

More than Just Coins: A Metrological Approach to Studying Coin Hoards from the Western Mediterranean c.550–480 BC

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Abstract

The value of a hoard was not always determined by the number of coins it contained but by the amount of silver it represented. This certainly appears to be true for coin hoards in the western Mediterranean during the archaic period. For this reason, it is important to consider the metrological rather than strictly numismatic aspects of these hoards. By analyzing their metrology, it could be possible to determine if the coins were counted or weighed. The results have broad implications. In particular, one of the traditional distinctions between bullion and coinage is that the value of a coin was guaranteed by the state so that there was no need for weighing it. However, some hoards suggest that their contents were in fact weighed like bullion. This indicates that the state's 'guarantee' of value was perhaps less entrenched and slower to take effect in local contexts than is normally assumed.

Introduction

Shortly after 550 BC, a handful of cities in southern Italy and Sicily began minting coins. Although they were not necessarily the first to use coins, these cities were certainly the first to produce their own coinage in the western Mediterranean region.¹ However, they were not on their own for very long. By the end of the Archaic period, the practice of minting silver coins – and it was only silver coins being produced at this time – was taken up by other cities in southern Italy and Sicily as well as France and Spain. Almost as soon as these cities started minting coins, individuals started hoarding them. The oldest surviving hoards turn up a few decades after the first coins were struck and occur with increasing frequency towards the end of the Archaic period. In fact, while there are perhaps less than 10 from the sixth century BC, the number of hoards from the first half of the fifth century BC is closer to 50.²

Considering the paucity of evidence from the Archaic period, coin hoards are an important source of information about the early use of coinage in the region. One way of tracking the use of coinage is by looking at the various find contexts or the contents of hoards. For example, circulation patterns can be deduced by the appearance of hoards or finds in urban or rural contexts.³ Elsewhere, hoards left behind as votive offerings at sanctuaries or cemeteries show a very different kind of use.⁴ What is found in these hoards also varies greatly. Sizes range from a small fistful to hundreds of coins.⁵

Additionally, while some hoards contain coins from one denomination or mint, others feature many different denominations and mints.⁶ Sometimes they are even found with other objects like bullion, jewellery, or statues.⁷

All of these examples show how the use of coins by individuals or social groups could vary at this time. However, the objective of this paper is to explore how coin use might be understood further by scrutinizing the metrology of hoards, including weight standards, individual weights of coins, and combined weights of coins.⁸ This approach is significant because it leads to a reconsideration of not only how coins were used at the time but also the relationship between early money and the state. It also has some limitations. In particular, information about coin hoards is not always available or it is unreliable and outdated. This means that many details have been lost or the contents are simply unknown. In fact, it would be optimistic to say that half of the hoards from this period are complete, or mostly complete, and published. In consideration of this unfortunate reality, some caution is required when dealing with the metrology of hoards.

Analysis

Rather than attempt to cover all hoards, the aim is to pick out a few and make some observations about the use of coins in the western Mediterranean based on their metrological profiles. A useful place to start is by comparing two hoards that have the same approximate burial date (c. 480/470 BC) and were found in southern Italy (Tables 1 and 2). The first hoard (southern Italy, pre-1903)⁹ is made up of 5 staters from various mints in southern Italy while the second (Muro Leccese 1996)¹⁰ contains 5 staters and 5 diobols. On the surface, the composition of these hoards is different. Not only does the first hoard contain fewer coins but also its contents have a lower face value, which is the denominational value placed on coins by the minting authority or state. Simply put, the face value of the first hoard was 5 staters and the second was 5 staters and 5 diobols.

Setting aside their face values, it is worthwhile to think about how much silver each hoard actually contained. In fact, the total amount of silver is close. The combined weight of the 5 staters from the first hoard is 40.28g while the 5 staters (35.06g) and 5 diobols (4.90g) from second amount to 39.96g. What is striking is that the first hoard contained slightly more silver despite having a lower face value. The reason for this is found in

Publication	Mint	Date (BCE)	Denomination	Weight (g)
Vlasto 1922, no. 1	Taras	510-500	Stater	8.00
Vlasto 1922, no. 2	Croton	530-500	Stater	8.09
Vlasto 1922, no. 3	Croton	500-480	Stater	8.10
Vlasto 1922, no. 4	Caulonia	525-500	Stater	8.05
Vlasto 1922, no. 5	Caulonia	525-500	Stater	8.04

Table 1: Southern Italy, pre-1903 (IGCH no. 1879).

Publication	Mint	Date (BCE)	Denomination	Weight (g)
Siciliano et al. 2016, no. 1	Caulonia	525-500	Stater	7.69
Siciliano et al. 2016, no. 2	Caulonia	525-500	Stater	6.58
Siciliano et al. 2016, no. 3	Croton	530-500	Stater	7.17
Siciliano et al. 2016, no. 4	Metapontum	540/530-510	Stater	6.69
Siciliano et al. 2016, no. 5	Metapontum	475/470-440	Diobol	0.88
Siciliano et al. 2016, no. 6	Metapontum	475/470-440	Diobol	1.12
Siciliano et al. 2016, no. 7	Metapontum	475/470-440	Diobol	0.85
Siciliano et al. 2016, no. 8	Metapontum	475/470-440	Diobol	0.78
Siciliano et al. 2016, no. 9	Metapontum	475/470-440	Diobol	1.27
Siciliano et al. 2016, no. 10	Sybaris	525-514	Stater	6.93

Table 2: Muro Leccese 1996.

the weights of the coins. Although they were all struck on the same ‘Achaean’ standard, the average weight of the staters in the first hoard is 8.06g whereas the average of the staters in the second is only 7.01g. Since the theoretical weight of an Achaean stater was 8.05g, this means that the weight of the 5 staters in the first hoard (40.28g) is almost exactly the same as the theoretical weight of 5 staters on the Achaean standard (5 x 8.05 = 40.25g) but the 5 staters from the second (35.06g) are well below it.¹¹

By adding the weight of the diobols (4.90g) to the staters in the second hoard, not only is this discrepancy reduced but also the total weight of the hoard approximates the theoretical weight of 5 Achaean staters. In this way, it seems that these hoards represent two different ways of achieving the same result – a sum of silver that is equivalent to the weight of 5 staters on the Achaean standard. On the one hand, there are 5 staters that were possibly up to 50 years old and underweight, which meant that 5 diobols were added to make up the difference. On the other hand, there are 5 staters that were also as much as 50 years old but not underweight. In fact, their average weight almost perfectly matches the theoretical weight of an Achaean stater. Moreover, the range of weights is narrow (8.00–8.10g), which suggests that they were intentionally kept because they were so close to the theoretical standard. This is crucial because it means that for both hoards the emphasis was the intrinsic value of the coins – their weight in silver – rather than the extrinsic or face value of the coins – their value according to the institution issuing them.

The same could be said for the two oldest hoards in southern Italy, both of which show very different metrological profiles. The first was unearthed near the town of Sambiasi in 1959 and is probably the only hoard buried before 510 BC in the region.¹² Sambiasi 1959/1961 consists of 56 staters and 3 stater fragments from Sybaris, 2 staters and 1 stater fragment from Corinth, as well as a ‘chunk’ of silver cut from a larger ingot.¹³ Setting aside the ingot fragment, what is striking about the weights of the coins is that they are both so low and variable (fig. 1). The average weight of the 56 Sybarite staters (7.14g) is nearly a full gram below the theoretical weight standard of an Achaean stater. The histogram in fig. 1 also shows that their weights

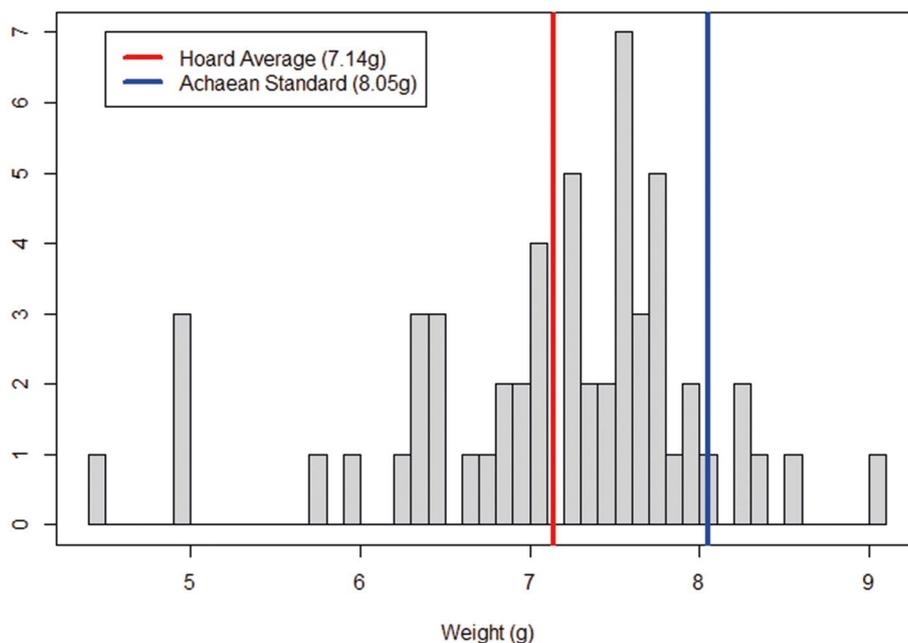


Fig. 1: Weights of Staters from Sybaris in Sambiasse 1959/1961 (IGCH no. 1872).

fluctuate greatly between 4.45g and 9.03g. Similarly, the 2 staters from Corinth weigh 7.86g and 8.12g, both of which are well below the theoretical weight standard of a Corinthian stater (8.72g).

By comparison, the second oldest hoard in southern Italy (c. 510–500 BC) shows something very different. This hoard was discovered near S. Nicola di Amendolara in 1976 and contains 34 staters as well as 8 drachms from 3 different mints.¹⁴ Like most of Sambiasse 1959/1961, all of the coins in Amendolara 1976 were struck on the Achaean standard. However, the weights of the staters found in this hoard are radically different from Sambiasse 1959/1961 (fig. 2). Not only is the average weight of the coins high – 8.10g is actually above the theoretical weight standard of an Achaean stater – but also the range of weights is narrow (7.56–8.49g) in comparison to Sambiasse 1959/1961 (4.45–9.03g). In fact, there is a very distinct cluster of coins that weigh near the Achaean standard with no significant outliers like in Sambiasse 1959/1961. Moreover, it should be emphasized that this is the *theoretical* standard for Achaean staters. In reality, Achaean staters seem to have been struck at an average weight of 7.8–8.0g, which makes a distribution of this many staters above the theoretical standard seem more deliberate than accidental.¹⁵

Two hoards, two very different metrological profiles. While the weights of the staters in Sambiasse 1959/1961 are low and erratic, those in Amendolara 1976 are high and consistent. Why are they so different? In the case of Amendolara 1976 (and southern Italy, pre-1903), it seems that the coins were kept deliberately because they were near the Achaean weight standard. As for Sambiasse 1959/1961,

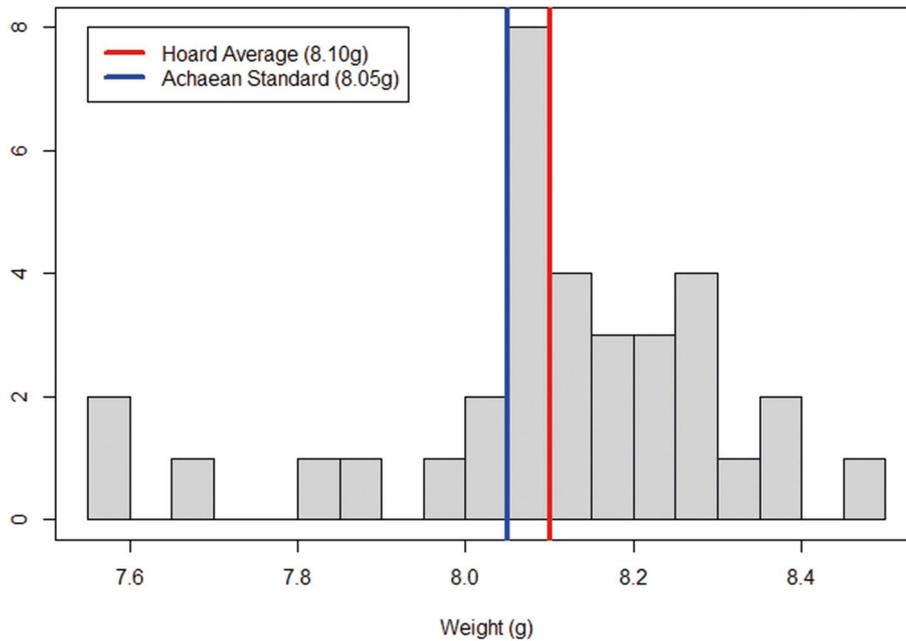


Fig. 2: Weights of Staters from Croton, Metapontum, and Sybaris in Amendolara 1976 (CH 7 no. 9).

it is possible that the hoarders were simply less scrupulous.¹⁶ However, another way of looking at Sambiasi 1959/1961 is not through the individual or average weights of the coins but by their combined weight. By adding together the weight of the 56 staters and 3 stater fragments from Sybaris (402g) and dividing them by the theoretical Achaean standard (8.05g), the sum is an almost improbably exact 50 staters. Similarly, the combined weight of the 2 staters and stater fragment from Corinth (17.41g) also divides equally by the Corinthian standard (8.72g), making 2 staters on the Corinthian standard.

Unless these results are just a coincidence, it would suggest the coins in Sambiasi 1959/1961 (and Muro Leccese 1996) were weighed en masse to achieve the desired sums. Admittedly, this interpretation is open to various problems, but similar calculations have shown that bullion hoards and vessels made out of precious metals could be reckoned like this.¹⁷ Either way, the real point of this exercise is to ask if hoarders at this time viewed their coins in terms of their intrinsic or extrinsic value. Perhaps one clue is the bronze weight found near ancient Sybaris and dated to the sixth century BC.¹⁸ This weight is marked by letters designating an unknown unit of 30. In fact, the weight of this object (80.55g) provides the answer. Dividing it by 30 gives the exact weight (2.69g) of a drachm on the Achaean standard. Since a drachm was worth a third of the stater, this weight represents both 30 drachms and 10 staters on the Achaean standard.¹⁹ An object like this certainly could have been used for weighing out both bullion and coins.²⁰

Conclusions

Having reviewed a few different hoards, it remains to be seen how all of this is significant or what it means. Firstly, in addition to the case studies presented in this paper, there are potentially more hoards from this period with similar metrological profiles – either the average weight of the coins is above their theoretical weight standard or the total weight appears to divide into a ‘whole’ sum.²¹ This suggests that there existed a more widespread pattern of this behavior at the time, especially considering that these metrological profiles do not seem to occur in hoards after the middle of the fifth century BC. However, it is also important to note that there are hoards from this period that do not fit either metrological profile. This is explained by the general nature of hoarding since not all hoards represent one sum, but can be an accumulation that was added to or taken away from over time. This means that the sum of the hoard would not necessarily add up to a whole number like 5, 10, or 50.

Finally, it is necessary to address how this material relates to early money and the state. In order to do this, it helps to consider how it suggests coins were used as money during this period, at least when it comes to hoarding. One of the frequently cited characteristics that distinguishes coins from other monetary instruments like bullion is that their value was determined by counting them.²² In contrast, bullion and *hacksilber* adhere to abstract weight units like the mina or talent, but it is usually necessary to weigh it in order to determine if it meets these abstract units. According to these definitions, the hoards presented in this paper were treated more like bullion than coins.

This is because what mattered more was the weight of the coins in silver and not their face value given by the state. The only way to know their value for sure was to weigh them. However, even in antiquity, as the well-worn passage from Aristotle shows (Arist. Pol. 1257a), it was argued that the value of coins was guaranteed by the stamp of the state “to save the trouble of weighing”. For this reason, it is said that this created a reduction in transaction costs since coins could be used more efficiently by virtue of being counted rather than weighed.²³ Yet, there is nothing intrinsic about a coin, not even the stamp, which means that it has to function in a fixed way. After all, coins are just lumps of metal that are at times treated just like lumps of metal. This much can be seen from a silver ingot found near Paestum with four coins fused to its surface²⁴ or in the cases when coins were exported as bullion.²⁵

The point is that the stamp, the ‘guarantee’ of value by the state, did not by itself dictate how coins were used at this time. This observation is fundamental because it fits with recent re-evaluations of the uses of coinage and money beyond their function as an instrument for exchange issued by the state.²⁶ What is significant about these perspectives is that they rest on the same insight. This is simply that the use of monetary instruments like coinage is not fixed, and certainly not fixed solely by the states issuing

them.²⁷ Instead, it is the context that matters, whether it is the ritualized deposition of coins in sanctuaries or the export of coinage as bullion. How coins are used depends on where they are and who is using them.

Of course, context is not always available, especially when it comes to coins and coin hoards. For this reason, part of this metrological approach to studying hoards is to reconstruct these missing contexts. It offers a way of establishing how coins were used as money in the western Mediterranean during the Archaic period, something for which there is very little direct evidence. This approach suggests that the weight of silver coins mattered more than the guarantee of value from the state, at least initially. However, this is probably not the case in later hoards. The theoretical implications of this are potentially vast. Most importantly, it has to be taken into consideration that changes in use do not necessarily depend on the intrinsic properties of coins, but to extrinsic developments in their cultural, economic, and political contexts. For this reason, it is always important to think about more than just the coins.

Notes

¹ Coins from the eastern Mediterranean probably circulated before the cities in this region minted their own coinage. For example, a Phocaic stater from the sixth century BC was found in Iberia and predates coin production in the area (Rowan 2013, 112). In this way, a find like this could represent the first use but not *production* of coins in Iberia.

² These figures are based on my ongoing PhD research project at Goethe-Universität in Frankfurt am Main. An aspect of this work is updating what is known about hoards from the Western Mediterranean in the archaic and classical periods. In this respect, although the IGCH is the *Stand der Forschung* of Greek coin hoards, it was published in 1973 and is outdated. It is necessary to supplement the IGCH with material from the “Coin Hoards” series (CH 1–10) as well as recent catalogues for places like Sicily (Puglisi 2009, 181–219) and publications of hoards in museum collections like Palermo (Macaluso 2008, 79–95).

³ Marrazzo et al. 2004.

⁴ For example, 12 incuse coins from the Archaic period were recovered in a votive deposit at Garaguso (Morel 1974) although this might not have been a hoard (Fischer-Bossert 1999, 7). Recently, two burials near Himera were found with coin hoards (Boehrer et al. 2011).

⁵ A hoard found near Lentini contained just 2 coins (IGCH no. 2060) while the Taranto hoard contained more than 600 coins and 6kg of bullion (IGCH no. 1874).

⁶ For example, two of the oldest hoards in Sicily have vastly different compositions. One contained 70 coins, all of which were staters from the same minting phase at Selinus (IGCH no. 2059; Macaluso 2008, 79–85). The other contained 5 silver bullion objects and 165 coins from mints in Sicily, Italy, and Greece (CH 9 no. 35; Arnold-Biucchi et al. 1988).

⁷ Sambiasi 1959/1961 (IGCH no. 1872), Taranto 1911 (IGCH no. 1874), Volterra 1868 (IGCH no. 1875), and Selinunte 1985 (CH 9 no. 35). Depending on the viewpoint, characterizations of bullion finds are mixed.

Kroll argues that bullion was “slow to disappear as a transactional medium in the western Greek world” (Kroll 2008, 33; Sole 2010) while others claim that uncoined silver appears “rarely in the west” (Arnold-Biucchi et al. 1988, 26).

⁸ The incidence of weight standards has already been used to study hoards from western Asia Minor (Meadows 2011).

⁹ The exact location and date of its discovery are unknown, but this hoard eventually entered the collection of M. P. Vlasto. Vlasto reports that it was complete and lists the weights of the coins along with descriptions (Vlasto 1922, 215–216.; IGCH no. 1879).

¹⁰ This hoard was found inside an earthenware jar in 1996, but its contents were not published until 2016: Siciliano et al. 2016, 23–36. The catalogue shows that the staters were minted before 500 BC while the diobols were minted later (475/470–440 BC). It should be noted that the weight of at least one fraction (1.27g = Siciliano et al. 2016, no. 9) is closer to the theoretical weight of a triobol (1.34g) than a diobol (0.89g).

¹¹ Both the designation ‘Achaean’ and the figure of 8.05g are modern conventions that should be regarded as approximations. For example, the same author has claimed that the Achaean standard was 8.04g (Parise 1996), 8.05g (Parise 2009), and 8.06g (Parise 1990).

¹² The hoard was actually found near Acquafredda, which is northwest of Sambiasi (de Sensi Sestito – Mancuso 2001, 25–31), and is called “Sambiasi 1959/1961” because it entered the Museo Archeologico Nazionale di Reggio Calabria in two lots between 1959 and 1961. News of its discovery was published in 1961, but only the first lot was reported (van Buren 1961, 381–382). For this reason, IGCH no. 1872 only lists the contents of the first lot (45 coins and a ‘silver bar’ weighing 57.70g). This was almost immediately noticed (Pozzi Paolini 1974, 41–42), but the figures given in the IGCH are still cited (Kroll 2008, 29).

¹³ Spagnoli – Taliercio Mensitieri 2004, 11–47.

¹⁴ 1 stater from Croton, 13 staters and 5 drachms from Metapontum, 28 staters and 3 drachms from Sybaris (CH 7 no. 9; Guzzo 1976–1977; Polosa 2009, 13–24).

¹⁵ According to the metrological study by Parise, Achaean staters were struck at an average weight of 7.85g (Sybaris), 7.9g (Croton), 8.0g (Metapontum), and 7.8–8.0g (Caulonia) in the archaic period (Parise 1973). It has since been confirmed that archaic staters from Sybaris were in fact struck at an average weight of 7.8–7.9g (Spagnoli 2013, 199–202).

¹⁶ The catalogue of this hoard observes that 6 out of 56 staters appear to be broken and that the condition of the coins is not good, but it is not known if this is due to use or exposure while buried in the ground (Spagnoli – Taliercio Mensitieri 2004, 24–25). For this reason, it has to be taken into account that the uneven weight distribution could be due to corrosion or oxidization.

¹⁷ Tirabassi 1998 (Bullion Hoards); Vickers – Gill 1994, 24–51 (Vessels).

¹⁸ Zancani Montuoro 1965–1967.

¹⁹ That it represents decimal units of 10 is fitting since the weight of the Sybarite staters in Sambiasi 1959/1961 equals 50 staters and the weights of the first two hoards equate to 5 staters each.

²⁰ Other weights from this period have emerged in southern Italy, some of which appear to correlate with monetary standards (Parise 2009; Arslan 2005, 142 no. 423).

²¹ For example, the average weight of 11 Achaean staters in a hoard found near Valesio in 1957 (CH 2 no. 9; CH 4 no. 8; Travaglini 1973) is 8.16g, which is also above the theoretical standard of 8.05g. Elsewhere, a hoard of 3 staters and 19 drachms found in Paestum in 1939 (IGCH no. 1876; Pozzi Paolini 1962–1964, 77–82) has a combined weight of 77.33g, which divides almost exactly into 10 staters on the theoretical weight standard used locally (7.76g).

²² For example, Le Rider concludes that “les monnaies, en effet, n’étaient pas pesées, mais comptées” (Le Rider 1989, 163; Picard 1984). Others have argued that coinage did not necessarily make weighing obsolete (Kim 2001, 18).

²³ It has been suggested that this was especially the case for small transactions where weighing metal was impractical (Kim – Kroll 2008, 67). However, it has been pointed out that any reduction in the transaction costs of weighing would have been mitigated by other problems like counterfeiting (van Alfen 2012, 14) or shortages of small denominations (Melitz 2017).

²⁴ Kroll 2008, 27 fig. 1.3.

²⁵ Kroll 2011; Rowan 2013; Tselekas 2015.

²⁶ Kurke 1999; Schaps 2004; Seaford 2004.

²⁷ Plato recognized the limitations of state authority on the valuation of coinage, an insight which led him to distinguish between ‘regional’ and ‘international’ currencies (Plat. leg. 746a–d; Meadows 2009).

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