е поставен върху територията на древна Тракия. От ок. 2770 записа вече въведени в DSD, 84 произхождат от географските области на територията на Република България (38 за „Тракия (несигурен монетен двор)“, 22 за Месембрия, 12 за Кабиле, 7 за Севтополис, 2 за Дионисополис, 2 за Одесос, и 1 за Аполония Понтика). GOD вече включва над 110 записа (от ок. 3000) за територията на днешна България, като по-голямата част са от монетарницата на Месембрия (65). Картата на контрамаркираните монети дава възможност за визуализиране на явления, като указва посоката на определени метални потоци от първоначалното им място на отсичане до последващата им повторна употреба. Конкретно за хоризонта на северния егейски бряг може да се проследи движението на множество монетосечения.