

## The Case Against a Sybarite Hemiobol

This numismatic note explores the fractional double relief denominations of Sybaris. Sybaris was founded in the late eighth century BC in Lucania in Southern Italy by settlers from Achaia. Over the subsequent centuries it became one of the pre-eminent poleis in the region, described by Pseudo-Scymnus as a great city celebrated far and wide, weighty, wealthy, beautiful<sup>1</sup>. It unexpectedly fell to the neighbouring polis of Kroton in the last decade of the century and was reportedly destroyed. From the middle of the sixth century BC it minted coinage on the Achaean standard of a 7.9g tridrachm stater. N. K. Rutter also lists drachms, tetrobols, triobols and obols as the fractional coinage produced; however, a further denomination of a hemiobol has also been listed in auction catalogues. This paper explores the evidence for hemiobol production and posits that no such denomination was issued at sixth century Sybaris.



Figure 1 - Sybaris obol (0.21g)

Figure 1 illustrates a Sybaris I period (pre-510 BC) coin struck on the Achaean standard of c7.90g to the tri-drachm nomos. It matches the referenced type for an obol (HN Italy 1739)<sup>2</sup>

*Lucania, Sybaris. AR Obol, circa 530-510 BC. Obv: Bull standing to left, head to right. Rev: Ethnic with large san and upsilon<sup>3</sup>, 4 pellets surrounding.*

However, at 0.21g, it is exceedingly light to be an obol and without sufficient wear or damage to explain the discrepancy from the expected standard. When a coin of this type is this light, it is common to see auction houses describe it as a hemiobol - although some cautiously follow this with a question mark. No such denomination is listed in Rutter or other major reference works such as ANS SNG Lucania.<sup>4</sup> This attribution assumes the intent to produce this smaller fractional denomination at Sybaris. Is there any evidence that this is the case? There are three lines of investigation relevant to this question: weight distribution, typological differentiation, and comparative practice.

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<sup>1</sup> Ps.-Scymn. 336, in C. Müller, *Geographi Graeci Minores*, vol. I (Paris: Firmin Didot, 1855), pp. 196–237.

<sup>2</sup> Confusingly, Sear does not list this type as an obol but rather a twelfth stater (trihemiobol) of 0.65g. It may be that there are examples of that weight, but the denomination does not appear in the other major catalogues and the argument applied here against a separate lighter denomination would also apply to this heavier one.

<sup>3</sup> The San (M) is an epichoric version of Sigma; Upsilon (Y, V) was not yet standardised and could appear with or without the descending line.

<sup>4</sup> See Eid Mar Auctions Auction 12, Lot 7; Astarte, Web Auction 11, Lot 51; Via GmbH, E-Live Auction 16, Lot 31; Solidus Numismatik, Auction 98, Lot 1049; Classical Numismatic Group, Electronic Auction 563, Lot 28

The Achaian standard of 7.90g tridrachm would indicate an expected obol weight of  $7.90/(3*6) = 0.44\text{g}$ . It is important to understand how this coin fits within the range that would be expected of an obol of this type. In a comprehensive review of the coins of Sybaris<sup>5</sup>, Emanuella Spagnoli examines a sample set of this type, consisting of 64 coins, of which 58 have attested weights, with a mean of 0.41g, a minimum of 0.19g (43% of standard) and a maximum of 0.64g (145% of standard). However, if we look at the distribution of the weights there is no obvious clustering around two separate standard weights.

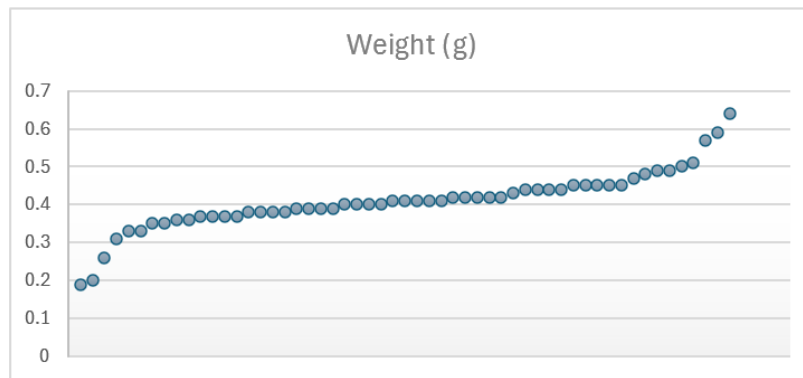


Figure 2 - Weight across all pellet arrangements

Instead, there is a distribution which clusters around the expected 0.44g with outliers both above and below in roughly equal numbers. There are five coins that fall below the bottom tenth percentile of 0.323g and two coins above the upper tenth percentile boundary of 0.49g, based on the Spagnoli dataset. This is a strong indicator that there is no intention to differentiate the coins by weight and so to form two denominations.

If there was to be a smaller fractional denomination there would also need to be a way of differentiating it without recourse to weighing, which would have removed the purpose of creating the coin. If not weight then, is there another differentiator for this type which would indicate a hemiobol? One of the characteristics of this type are the reverse pellets, in this case four, which can also be seen on the fractional coinage of other poleis in Southern Italy.

Taras between 450 and 380 minted obols on the Achaian standard having five pellets on the reverse. However, the motive does not appear to be to differentiate from other denominations, but rather to provide a common indicator of denomination between multiple obol types produced (Hoover lists five separate types in this period)<sup>6</sup>. The tritetartemoria and hemiobols of that period in Taras have different types that would have been sufficient to differentiate them. So pellets in Taras were used as a denomination indication rather than a differentiator. If Taras, which had extensive issues of fractions, did not use pellets to differentiate, but rather used different types, it seems unlikely that Sybaris would choose such a method of differentiation for two fractions.

To confirm this we can look at the arrangement as described by Spagnoli. The obverse of this type of Sybaris obol<sup>7</sup> is characterised as bull standing left rearward, beaded border, VM in exergue. The reverse is V within M surrounded with four pellets, which are arranged in one of five ways, with the most common being arrangement 1.

<sup>5</sup> La prima moneta in Magna Graecia: il caso di Sibari, Emanuele Spagnoli, Diogene Edizioni 2013

<sup>6</sup> Athena/Club and bow; Athena/Karanthos; Herakles/Karanthos; Satyr/Dovecote; Taras/Dovecote

<sup>7</sup> There are 2 other types attributed to the obol (same obverse, reverse either incuse bull or outline rams head)

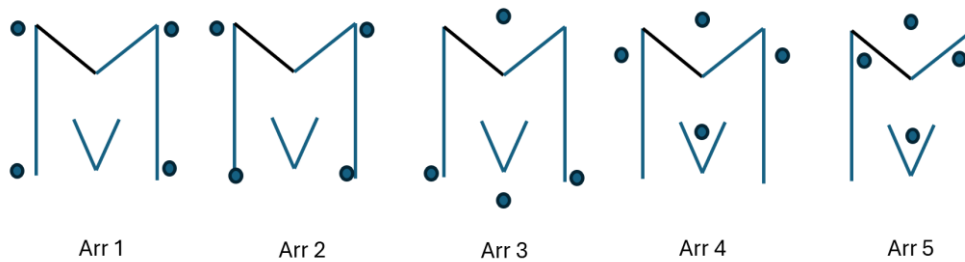


Figure 3 - Pellet arrangements on Sybaris obols

If there was an intent that the arrangement of these pellets indicated a hemiobol rather than an obol then the lighter coins should fall into one of these arrangements, which they do not. In the sample set used the five lightest coins display arrangements 1, 3 and 4.

The evidence therefore points to all coins of this type being obols. So how can we explain the large variation in weight, and is this typical of the fractional coinage of the Southern Italian poleis in this period? The only real comparator that can be used is Metapontion as other poleis did not start to produce obols until the 5<sup>th</sup> century BC.

Metapontion issued obols on the Achaian standard from 540-510 using the barleycorn grain ear on the obverse paired with the incuse on the reverse (Noe-Johnston 362)<sup>8</sup>. For a random sample set of the same size as that used for Sybaris<sup>9</sup>, Metapontum shows a co-efficient of variance<sup>10</sup> of 13.5% which is comparable to Sybaris at 18.9%. This indicates that the variation seen within the Sybaris obols is wider than that at Metapontion, perhaps indicating the same flan preparation technique but better-quality control, but there is no recourse to a separate denomination to explain the variation as the clustering is tighter.

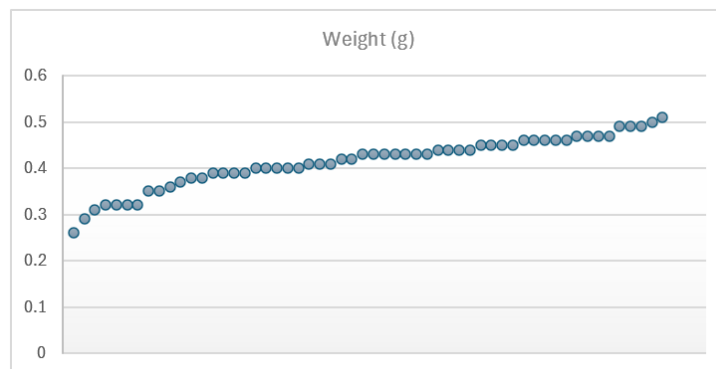


Figure 4 - Metapontion obol (barley/incuse)

The normal distribution curves of both data sets also indicate the comparative tightness of the Metapontion obol weights.

<sup>8</sup> The Coinage of Metapontum Parts 1 & 2, by Sydney P Noe with Additions and Corrections by Ann Johnston, ANS 1994

<sup>9</sup> Taken from examples sold by Gorny & Mosch, Jean Elsen & ses Fils, Bertolami Fine Arts, Classical Numismatic Group and Fritz Rudolf Künker

<sup>10</sup> Standard deviation over mean weight

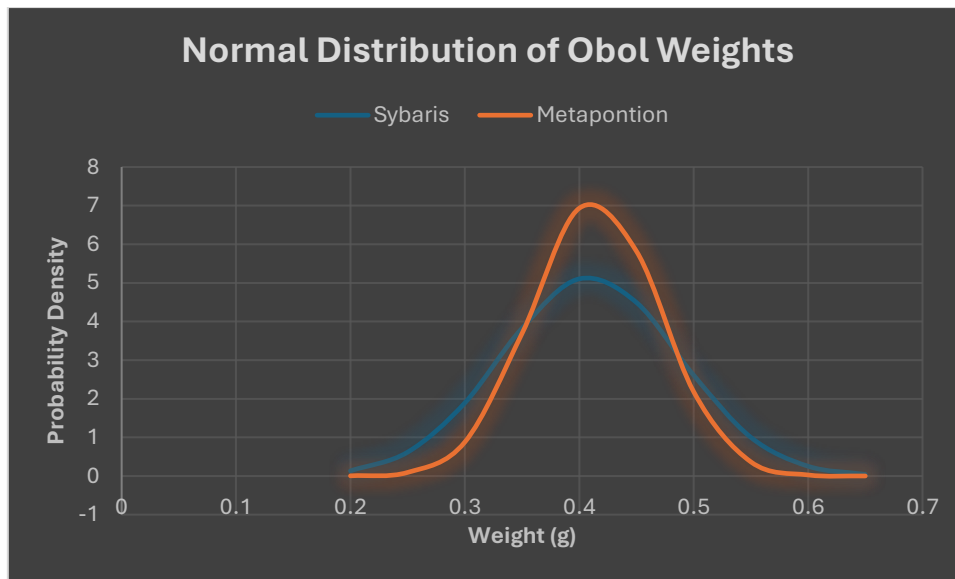


Figure 5 – Comparative Normal Distribution Curve

The conclusion is therefore that there was a relatively loose control of the weights of these smaller fractions within the Achaian poleis which indicates a local circulation where the type and authority were recognised and so could be traded with these weight divergences. There is no need to introduce a smaller fraction to account for the weight variation. Some variation at the lower end of the distribution could also be explained by normal wear leading to silver loss; however, a more compelling argument relates to flan production. The critical question here is how flan production would lead to this variation, including the underweight fractions noted.

Selwood describes the preparation of the flans of the staters as “produced by free-pouring molten silver into open moulds.”<sup>11</sup> Manually pouring to obol weights would have been extremely difficult, although Selwood achieved a cvar of 10% in a limited sample set after practice. One possible alternative method is using silver dust/pellets and then melting them as noted by Wickens<sup>12</sup>. Selwood considers this approach, however he deems it too unproductive even for staters<sup>13</sup>, and so fractions would have been even more so. The question of economics of flan production is important as the seigniorage in these fractional coins has been suggested as 7% in Magna Graecia by Le Rider<sup>14</sup> <sup>15</sup>. It would have been important to maintain this margin and so a mechanism to do so would possibly have been to establish it at a level which could be accurately weighed and then create the fractional coinage as a set number of coins to be produced from that weight of silver.

In this hypothesis the manufacturer would begin with an accurately weighed bulk of silver pellets/dust from which a specific number of coins need to be produced. For example, to produce 100 obols the manufacture would start with 409g of silver (440g less the 7% seigniorage), which was aligned to the standard and could be accurately weighed. They would

<sup>11</sup> Some Experiments in Greek Minting Technique, D. G. Selwood, *The Numismatic Chronicle and Journal of the Royal Numismatic Society*, 1963 Vol 3, pp. 217-231

<sup>12</sup> Wickens, Jere M., 'The Production of Ancient Coins', in *Bearers of Meaning: The Ottilia Buerger Collection of Ancient and Byzantine Coins at Lawrence University* (Lawrence University, 1996). Note that this is an exhibition statement rather than a peer reviewed investigation.

<sup>13</sup> Selwood, op. cit.

<sup>14</sup> Le Rider, *Kraay-Mørkholm Essays*, 1989, pp. 159-172

<sup>15</sup> Interestingly the calculated mean in the Spagnoli standard for the Sybaris obols is 6.8%

then separate this silver into 100 different small moulds.<sup>16</sup> The alternative that the flans were individually weighed and corrected would have been impractical given the volume of production and the relatively low value of the denomination. There is evidence of annealing of staters across Achaian mints but this additional step would not be economic for obols.<sup>17</sup>

The variation in weight can therefore be accounted for by the challenges in separating the bulk silver by eye, using either pouring from a crucible or melting dust/pellets. The seigniorage could be guaranteed due to the weight of the silver at the start of the process and so removed the need to weigh each flan; however, a consequence of this is variation which leads to compensation towards the end of the distribution as the manufacturer was nearing the end of the available silver. A consequence of this variation is that the obols would probably have been a fiduciary coinage as the weight of silver was not always consistent with the theoretical value. The implication of this is that they must have been traded locally, as outside of the region controlled by Sybaris the trust implicit in fiduciary coinage would be unlikely to have existed. This assumption is not contradicted by the hoard evidence. IGCH<sup>18</sup> lists 32 hoards containing Sybarite coinage, but only 4 of these contain fractions and all were deposited in Southern Italy.

Taking into account the lack of any differentiator by type and the absence of any evidence of clustering around the  $(0.44\text{g}/2) = 0.22\text{g}$  that would be appropriate for the Achaian standard it is more likely that the lighter obols described by some auction houses as hemi-obols are simply underweight obols. This variation in weight was a natural consequence of the manufacturing technique of fractional coinage.

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<sup>16</sup> There is no evidence in examples of casting sprues indicating that the moulds were linked.

<sup>17</sup> *Journal of Archaeological Science: Reports* 20 (2018) 748–755, A multi-technique investigation of the incuse coinage of Magna Graecia

<sup>18</sup> *An Inventory of Greek Coin Hoards*, Margaret Thompson, Otto Morkholm & Colin Kraay. AMS 1973