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“PAY THE TROOPS, FORGET THE REST!” PATTERNS OF HOARDING: MILITARY VS. CIVILIAN ENVIRONMENTS IN THE MID-3RD CENTURY AD

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Abstract: The article talks about whether a big database of Roman coins, like the Coin Hoards of the Roman Empire (CHRE) at the University of Oxford, can be used to learn more about the Roman Empire’s money policy when they switched from a pretty good silver coin (the denarius) to a worse and more over-valued one (the antoninianus).

This online platform, CHRE, lets you sort through much evidence by filters like site class, denomination, and chronological order. This enables you to find both broad and specific patterns in how people responded to the devaluation of coins. The paper specifically focuses on identifying hoarding practices in Roman civilian and military environments during the mid-3rd century AD.

Keywords: *coin hoards, devaluation, Roman army, civilian society.*

When people perceive a significant devaluation of their currency, they tend to look for alternative stores of value, such as gold or other assets. This can have a particularly negative effect on those with fixed incomes or low financial literacy, who may not be able to adequately protect themselves against inflation. Monetary devaluation usually results in a decrease in purchasing power, which in turn causes concerns about inflation, erosion of savings, and a general mistrust of the currency system.

These aspects are available to the public in modern societies where a large variety of sources allow analysis, conclusions, and reactions.

But what about the ancient societies where the information on the economy and financial matters is either missing or did not survive until nowadays?

In AD 215, Caracalla introduced a new silver coinage — the *antoninianus* — which was supposed to be worth two *denarii*, larger and slightly heavier but only contained one-and-a-half times as much silver (c. 2.3g).¹ As N. Murphy stated: “the introduction of the *antoninianus* was a novel form of debasement, intended to shift the valuation of coins further away from their precious metal content and more onto state fiat. This was an inflationary measure, and subsequent rapid price increases, combined with ever decreasing coinage standards, led to the total collapse of the Roman currency and economy in the 260s and 270s AD.”²

¹ MOMMSEN 1873, 70, 143–145; MATTINGLY 1928, 183–187; HOWGEGO 1995, 115; MURPHY 2020, 146.

² MURPHY 2020, 145; MURPHY 2022, 163–169.

At the same time, the introduction of the antoninianus was also seen as a response to the Severan reforms.³ Following Septimius Severus reform, two qualitative denarii types were at the same time in circulation – the pre-reform denarii and the base post-reform denarii⁴ – a precedent that will lead to the similar case of antoninianus versus denarius after AD 215.

According to statistics and metal-finesse analyses, the debasement of the Roman silver coinage was a topic discussed in detail and for a long period in tens of scholarly works.⁵

But how did the public react to the coin debasement in a society where there was no media to communicate news instantly?

In the case of coin circulation, the physical presence of the coinage was the only way to confirm or invalidate the truth about monetary value.

According to C. Elliot: “Coin-users’ ability to notice, assess and value debased coins would have had a direct bearing upon their overall acceptance of imperial currency. However, historians and numismatists have no clear means for establishing how the debasement of imperial coinage may have affected the confidence of coin-users or how perceptions may have changed over time. Some scholars have simply assumed general acceptance and compliance with legal coinage exchange rates, legal tender laws and the other monetary decrees of central and local governments. While this often makes for more straightforward historiography, I am not sure that such assumptions are safe.”⁶

More or less, the main trend on research on was that “Many [authors] arrange and plot coinage data graphically in order to show trends and tendencies as historians of various theoretical persuasions, not merely inductivists, have done in recent decades [...] how are the chronological limits of rulers, political or military events round year or century markers, or perhaps upon coinage debasement reaching an externally determined statistical measure?”⁷

The written and papyrological sources suggest that individuals were aware of the tricks used in Roman imperial monetary policy to deceive through coinage malpractice, as evidenced by the payments made to the Cenni tribe under Caracalla: “...yet when they saw the gold pieces they were captivated. The gold that he gave them was of course genuine, whereas the silver and the gold currency that he [Caracalla] furnished to the Romans was debased; for he manufactured the one kind out of lead plated with silver and the other out of copper plated with gold.”⁸

Fourth-century AD evidence from Egypt brings further evidence of a certain degree of knowledge on the coinage debasement and how to react.

Papyrus Rylands mentions an official who becomes aware of a coming devaluation and instructs his associate to purchase goods: “The divine fortune of our masters has given

orders that the Italian coinage be reduced to half a nummus. Make haste therefore to spend all the Italian money you have and purchase for me all kinds of goods at whatever price you find them.”⁹

A tax-collector “with some connection to the *praepositus pagi* in the region around Oxyrhynchus asks his brother for money in order to invest in gold before the price rises”¹⁰: “To my lord brother Papnuthis, greeting from Dorotheus. You did well to write to me about the solidi, for I inquired and found the quantity with the Alexandrian at 1,350 myriads of denarii. Make haste therefore to send me the money tomorrow, seeing that there has been a rumour about the gold for the recruits (*aurum tironicum*) and everyone is looking for solidi and the price is going up every day. But send me the money quickly so that we can buy.”¹¹

In both cases, the individuals aware of the incoming devaluation of coins are officials, thus, in the first line of receiving/collecting information.

How about the other members of various communities throughout the immensity of the Roman Empire?

By the mid-3rd century AD, it is presumed that the public reaction to the devaluation/debasement and acceptability of the imperial silver coinage was an “increasing scepticism.”¹² But, as K. Butcher stated: “...measuring confidence in the third century currency may well be beyond our capabilities.”¹³

If the case, the ‘bad’ money (i.e., antoniniani) would drive out the ‘good’ currency (i.e., denarii) through hoarding, melting down, and export following Gresham’s Law, as it has been suggested for the Severan reform?¹⁴

One other reason for the introduction of the antoninianus, besides financial and economic reasons, was the strong growth of the financial cost of the army,¹⁵ reaching under the Severans and next emperors peaks that were unimaginable in the 1st and 2nd centuries AD.

The changes in the estimated military payments from Augustus (27 BC-AD 14) to Maximinus I Thrax (AD 235–238) (Tab. 1)¹⁶ are relevant to understanding the huge quantity of silver requested annually for the army pay.

According to Herodian, the pressure of a continuous increase of coin supply of the army in the 3rd century, specifically in the time of Maximinus I Thrax, was having a deep negative impact on the people:¹⁷ “It was thus possible every day to see men who yesterday had been rich, today reduced to paupers, so great was the avarice of the tyrant, who pretended to be insuring a continuous supply of money for the soldiers.”¹⁸

Such a massive quantity of coins was destined for the army, especially in the mid-3rd century AD. If we accept

⁹ P. Rylands IV. 607.

¹⁰ ELLIOTT 2014, 150.

¹¹ P. Oxy. 48.3401; ELLIOTT 2014, 150.

¹² ELLIOTT 2014, 152.

¹³ BUTCHER 2015, 200.

¹⁴ ELLIOTT 2014, 137, 143; MURPHY 2020, 145.

¹⁵ HARL 1996, 128; ELLIOTT 2014, 138

¹⁶ Wikipedia: Pay (Roman army) ([https://en.wikipedia.org/wiki/Pay_\(Roman_army\)](https://en.wikipedia.org/wiki/Pay_(Roman_army)), accessed on December 16, 2024) based on LE BOHEC 1992, 280–284 and CASCARINO 2008, 48–54, 84–86.

¹⁷ ELLIOTT 2014, 129.

¹⁸ Herodian, Hist. 7.3.3.

³ BUTCHER n.d. *apud* MURPHY 2020, 145, n. 8.

⁴ MURPHY 2020, 145.

⁵ A simple Google search on the debasement of Roman silver coins yielded over 10 pages, covering various topics and references.

⁶ ELLIOTT 2014, 140.

⁷ ELLIOTT 2014, 132.

⁸ Dio Cassius, LXXVIII, 14, 3–4.

Tab. 1. Military payments from Augustus to Maximinus I Thrax.

Roman legion	Augustus	Domitian	Septimius Severus	Caracalla	Maximinus Thrax
legionary (miles)	225	300	450	675	1350
Immunis	225	300	450	675	1350
principalis sesquiplicarius	337	450	675	1012	2025
principalis duplicarius	450	600	900	1350	2700
principalis triplicarius	675	900	1350	2025	4050
Legionary cavalryman	262	350	525	787	1575
Centurion / decurion	3375	4500	6750	10125	20250
Centurion primo ordo	6750	9000	13500	20250	40500
Centurion primus pilus	13500	18000	27000	40500	81000
Praefectus castrorum	15000	20000	30000	45000	90000
Tribunus angusticlavus	18750	25000	37500	56250	112500
Tribunus laticlavus	30000	40000	60000	90000	180000
Auxiliary troops	Augustus	Domitian	Septimius Severus	Caracalla	Maximinus Thrax
Infantryman cohors peditata	75	100	150	225	450
Infantryman cohors equitata	150	200	300	450	900
Cavalryman cohors equitata	200	267	400	600	1200
Cavalryman ala	250	333	500	750	1500
Praefectus cohortis	3375	4500	6750	10125	20250
Praefectus alae	11250	15000	22500	33750	67500
Roman navy	Augustus	Domitian	Septimius Severus	Caracalla	Maximinus Thrax
classarius(Classis Misensis)	150	200	300	450	900
Classarius (Classis Ravennatis)	150	200	300	450	900
classarius(Classis provincialis)	75	100	150	225	450

that the army received payment in this currency, we should observe significant evidence of antoniniani in the coin circulation. On the other hand, the available written sources seem to indicate a reaction of the public to bad/devalued coinage. Was the Roman soldier aware of the coin debasement, or did he have no options or, as a soldier, not care?

How can we verify the validity of these hypotheses?

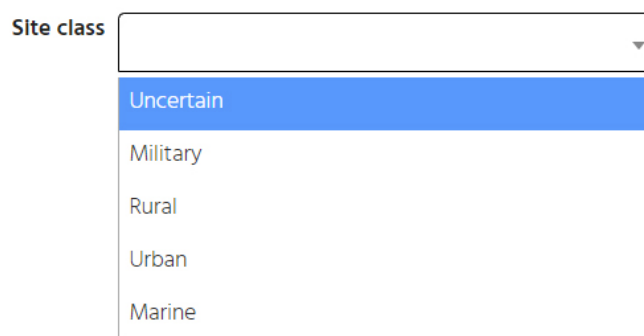
Methodologically, it would be possible to compare the numismatic evidence from the military environment with the urban and rural ones. However, the coin finds evidence from such sites is far from being homogenous for research from both quantitative and documentation points of view.¹⁹

This approach may also use coin evidence from these environments as a criterion. Certainly, we need a huge database that covers the entire area of the Roman Empire and can divide the hoards based on the site class/environment.

The project Coin Hoards of the Roman Empire (CHRE), run by the Ashmolean Museum and the Oxford Roman Economy Project, University of Oxford (<http://chre.ashmus.ox.ac.uk>), together with a continually growing network of collaborators, 50 institutions from 24 countries²⁰, has created the largest database of coin hoards of the Roman Empire. It has

recently reached a milestone of over 18,600 entries, comprising more than 7,300,000 coins²¹ and counting.

The CHRE application allows, among many criteria, selecting hoards according to the site class: marine, military, rural, urban, and uncertain (Fig. 1).²²

**Fig. 1.** CHRE, the filter site class.

In CHRE, the meaning of military, urban, and rural hoards is as follows:

- “Military: Within the walled perimeter of legionary or auxiliary forts, watch-towers, other military constructions, or outside the perimeter of garrisons up to about 500 m.

¹⁹ For the importance—advantages and limits—of the study of the numismatic evidence by site class, see KEMMERS 2009, 144–148.

²⁰ <https://chre.ashmus.ox.ac.uk/content/collaborations> (Accessed on December 17, 2024).

²¹ The statistics were summarized at the beginning of December 2024.

²² <https://chre.ashmus.ox.ac.uk/search/> (accessed on December 17, 2024).

Includes *castra* or *castella*, and civilian settlements intimately connected with a military site (*canabae*, etc).

- Urban: City or town, within the walled area or immediately surrounding built environment, or equivalent. Civic statuses include provincial capital, *conventus* capital, metropolis, nome capital, *colonia*, *municipium*, *civitas*, and *polis*. Within the Empire, we will take as definitive the revised list of urban sites by Jack Hanson, to be hosted on the

Size of the sample: 45

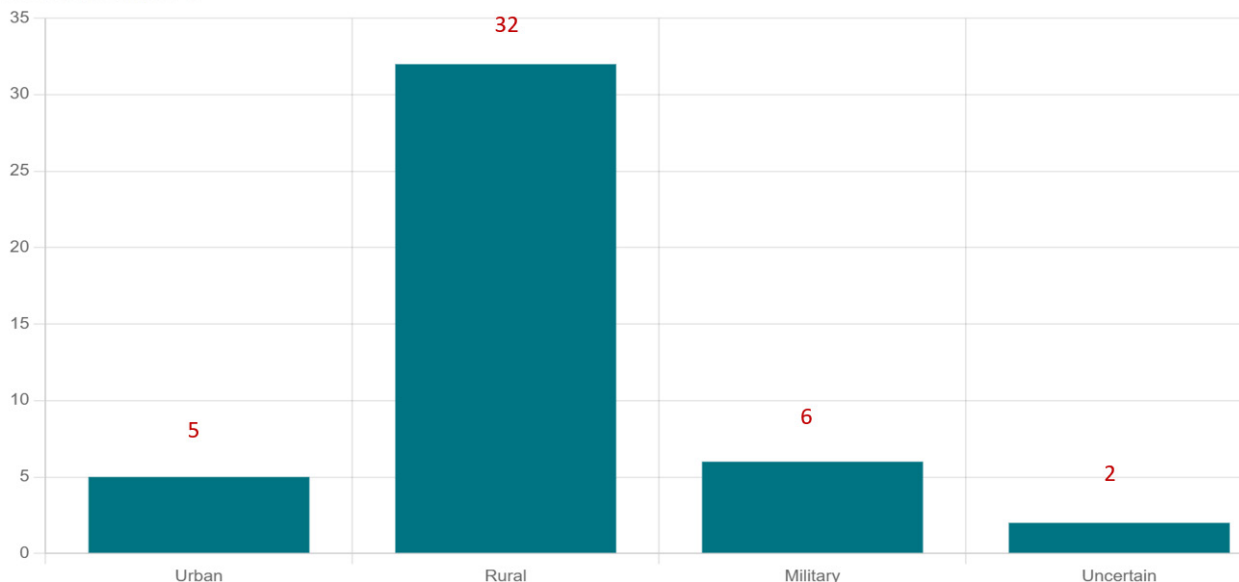


Fig. 2. CHRE, hoards by site class, latest coin minted in AD 239–243.

OXREP website. In the meantime, his original list is available in print in Hanson, J.W. (2016). *An Urban Geography of the Roman World, 100 BC to AD 300*. Oxford, pp. 193ff. and online as an excel document at <https://oxrep.web.ox.ac.uk/cities-database>.

- Rural: Areas with no urban or military structures. Includes countryside areas with no known structures or only the name of a modern locality, non-urban or agrarian settlements, such as *oppida*, *conciliabula*, *vici*, *pagi*, *canabae* (non-military), *mutationes*, *stationes*, *mansiones*, also sites described as hill-fort, complex rural settlement, villa, or farm, as well as mines and quarries.”²³

We have selected AD 239–251 as the chronological period for analysis. The reason is the period of the reintroduction of the antoninianus after a short break in AD 218–238. Elagabalus abandoned the antoninianus to introduce his lighter and lower-fineness denarius,²⁴ while Gordian reintroduced it in AD 238,²⁵ and since then, this denomination dominated the coin circulation of the Roman Empire until the currency reform of Diocletian in AD 293.

We divided the period into three segments to identify potential differences between the composition of hoards from civilian environments and those from military areas. They broadly correspond to the reigns of those emperors when the antoninianus became the main denomination in circulation: Gordian III, Philip I, and Trajan Decius.

²³ <https://chre.ashmus.ox.ac.uk/content/guidance#archaeological-context-tab> (accessed on December 17, 2024).

²⁴ BLAND 1996, 69; HARL 1996, 128; ELLIOTT 2014, 146.

²⁵ BLAND 1996, 71; HARL 1996, 140; ELLIOTT 2014, 146.

The segments are AD 239–243, AD 245–248, and AD 250–251 based on the latest coin in the hoard. It must be mentioned that these segments are chosen not by the length of the reign but shortened with one ear at each end so that the results of searching are not contaminated by the year representing the last one of the previous emperor and the first one of the next ruler (e.g. Gordian III –244 vs Philip I 244-).

Based on the site class criteria, the CHRE found 45 hoards that ended with coins made during the first part of the chronology, from AD 239 to 243 (the reign of Gordian III) (Fig. 2).

By looking at the different types of coins in these hoards, we saw that the *denarius* was by far the most common. The *antoninianus* was far behind, with only a few bronze coins (Fig. 3).

If we look at the main denomination hoarded in AD 239–243 in the hoards from military sites (Fig. 4), one can easily notice that the *denarius* is the main coin to be hoarded.

The second period, AD 245–248 (reign of Philip I) provides the following evidence for hoards with last coins minted in this period.

Like in the case of the previous chronological sequence, the overall graph (Fig. 6) suggests that, by far, the most preferred denomination for hoarding remained the *denarius*.

The urban and rural sites strongly confirm the overall situation with the most hoarded denomination for this period, the *denarius* (figs. 7–8).

However, the hoards from the military sites suggest a different pattern. In the military environment, the *antoninianus* is slightly more frequently hoarded in the period of the reign of Philip I (Fig. 9).

For the last period researched here, AD 250–251 (reign of Trajan Decius), CHRE reveals 262 hoards divided by site class as follows (Fig. 10):

Now, the proportions turn in the favour of the *antoninianus*. The overvalued silver coin strongly dominates the difference in hoarded denomination quantity (Fig. 11).

Unlike the previous two periods, both the urban and

Size of the sample: 117729

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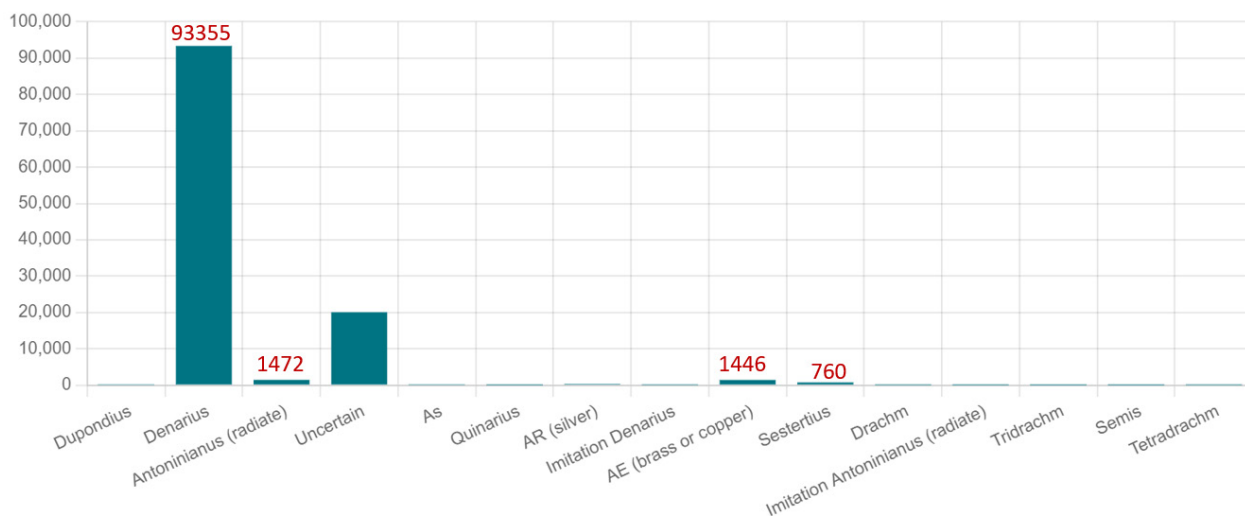


Fig. 3. CHRE, hoards by denominations, latest coin minted in AD 239–243.

Size of the sample: 873

☐ Exclude columns showing uncertain entries

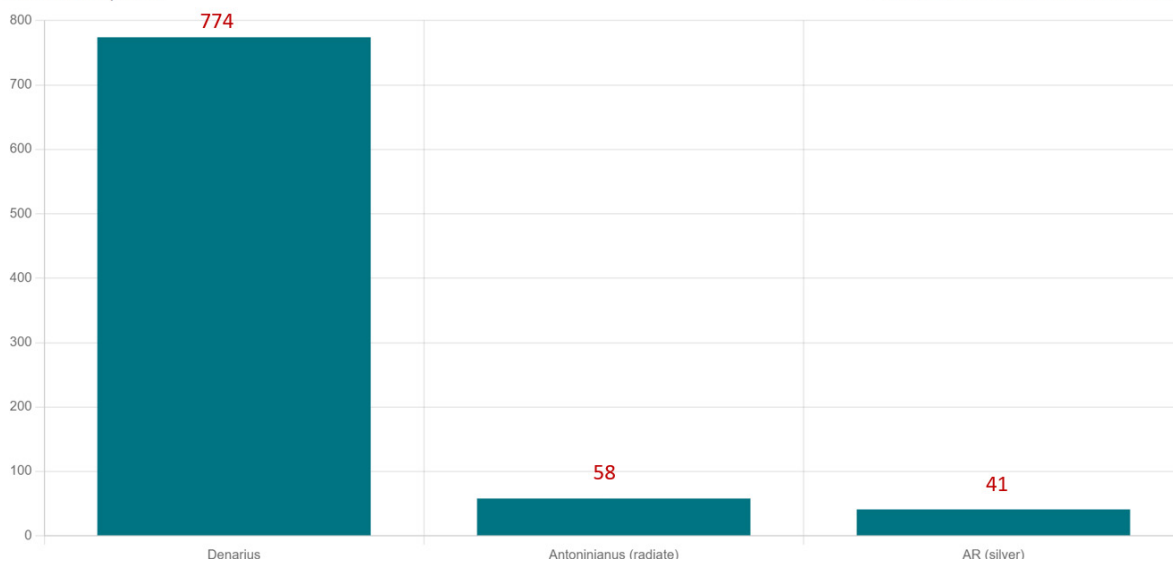


Fig. 4. CHRE, hoards by denominations, latest coin minted in AD 239–243. Military sites.

Size of the sample: 59

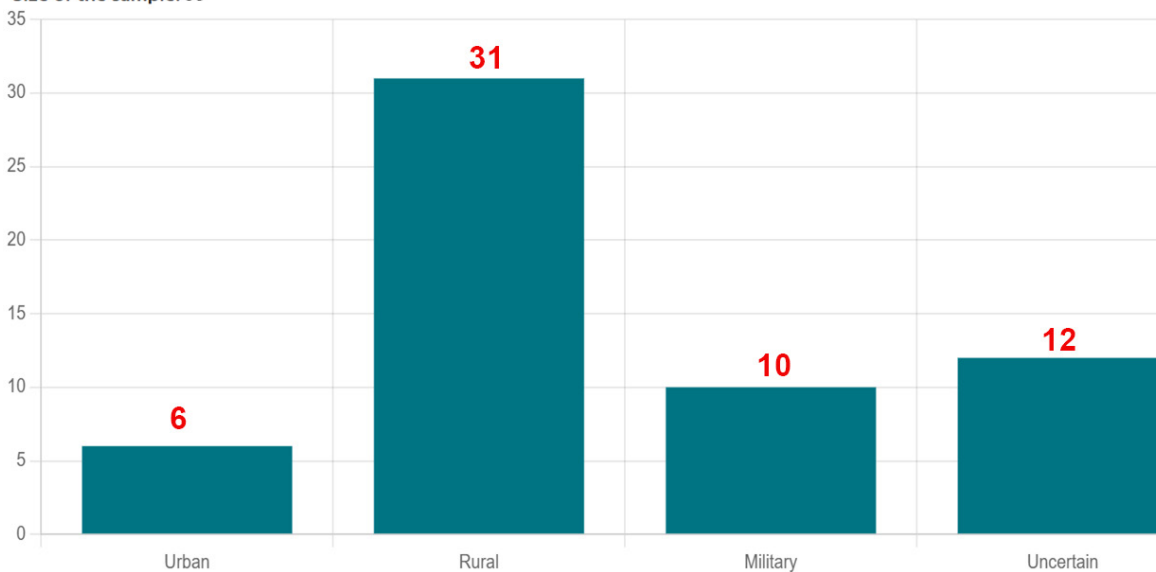


Fig. 5. CHRE, hoards by site class, latest coin minted in AD 245–248.

Size of the sample: 17415

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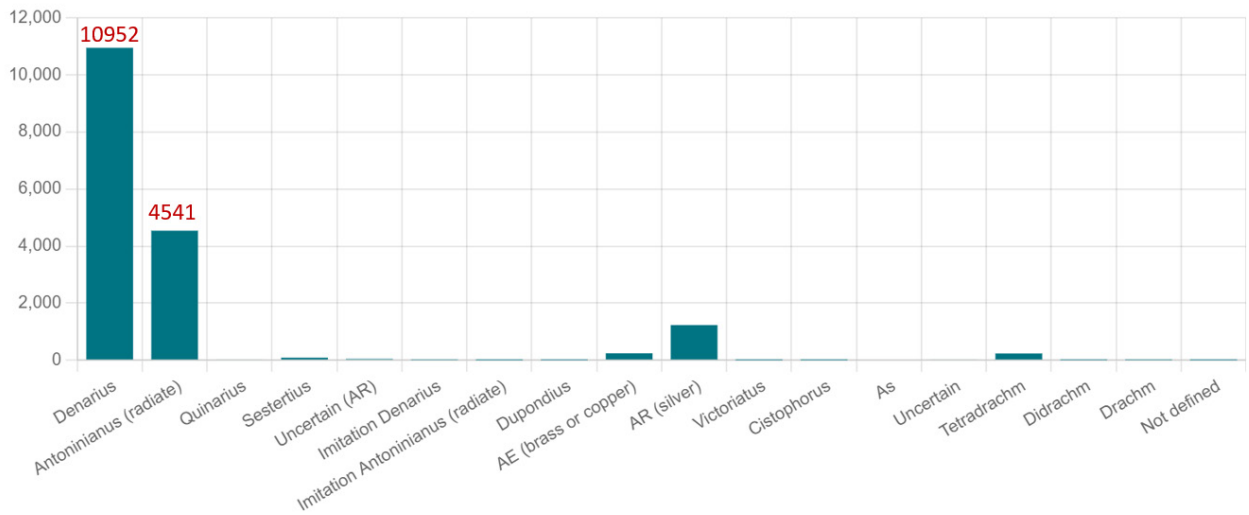


Fig. 6. CHRE, hoards by denominations, latest coin minted in AD 245–248.

Size of the sample: 1381

Exclude columns showing uncertain entries

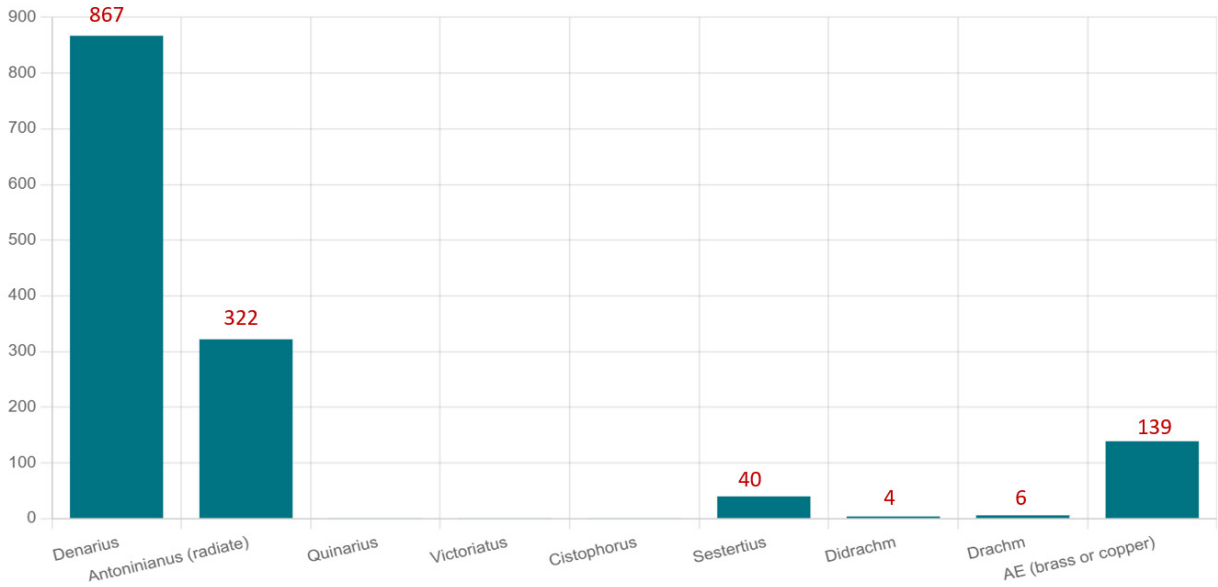


Fig. 7. CHRE, hoards by denominations, latest coin minted in AD 245–248. Urban sites.

Size of the sample: 7666

Exclude columns showing uncertain entries

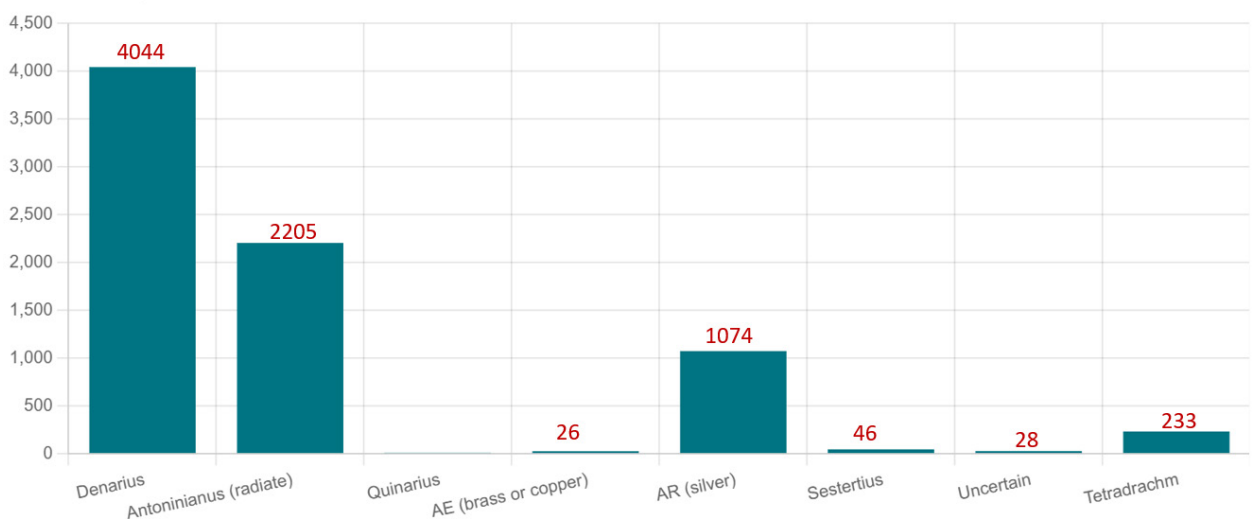


Fig. 8. CHRE, hoards by denominations, latest coin minted in AD 245–248. Rural sites.

Size of the sample: 1999

Exclude columns showing uncertain entries

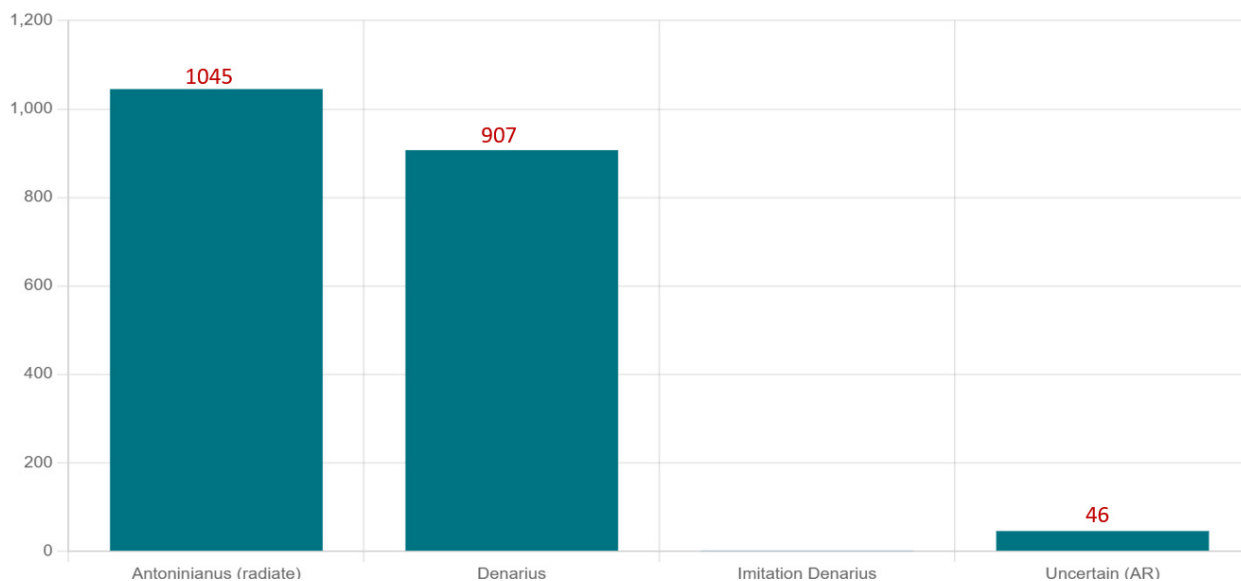


Fig. 9. CHRE, hoards by denominations, latest coin minted in AD 245–248. Military sites.

Size of the sample: 262

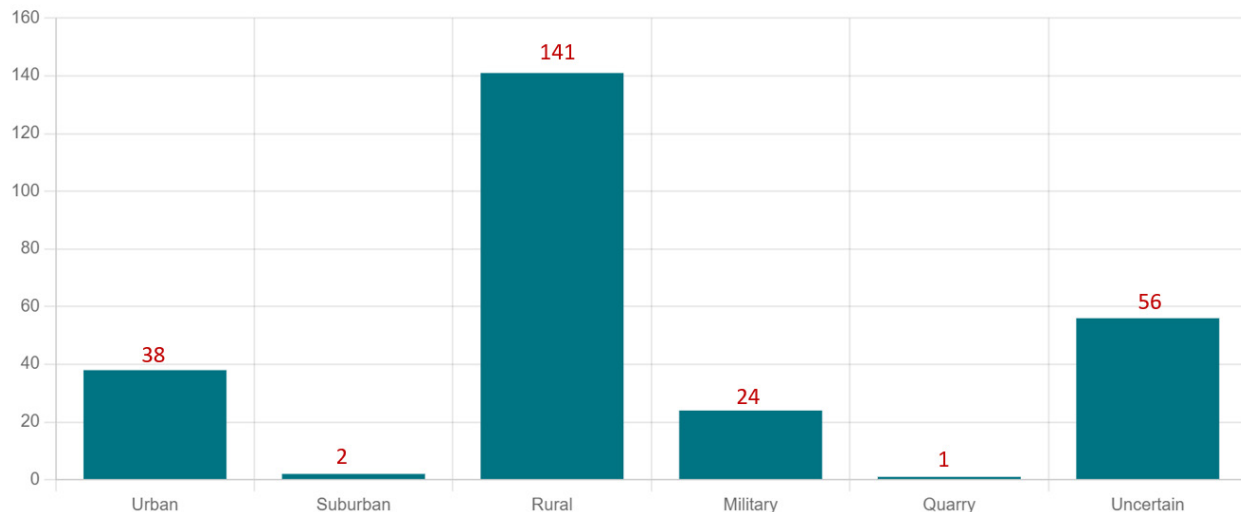


Fig. 10. CHRE, hoards by site class, latest coin minted in AD 250–251.

Size of the sample: 339578

Exclude columns showing uncertain entries

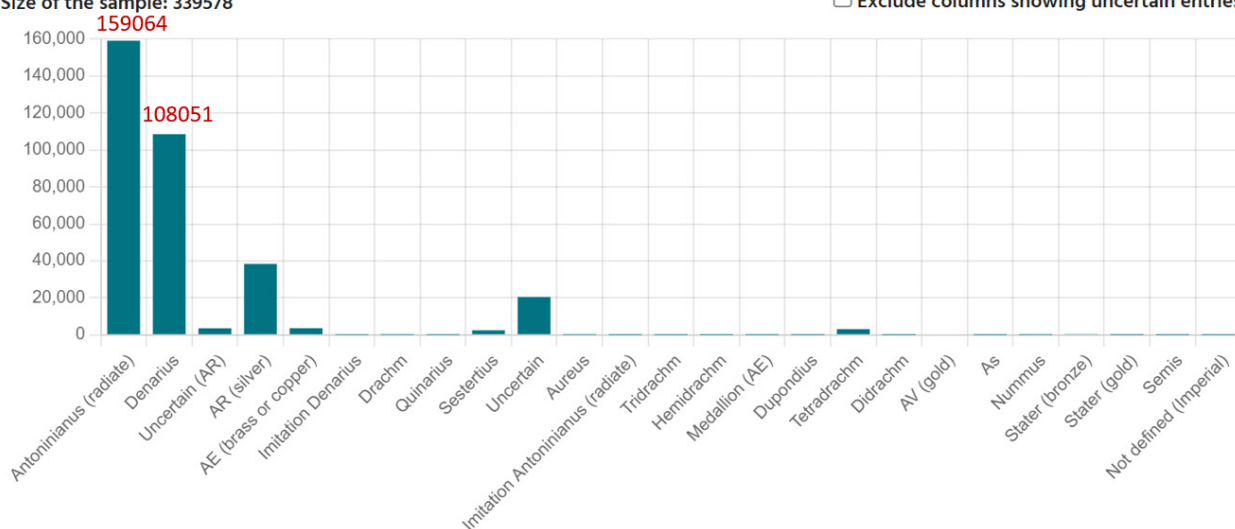


Fig. 11. CHRE, hoards by denominations, latest coin minted in AD 250–251.

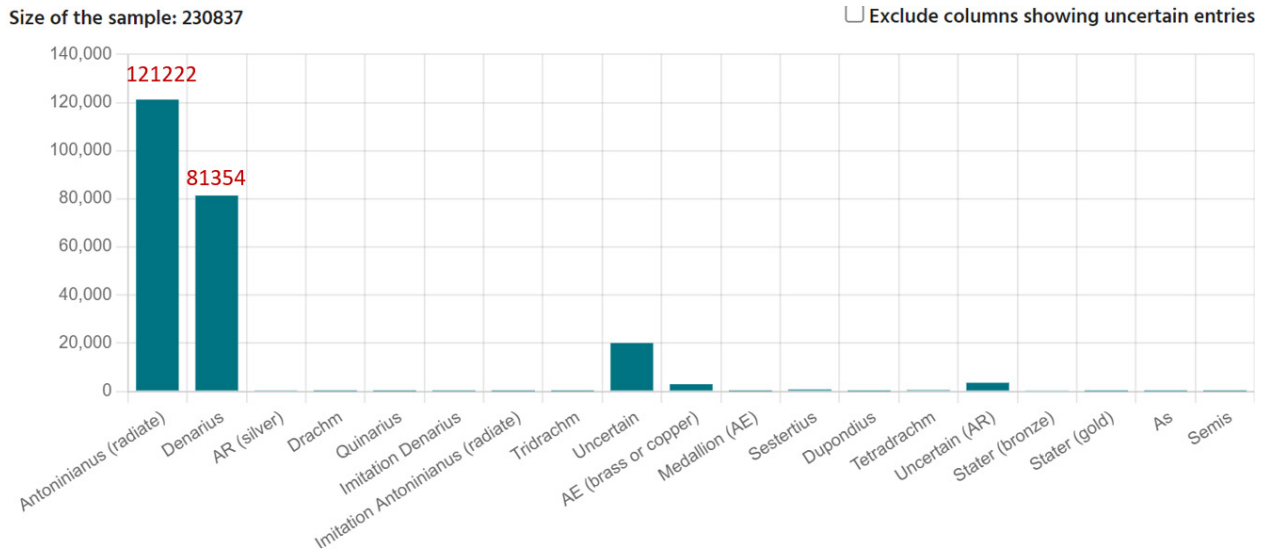


Fig. 12. CHRE, hoards by denominations, latest coin minted in AD 250–251. Urban sites.

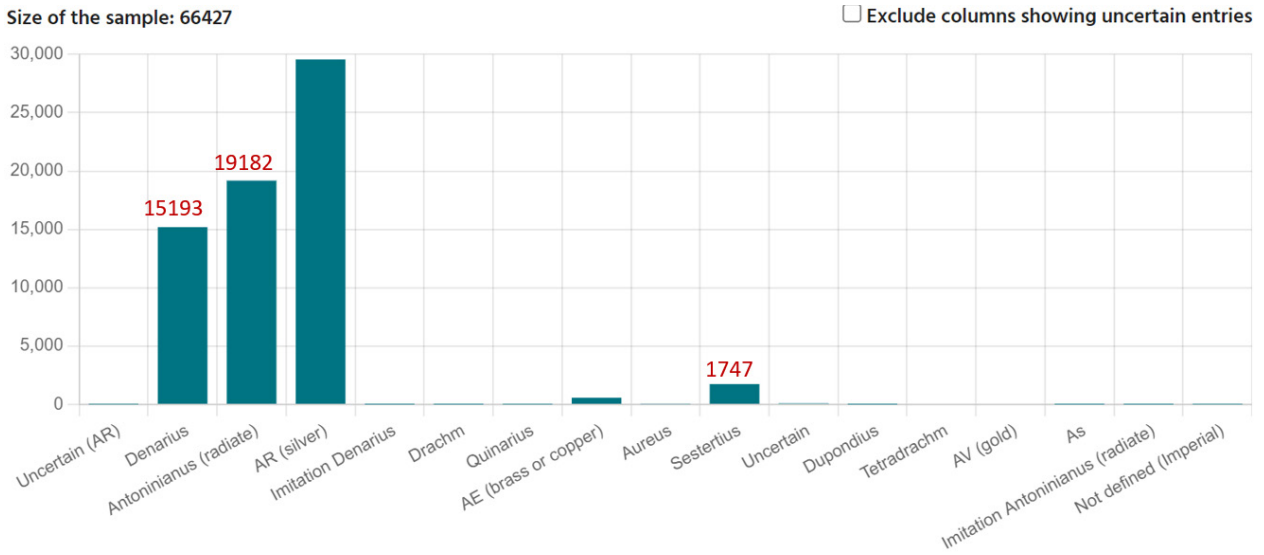


Fig. 13. CHRE, hoards by denominations, latest coin minted in AD 250–251. Rural sites.

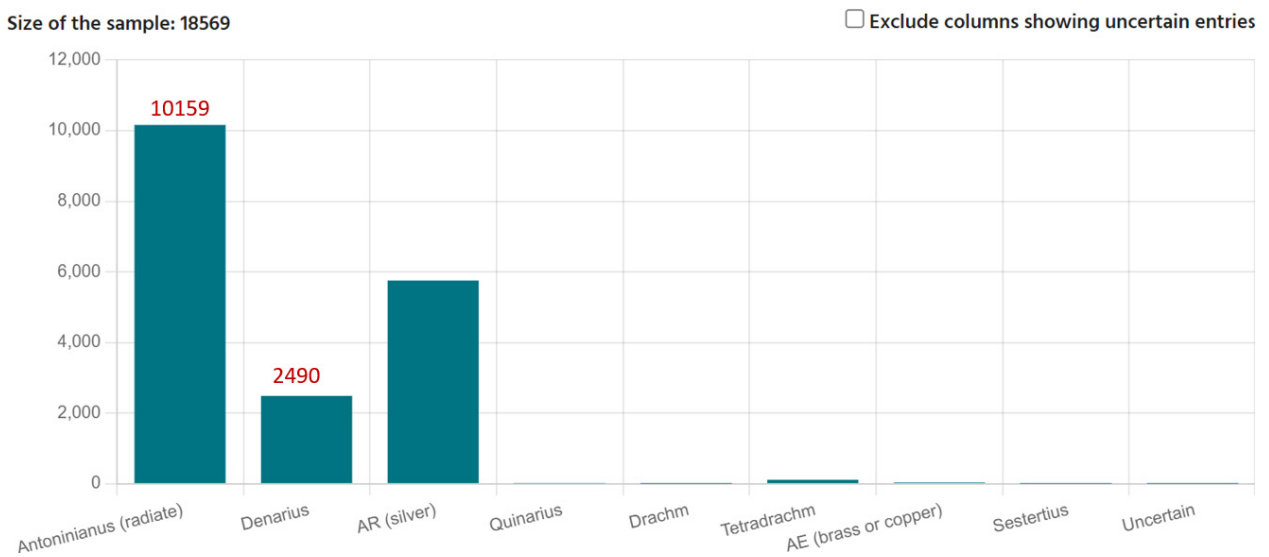


Fig. 14. CHRE, hoards by denominations, latest coin minted in AD 250–251. Military sites.

rural hoards show the same trend with the *antoninianus* as the most hoarded denomination (figs. 12–13). However, in comparison, with the military hoards (Fig. 14), one can easily notice that the ‘civilian’ hoards indicate that the hoards’ owners still tried to hoard the better silver coinage – the *denarius*, minted before the reign of Gordian III.

In the case of the military hoards ending with the latest coin minted in AD 250–251 (24), the difference between the number of *antoniniani* and *denarii* is immense in favour of the first denomination (Fig. 14).

CONCLUSIONS

The CHRE database revealed a strong reaction against the overrated *antoninianus*, with people hoarding as many excellent silver coins (*denarii*) as possible. This tendency can be noticed, especially in the ‘civilian’ environment, even in the years AD 250’s (urban and rural areas) – when the debased *antoninianus* flooded the market.

The tendency to select the coins of better-quality silver seems to be a long-term struggle, as proven by the discovery/hoards from Famars/Fanum Martis in the NE of Gaule. During the archaeological excavations of 1823–1825, a large quantity of coins was discovered in the baths complex. The aspect that drew attention was the way the 26,650 coins were divided: good and bad silver coins. The poor alloy coins were found as compact melted lumps, while the excellent alloy coins were placed in bronze and ceramic vessels (Tab. 2):²⁶

Tab. 2. The “hoards” from Famars/ Fanum Martis.

Find	Year	Container	Coin no.	Composition
A	1823	-	-	coins of poor alloy
B	1824	3 bronze vessels	3920	denarii and ‘heavy’ argentei
			2658	
			3377	
C	1824	3 ceramic vessels	1923	post-Severans’ denarii, antoniniani ‘of good alloy’
			1412	
			5115	
D	1824	-	-	antoniniani of poor alloy
E	1825	2 bronze vessels	4765	denarii and ‘heavy’ argentei
			3480	

It must be noted here that, at the same site, in addition to the large number of coins found, coin moulds were also discovered in large quantities.²⁷ Therefore, the place was a mint (clandestine?) producing coins. There were personnel in charge who were responsible for selecting high-quality coins.

The civilian environment was trying to save the best silver alloy coins through hoarding; the statistics presented above (figs. 9, 14) indicate that the army may not have had too many options as the pay was made in *antoniniani*,²⁸ and, most likely, there were not too many *denarii* in circulation in

the nearby environment to be exchanged (sic!). Also, it may be added that, based on simple military behaviour regarding the value of the coin hoarded, they were satisfied to see that it was silver. As for the daily transactions, this money was accepted within the garrison and for certain by the community close to the fort, as everyone was interested in doing business/supplying with/for the army.²⁹ As J.G. Aarts stated, for the communities around military garrisons, the Roman army was a stimulus to the economy, and it created a “profound” dependency on the monetised market.³⁰

If it is the soldier’s way of thinking, one could look for similar cases from contemporary history. The American Military Payment Certificate (MPC) – the ‘army dollar bill’ – was issued by the US Department of War and later the Department of Defence between 1942 and 1973. Certain overseas zones, particularly during the Korean War and the Vietnam War, utilised it.³¹ Besides daily shopping within the military bases, this currency was used by the military in those zones for two main reasons: buying merchandise and wartime commodities with the locals (they could not refuse the army payments) and hoarding to convert into US dollars when returning home.³²

Returning to the Roman period, as R. Bland stated the coin hoards evidence “show how the *denarii* progressively disappeared from circulation during the period between 240 and 274 but the rate of disappearance appears to have been uneven since many hoards from the 260s still contain appreciable quantities of *denarii* alongside the *radiates*. The hoards buried after 240. therefore, do not lend support to the theory that the *radiates* rapidly drove *denarii* out of circulation.”³³

With a big database like CHRE, you can sort the hoards’ evidence by things like site class, denominations, chronological order, and more. This could help you find even more specific features.

Indeed, the hoarding process in the mid–3rd century AD indicates a gradual disappearance of *denarii*. It is also clear that people in the civilian environment tried to save as many better silver coins (*denarii*) as they could. Conversely, the military hoards demonstrate a significantly lower interest in this, beginning primarily during the reign of Philip I (AD 244–249) and accelerating during the subsequent reign of Trajan Decius (AD 249–251). The explanation lies in the military’s use of *antoniniani* for payments and the lack of necessity for a higher-value silver coin to support their lifestyle.

The comparison by chronological sequences – overall 12 years – by site class and by denominations emphasises the

²⁶ BERSU/UNVERZAGT 1961, 186–190; BASTIEN/HUVELIN 1963, 164–174; BEAUSSART 1980, 818; [https://chre.ashmus.ox.ac.uk/search/\[Famars\]](https://chre.ashmus.ox.ac.uk/search/[Famars])

²⁷ BERSU/UNVERZAGT 1961, 183, 188.

²⁸ KATSARI 2002, 2–3. Most recently, R. Bland demonstrated that for the military campaign of Gordian III in the East, the mint of Antioch struck *antoniniani* for the army pay, BLAND 2024, 101–105.

²⁹ KOLBECK 2018, 14–19.

³⁰ AARTS 2000, 209.

³¹ SCHWAN 1981, 12–15; PIPER 2024, 4.

³² KIM 2019; PIPER 2024, 4.

³³ BLAND 1996, 78.

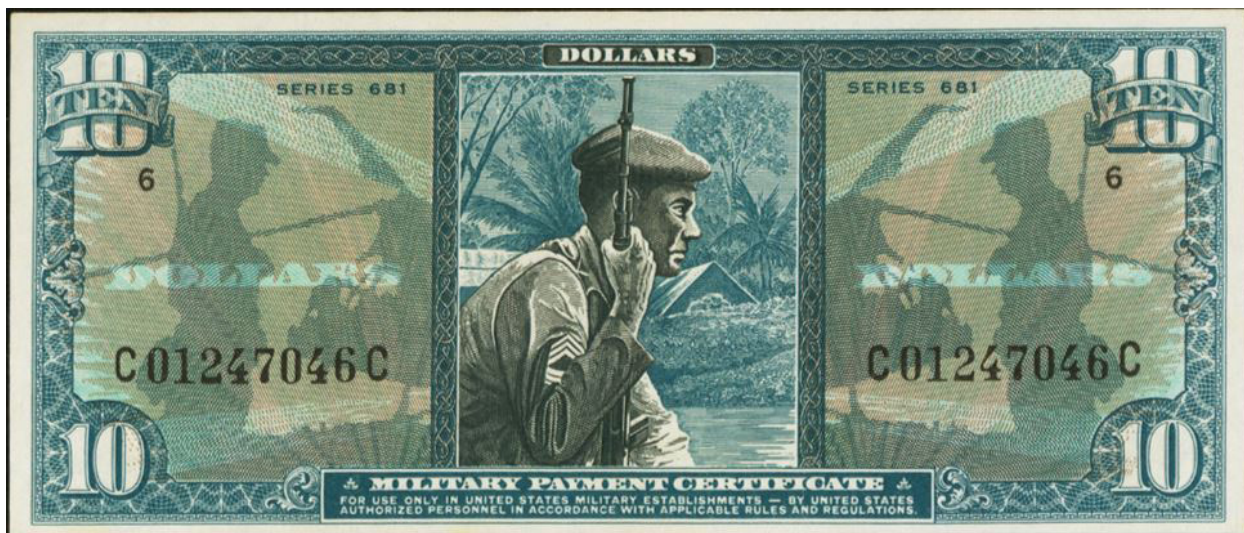


Fig. 15. 10 dollars MPC used during the Vietnam War 1969–1970 (<https://mywikis-wiki-media.s3.us-central-1.amazonaws.com/cpm/MPC-Series681-10-Heritage.jpg>).

gradual disappearance of denarius from the hoarding process, having a higher speed in the cases of military hoards after AD 244–249.

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