

The Penetration of the *Denarius* and *Quinarius* Standards into Asia Minor in the 1st Century BC

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1. What standards?

1.1. Roman practice

To search for evidence that the weight standard of the *denarius* and *quinarius* appeared in Asia Minor in the 1st century BC, it is necessary first to determine what this standard was. The question is not quite as straightforward as it might seem. In their recent study of the composition of Roman coinage in the early imperial period, Butcher and Ponting examine the question of the weight of the late Republican *denarius*. They note:

‘Crawford proposed an average weight of 3.86g as the standard of the Republican *denarius*, but noted variation from issue to issue, so that one type of M. Volteius (75 BC) had a peak at 3.9g, and another at 3.8g [RRC 594-5]. The similarity of those results to the ones given in Table 8.1 confirms the fact that there was no decline in the weight standard over that period, even if there was some variation. For the sake of consistency, we will take a weight of 3.9g as the average weight of the Republican *denarius*, while recognizing that a slightly lower weight of 3.88g is also possible.’¹

The table to which they refer summarizes the weights of nine issues of the 40s BC (RRC 443/1, 463/1a, 465/1, 2, 3a, 4, 5 and 468/1, 2) contained in the Arbanats hoard of 959 *denarii*.² For the first of these issues (RRC 443/1) they also produce a weight table on the basis of the 133 specimens included in the hoard. The Arbanats hoard is worth closer examination, particularly since it belongs to the period that we will be considering in Asia Minor. Buried perhaps in 40 BC, in the context of Agrippa’s Gallic campaign of that year, it contains in general well-preserved coins stretching from c.138 BC (RRC 231/1) to c.40 BC (RRC 529/2c).³

¹ Butcher & Ponting (2015) 158-159.

² RRCH 430. <http://numismatics.org/chrr/id/ARB>. Lotringer (2002).

³ For discussion of the chronology, circumstances of deposit and date of the latest issue, for which she accepts the revised date proposed by Alföldi, see Lotringer (2002) 11-12.

In **Fig. 1** I reproduce the weights of *RRC 443/1* (133 specimens out of a total of 960 in the hoard), which is the best represented issue in the hoard, and struck probably 9 years before the hoard's deposit.

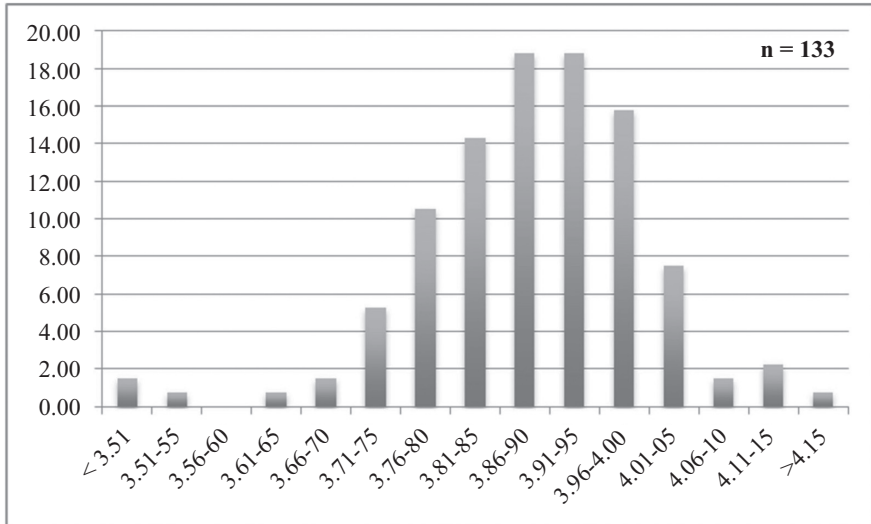


Fig. 1 – Weight distribution of *RRC 443/1* in the Arbanats hoard (% of total hoard).

If we assume (with Butcher and Ponting) that 3.90g was the target weight of this issue, then we can see that 46.6% of the specimens contained in Arbanats are overweight. In fact, if we consider the evidence of the hoard as a whole, we find that 39.3% of the coins it contains exceed this target weight (**Fig. 2-3**).

This sort of normal distribution, with a mode (3.81-3.85g), median (3.81-3.85g) and mean (3.82g) very close to one another, is standard for Roman *denarii*, and a clear indication that the Roman mint was producing its coins *al marco*, with little attempt to adjust individual flan weight, except in order to adjust the weight of batches of coin.⁴ Given that the coins in the hoard will have experienced some wear and corrosion, these figures for the hoard as a whole probably slightly underestimate the standard aimed at by the Roman mint, and the figures for the fresh issue *RRC 443/1* perhaps provide the best guide for the 40s BC (mean = 3.89; median = 3.86-3.90; mode = 3.86-3.95), suggesting that 3.90g is about correct. However, when it comes to assessing whether a particular non-Roman coinage is aiming to pass as a *denarius* or one of its fractions, we need to bear in mind two important caveats. The first is that a non-Roman mint probably did not have technical ac-

⁴ See on this process Stannard (1993) 48-49.

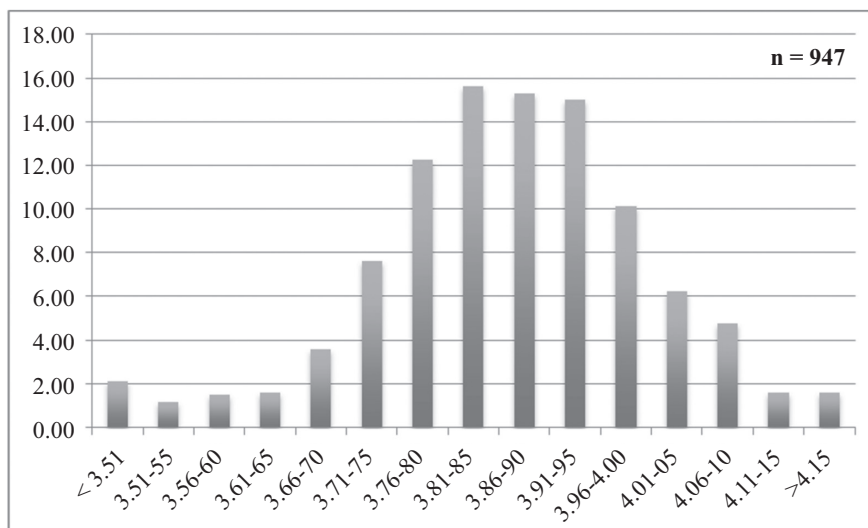


Fig. 2 – Weight distribution of all denarii in the Arbanats hoard (%).

	138-100	90s	80s	70s	60s	50s	40s	Whole
< 3.51	0.00	0.00	2.86	0.00	0.00	0.00	4.36	2.11
3.51-55	0.71	0.00	0.95	0.00	0.00	2.30	1.79	1.16
3.56-60	0.00	3.57	1.90	1.22	1.16	1.15	1.79	1.48
3.61-65	2.13	1.79	2.86	2.44	0.00	1.15	1.28	1.58
3.66-70	2.13	1.79	6.67	3.66	2.33	3.45	3.85	3.59
3.71-75	10.64	12.50	4.76	12.20	6.98	6.90	5.90	7.60
3.76-80	14.89	12.50	17.14	19.51	6.98	8.05	10.51	12.25
3.81-85	29.08	17.86	22.86	14.63	15.12	6.90	10.77	15.63
3.86-90	25.53	19.64	14.29	9.76	13.95	14.94	12.82	15.31
3.91-95	12.77	12.50	9.52	18.29	23.26	16.09	14.87	14.99
3.96-4.00	2.13	7.14	4.76	6.10	13.95	11.49	14.62	10.14
4.01-05	0.00	3.57	4.76	8.54	6.98	9.20	7.95	6.23
4.06-10	0.00	3.57	4.76	2.44	5.81	9.20	5.90	4.75
4.11-15	0.00	1.79	0.95	0.00	2.33	4.60	1.79	1.58
> 4.15	0.00	1.79	0.95	1.22	1.16	4.60	1.79	1.58

Fig. 3 – Weight distribution of all denarii in the Arbanats hoard by periods of issue (%).

cess to the precise Roman metrological system. And second, even if it did, it was perhaps not obliged exactly to match it. For what emerges from looking at the Arbanats data is that there was a range of acceptability for Roman *denarii*. We can see this more clearly by looking at the overall representation of weights exhibited in the hoard. **Fig. 4** plots again the distribution of the weights of the coins it contained as percentages of the total. We can draw a box around the central portion of the chart, such that 92% of all coins are included.

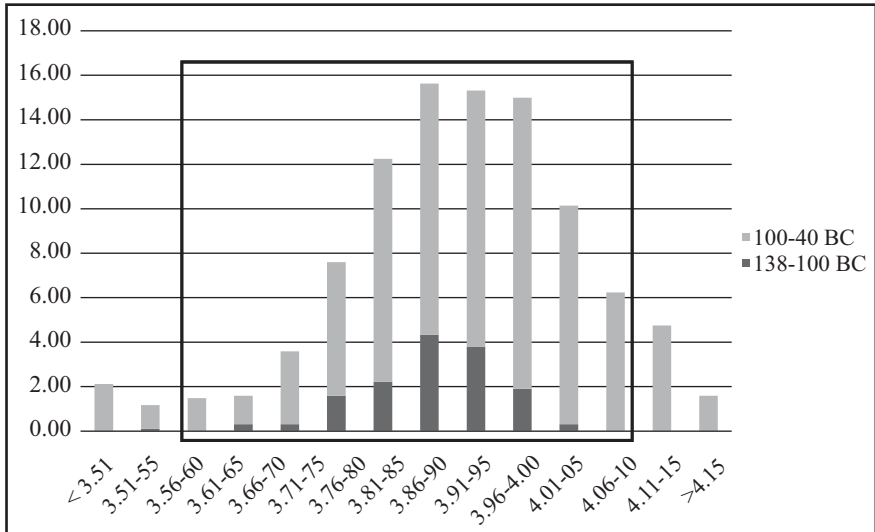


Fig. 4 – Weight distribution of all denarii in the Arbanats hoard (%) with 2nd-century issues distinguished.

This box encompasses the ranges from 3.61 to 4.10 grams. Within this range, it would seem, a *denarius* could circulate without too much trouble. That is to say, whatever the target weight of the coin at the mint may have been, there was a certain tolerance within the market place or among users and hoarders that created an acceptable range down to approximately 0.3 grams (about 8%) below target weight (assuming 3.9g for this). Interestingly, and perhaps significantly, we can see from this chart also that the overwhelming majority (99.3%) of the older, 2nd century coins in the hoard also fall within this range. If we imagine that older coins had been subject to constant testing of their weight over their lifetime, and their numbers whittled down as they fell below the level of acceptability, then this sample of 2nd century coins in the Arbanats hoard provides us with the range of acceptability. On this basis we can observe that for such older coins to be included

in the hoard, they seem to have had to fall into the weight range occupied by almost 92% of the hoard's contents.

The significance of this range of acceptability, for our purposes, lies not at the mint of Rome, where, presumably, statute governed the target weight of the *denarius*, but rather out in the provinces where non-Roman entities may have been responding to the *denarius* as they saw it in circulation. The mint master of, say, Aphrodisias in Caria, did not have to answer to the central Roman authorities for the weight of his coin. But he may have had to respond to the opinions of those who handled the *denarius* within a 'market environment'. His target weight will not have been the absolute theoretical target weight of the Roman *denarius*, but rather a somewhat broader, and up to an 8% lower, weight suggested by actual coins in circulation.

Turning to the *quinarius*, which will also be a focus of this paper, there is no such obviously useful hoard with which to work, so we must take the more traditional approach of examining published collections. In the charts that follow I summarize the weight distribution of the coins recorded in King's 2007 volume on the *quinarius*, to which I have added the weights (which she does not include) of coins preserved in the collections in Paris and New York. The resulting corpus comprises 1199 coins. These I have divided into two charts, one covering the period 101-81 BC, the other covering the period 48-31 BC (**Fig. 5 and 6**).

For the former period, the mean, median and mode are 1.83, 1.81-1.85 and 1.76-1.80 (77% of specimens fall in the range 1.61-2.05g). For the latter they are 1.74, 1.71-1.75 and 1.76-1.80 (80% of specimens fall in the range 1.51-1.95g). That is to say there is small reduction in weight, by about 0.10g over the course of the century. That said, there is clearly some variation between issues within

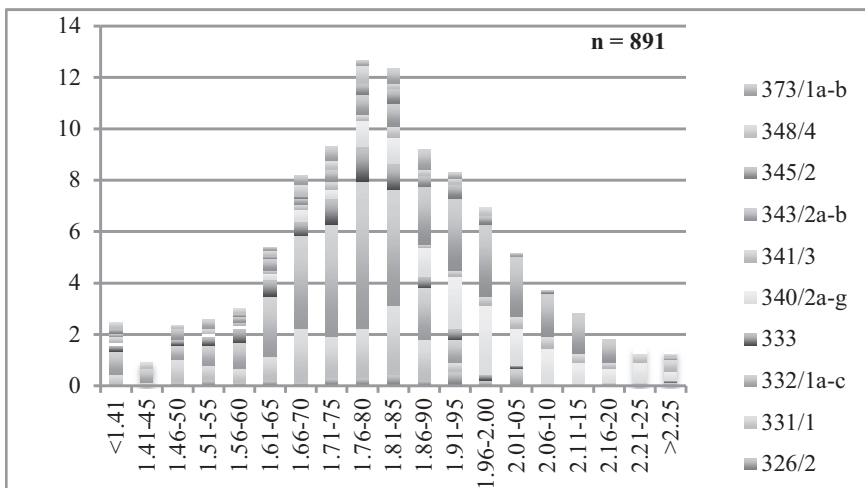


Fig. 5 – Weight distribution of quinarii, 101-81 BC (%), by RRC type.

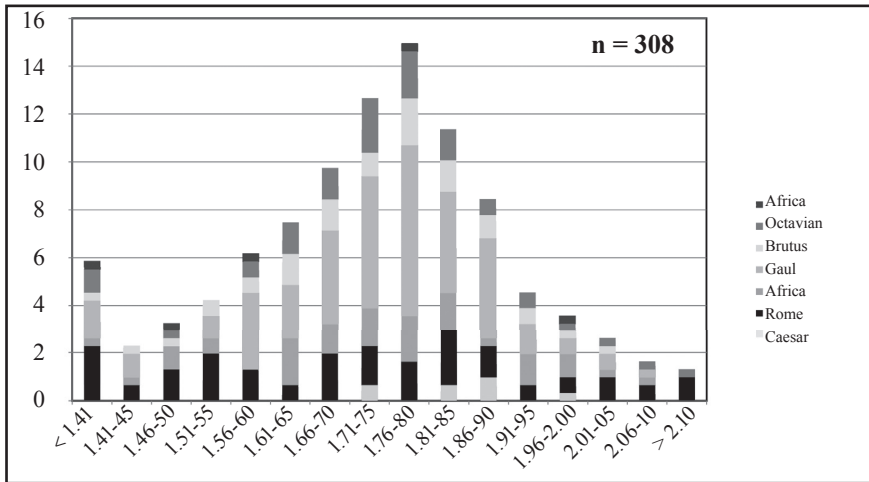


Fig. 6 – Weight distribution of *quinarii*, 48-31 BC (%), by production place or administration.

the periods.⁵ Given that we saw a difference of approximately 0.05g between the weights of the fresh issue (RRC 443/1) and the population as a whole in the Arbanats hoard, we might suggest a similar difference between these populations of *quinarii* and what we might expect of coins in fresh condition. This would produce target weights of c.1.9g for the early 1st century BC, and c.1.8g for the 40s and 30s, with a range of acceptability extending down to 1.61g in the earlier period and 1.51g in the later).⁶

For the sake of completeness, we may also produce a chart for the smallest Roman silver denomination, the *sestertius* (Chart 6).⁷ This has a mean of 0.82g, and a median and mode in the range 0.81-0.85g.

⁵ For example, RRC 332/1 T. Clouli, represented by 254 specimens finds its 80th percentile in the range 1.81-1.85g; RRC 343/2 M. Cato, represented by 162 specimens, finds its 80th percentile in the range 2.06-2.10g.

⁶ This assumes that the range of acceptability was as broad for *quinarii* as *denarii* (c. 0.3g), i.e. twice as high for the former as percentage of weight. Given that the former are lower-value coins and thus potentially circulated with greater velocity, it is not implausible that this was indeed the case for their weights. The greater range of acceptability in percentage terms for *quinarii* may also be probable given the lower risk involved in taking a light-weight lower denomination than a higher one.

⁷ Figures are taken from those coins listed in Coinage of the Roman Republic Online (<http://numismatics.org/crro/>), as of 15 April 2017, to which I have added the following coins drawn from commerce: NAC 63 (2012), 368; NAC 63 (2012), 384; NAC 63 (2012), 386; NAC 63 (2012), 387; NAC 72 (2013), 489; NAC 72 (2013), 541; NAC 72 (2013), 1243; Roma E-Sale 8 (2014), 591; ACR 15 (2015), 474; ACR 15 (2015), 475; ACR 15 (2015), 487; NAC 63 (2012), 372; NAC 63 (2012), 373; NAC 63 (2012), 385; NAC 63 (2012),

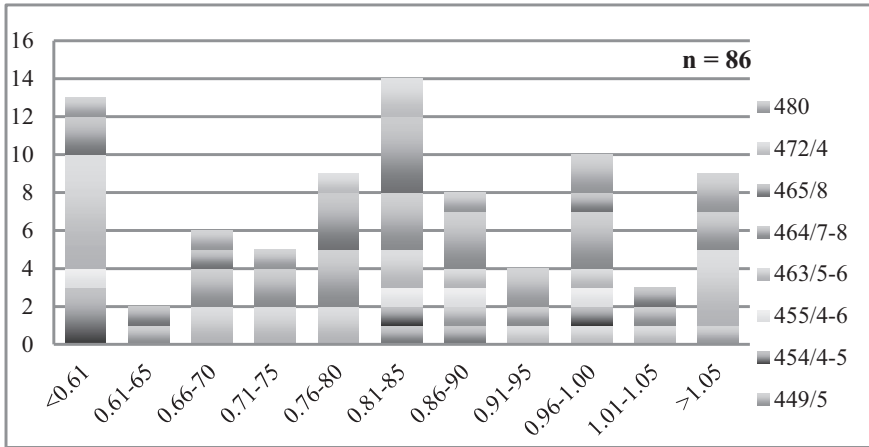


Fig. 7 – Weight distribution of sestertii, 91-44 BC (%).

1.2. Greek practice

For coinage in the Greek world, the picture is different. As was long ago pointed out by George Hill, the mean or average of a sample is not as reliable a means of determining weight standard as it may be for Roman coinage.⁸ The answer, Hill proposed, was the weight table and, indeed, weight tables of Greek coinages present a noticeable difference compared to those we have considered for *denarii* and *quinarii*. Whereas the Roman weight tables present the rolling, symmetrical hill shape of the Gaussian curve, Greek weight tables, when we construct them from large samples and fresh specimens have a different shape. Some examples will make this clear. The first is produced by the data assembled by Ashton for the Group A-D plinthophori of Rhodes (Fig. 8).⁹ Two populations are presented. One of these is constituted by the contents of the Kargı 1975 hoard (CH 8.415), singled out by Ashton ‘because its coins, all from Jenkins’ earliest Group A, are in particularly good condition’ (p. 59). The other is the remainder of the corpus

396; NAC 63 (2012), 408; NAC 63 (2012), 463; NAC 63 (2012), 464; Gemini 10 (2013), 227; NAC 72 (2013), 483; NAC 72 (2013), 1242; NAC 72 (2013), 200; NAC 92 (2016), 1892; NAC 92 (2016), 1894; CNG Electronic 318 (2014), 575; CNG Electronic 363 (2015) 301; CNG Electronic 364 (2105), 181; CNG Electronic 374 (2016), 487; ACR 3 (2011), 253; NAC 40 (2007), 562; CNG MB 81 (2009), 944; CNG MB 61 (2002), 1532; CNG MB 61 (2002), 1541; CNG Electronic 129 (2005), 335; CNG MB 7 (2006), 1336; NAC 40 (2007), 582; CNG MB 75 (2007), 918; NAC 51(2009), 759; Triton 14 (2011), 592.

⁸ Hill (1924).

⁹ Ashton (1994) 58-59.

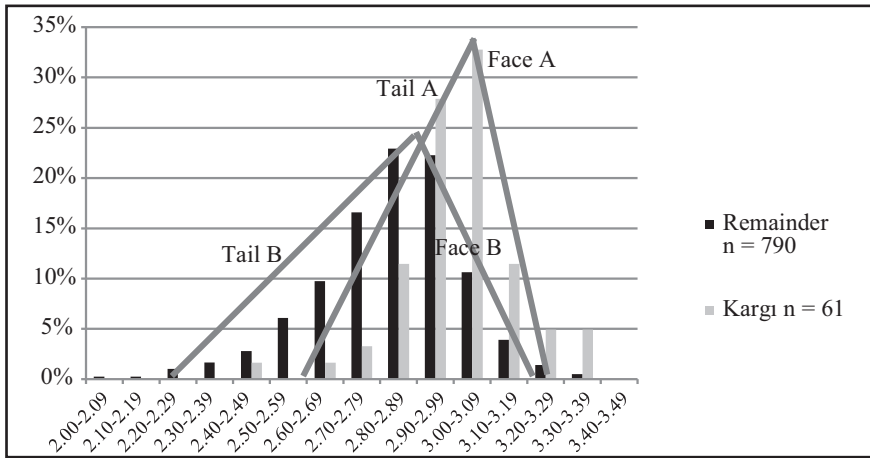


Fig. 8 – Weight distribution of Rhodian plinthophori (Kargı hoard and all others), based on Ashton (1994) (%).

assembled by Ashton from ‘the Ashmolean, *SNG Copenhagen*, *SNG von Aulock*, the Keckman collection, several smaller published and unpublished collections . . . , together with a large number of coins from sale catalogues.’ (p. 59 n. 6). Neither population yields the Gaussian curve we saw for the *denarius*. The clearest pattern is produced by the Kargı hoard, which has the appearance not so much of a rolling hill as of a cliff-face. The front of this (labelled Face A) is steep and consists at its apex of the high point on the chart (the mode). The less homogeneous second population consisting presumably of a less consistently fresh sample of coins, reveals a similar pattern but in more muted form. There is still a cliff face (labelled Face B), but it is less steep. The tails of the curves are similarly different. That for the Kargı hoard (Tail A) is steep, but shallower than Face A. That for the remainder of the population (Tail B) is shallower than both Faces and Tail A. Similar cliff-face distributions can be seen below in Charts 16, 17, 28 and 29 for the weights of the Attic-weight coinages of Athena Ilias and Tenedos, and the Attalid and post-Attalid cistophori, for which reasonable samples are available. This difference in aspect between Roman and Greek coin populations is surely to be explained by different production methods. The Greek mints produced their blanks *al pezzo*, with close control of the weight of individual coins. In such circumstances, the weights of coins cluster firmly around the target weight for the coinage, and there are few overweight coins (since their production represents a costly mistake). There are tails of underweight coins. These tails are not long when we have a fresh sample, but grow longer when we have a sample that has been subject to differential rates of wear and corrosion.

1.3 How to compare them?

The question we must face is how to read such a weight table, so that we may compare coinages produced using two different methods. If we take the mean, median and mode for the Rhodian coinages we get the following results (Fig. 9).¹⁰

	Mean	Median	Mode	Highest range w. 10%	80th %ile
Kargı hoard	3.01	3.00-3.09	3.00-3.09	3.10-3.19	3.10-3.19
Remainder	2.83	2.80-2.89	2.80-2.89	3.00-3.09	2.90-2.99

Fig. 9 – Metrological characteristics of Rhodian plinthophori in Chart 7.

What we are really interested in determining is where does the cliff-face end, and where do the accidentally overweight coins begin? If we simply estimate this by eye from the weight table, we would probably suggest that the Kargı hoard sample implies a target weight of 3.10-3.19g (11% of the sample fall within that range). For the remainder of the population we would probably opt for 3.00-3.09g (again with 11% of the sample).¹¹ These peaks both stand out within their respective populations as the ‘last high points’ (ranges containing more than 10% of the sample) or the ‘bottom of the cliff-face’. The use of the ‘last high points’ might seem an attractive possibility for comparison of different charts, since it produces a more objective criterion than judging the locations of cliff-faces, but it is not of great help when dealing with small samples, wherein 10% may not constitute more than one or two coins. A more attractive alternative, which in part counters this problem of sample size, and the one that will be used in this paper is to identify the range in which the 80th percentile of the population falls. In the case of the fresh sample of the Kargı hoard material this yields an identical result to ‘last highest point method’. It should be stressed that this decision is taken not because it necessarily produces the ‘correct result’ in identifying the target weight of a coinage, although, as will become clear, it often produces the result that we would expect on the basis of our current orthodox estimates for target weights. Rather, it is used mainly in order to provide a fixed point of comparison between different data sets. In every case, a weight table will be produced, so that we can be alert to the way in which any given sample may be skewed, as Hill recommended.

With these general methodological questions in mind, we may proceed to the consideration of specific coinages and see to what degree the *denarius* (and *quinarius* and *sestertius*) may appear to have had an impact on local silver coinage in Asia Minor.

¹⁰ The final two columns of the table contain: the highest weight-range containing at least 10% of the sample; the range within which the 80th percentile of the whole sample falls.

¹¹ The fresh coins suggest a target 3% heavier than the random sample. It might be noted in passing that these results perhaps render these plinthophori too heavy to be fitted into (and thus serve as evidence for the existence of) the cistophoric system.

2. Absence of influence? The Province of Asia

By the first century BC very few mints were still producing silver coinage within the Roman Province of Asia. In itself, of course, this is an interesting and important fact. If fewer cities were producing silver, what was being used to make payments within a civic context? Could this fall-off in production be because the silver *denarius* and the *cistophorus* were taking up the strain of monetary needs within the civic economy? It is beyond the scope of this paper to examine this question in its totality, and others in this volume deal with the epigraphic documentation and the evidence from finds.¹² Here I want simply to focus on the silver coinage that *was* produced. The fact that it was produced suggests that there was not enough existing silver coinage in all places and at all times. Moreover the choices of weight standards made by the issuing authorities may have something to tell us of the prevailing winds of monetary circulation in the first century. We will begin our examination in Ionia.

2.1. Teos

A mid-first century silver coinage has been identified by Philip Kinns at Teos in Ionia. He recorded just three specimens (his AR VIII), which is remarkable both for its lack of control system (an unusual absence at this period and in this region), and, apparently for its weight standard. The three specimens weigh 3.16g, 3.60g and 3.42g.¹³ Kinns suggests that ‘the standard can only be a reduced form of Attic, for the notional weight of a cistophoric drachm was little over 3 gms, and no other standard is known to have been in use at this date. The weights are in fact comparable with those of the contemporary reduced Attic drachms of Chios.’ (Kinns [1980] 237). Yet these weights are very low for the Attic standard, even in its reduced form. As we shall see, at Smyrna in the first century BC the Attic standard remained fairly consistently close to its second century weight, at which a drachm should weigh in the range 4.00-4.10g. With just three weights to work from, we can proceed little further, but the Paris coin, though exhibiting heavy die wear, seems relatively fresh. At 3.60g or a little heavier, it falls within the acceptable *denarius* range.

2.2. Chios

Kinns’ reference in his discussion of Teos to the drachms of Chios was to Mavrogordato’s Period X, but in the interim the Hellenistic coinage of Chios has undergone a re-examination by Constantine Lagos, who has rearranged the silver

¹² For example the epigraphic documentation and the evidence from finds discussed in this volume by Lucia Carbone.

¹³ Kinns (1984), Teos IV, no. 159: Berlin (Imhoof [1890] 128, n. 365); Paris M3207; *SNG Cop.* 1483. The weight of the Paris specimen is taken from Gallica, where the coin can also be viewed: <http://gallica.bnf.fr/ark:/12148/btv1b85208597>

drachms on the basis of their apparent weight standard.¹⁴ His arrangement and chronology is not without problems, but a picture of progression emerges quite nicely if we plot the weights of coins included in his study onto a bar chart (**Fig. 10-11**).

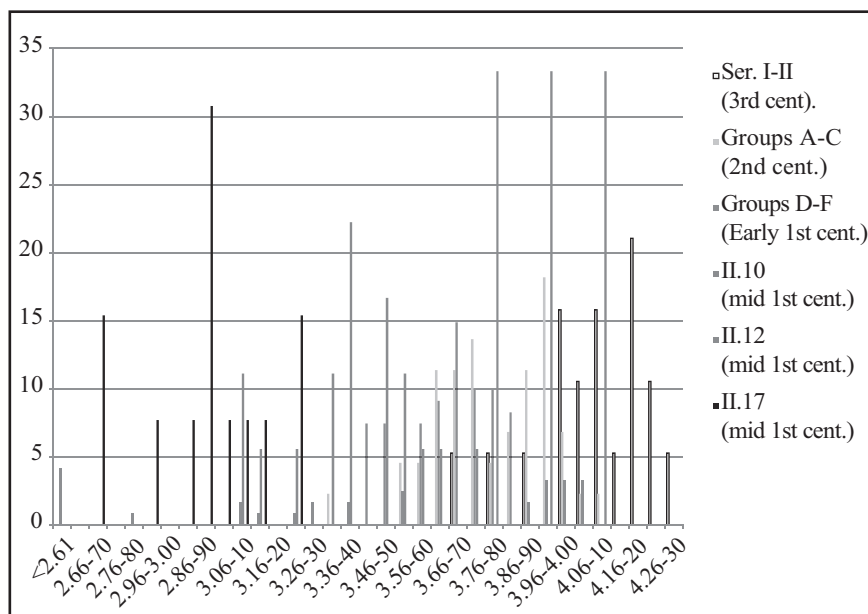


Fig. 10 – Weight distribution of Chian drachms, early 3rd-late 1st cent. BC (figures from Lagos 1998) (%).

Ser. I-II (3rd cent.)	Groups A-C (2nd cent.)	Groups D-F (Early 1st cent.)	II.10 (mid 1st cent.)	II.12 (mid 1st cent.)	II.17 (mid 1st cent.)	Total
19	44	121	20	3	13	156

Fig. 11 – Numbers of specimens analyzed in **Fig. 10**.

The issues of the 3rd century (Ser. I-II), when the full Attic standard prevailed, cluster (85%) precisely where we would expect, within the range 3.96-4.30g (80th percentile: 4.16-4.20g). The second century issues (Groups A-C) cluster (89%) in the range 3.61–4.10g, i.e. 0.20–0.30g lighter (80th percentile: 3.91-3.95g). Again this looks broadly in line with a drop to the reduced Attic standard elsewhere in Asia Minor and Syria at this time.¹⁵ The early 1st century issues (Groups D-F), which appear

¹⁴ Mavrogdato (1917). Lagos (1998), summarised in Lagos (2010).

¹⁵ On this phenomenon, which occurred at the Seleucid mint of Antioch in 170s BC, see further Mørkholm (1982).

in hoards often associated with the Mithridatic crisis of the 80s BC,¹⁶ cluster (88%) within the range 3.41–4.05g (80th percentile: 3.76–3.80g). The coins of the mid first century (II.10) cluster (90%) between 3.16 and 3.75g (80th percentile: 3.51–3.55g). This may suggest a significant drop in standard by around 0.30g, though the sample here is small. The group of 3 coins separated out by Lagos as his II.12 is probably best ignored as too small for analysis.¹⁷ Finally there is a group of 13 coins (II.17) that cluster between 2.66 and 3.25g (80th percentile: 3.11–3.15g). Again the sample is small, but Lagos suggests that this is to be interpreted as a move to the cistophoric standard, wherein a drachm should weigh c.3.2g. The range exhibited by this Chian series is very close to that seen at Cibyra (80th percentile: 3.01–05g), where the cistophoric nature of the standard cannot be doubted.¹⁸ Most interesting for our purposes are the 1st-century Groups D-F where the range 3.41–4.05 (80th percentile: 3.76–3.80g) very closely matches that we have identified for the *denarius* (92% between 3.61 to 4.10). These coins could, without any doubt, have passed as *denarii*. We must also ask whether the same might be true of the issues of Lagos series II.10, which he himself identifies as ‘drachms on the ‘reduced *denarius*’ standard’. The sample is small and the 80th percentile is within the range 3.51–3.55g, which places it at the lower limits of the whole range of the Arbanats hoard, but still just within it. Judgment is perhaps best suspended pending the appearance of more, fresh specimens. The same must also be the case for the rare drachms of Teos (above 2a): with an overall range of 3.16–3.60g (3 specimens) they fit comfortably with the range of Groups D-F and II.10, and could be contemporary with either.

The question presented by this clear downward shift in weight at Chios is whether we are looking at a positive shift towards a *denarius* standard, or whether we are rather looking at a continuous process of decay that just happens to pass through the weight range also occupied by the *denarius*. The chronology of its occurrence, within a period of heavy Roman military activity in the 80s BC, might seem circumstantially suggestive, but cannot constitute proof. However, what we can show is that at other mints the Attic tetradrachm does not seem to decay in quite the same way.

2.3. Smyrna

The best attested silver coinage through this period is that of Smyrna, which was the subject of a study by Milne in 1914.¹⁹ We may divide the 2nd and 1st century coinage into four parts. The earliest is a small group of anonymous drachms, fea-

¹⁶ See Lagos (1998) 210–213.

¹⁷ Lagos suggests it is a brief restoration of the full Attic standard. I suspect this may be a case of loosening of control at a Greek mint in the 1st century BC.

¹⁸ See below **Fig. 37**.

¹⁹ The material was supplemented and slightly rearranged in Milne (1921), (1927) and (1928). For **Fig. 10** I have used the specimens in public collections cited by Milne (1914) for Series I (1927, Period IX), to which I have added the specimens that have appeared

turing a head of Apollo on the obverse and seated figure of Homer on the reverse. The occurrence of a specimen of this coinage in a recent, unpublished hoard of the 190s BC strongly suggests that this coinage belongs to the very first years of the 2nd century, if not the last of the 3rd. Four specimens are known to me weighing 4.01, 4.12, 4.02 and 3.75g.²⁰ These appear to be on the full Attic standard.

Thereafter, a series of wreathed tetradrachms bearing only the name of the city as its reverse type was produced c.150-145 BC (Milne 1914 Series 1 = 1927, Period IX).²¹ The weight table for this coinage (**Fig. 12**) places it clearly on the reduced Attic standard, like the contemporary wreathed issues of Asia Minor.²²

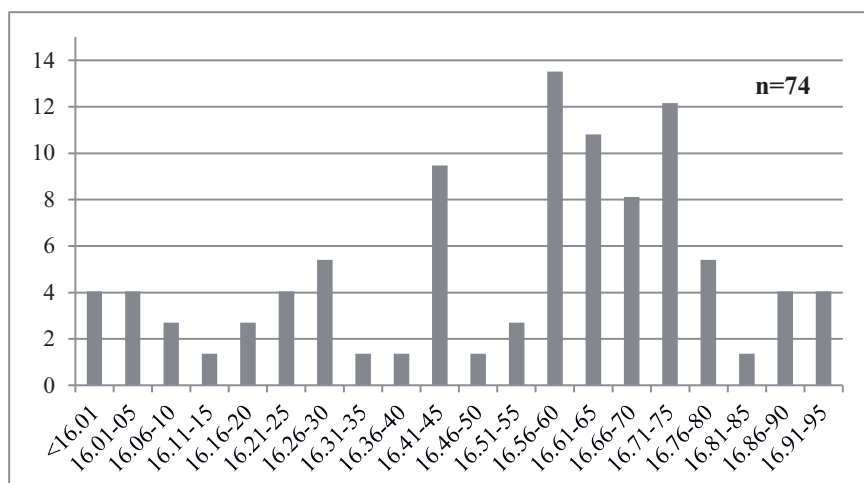


Fig. 12 – Weight distribution of tetradrachms of Smyrna Series 1 (Period IX), c. 150-145 BC (%).

The 80th percentile falls in the range 16.71-16.75g, which is also the last major peak on the chart.

The next group of Smyrnaean silver (Milne 1914 series 2 and 3 = 1927-8 Periods XI-XVII) is also composed of wreathed tetradrachms, but now with a lion standing or lying r. as the reverse type. This coinage was subdivided by Milne into

in coinarchives.org though March 2016, as well as the well-preserved specimens from the Gaziantep hoard (*CH* 9.527; 10.308).

²⁰ The existence of this coinage was noted by Milne in 1921, who then knew of two pieces, one in The Hague and one just acquired by the BM (1920-11-22-1). The two other specimens are Leu 38 (1986) 116 and Gemini 11 (2014) 173 (ex Unknown Findspot, 2013).

²¹ For the date see Meadows and Houghton (2010) 182-185.

²² For an overview of these see De Callatay (1998) 112.

consecutive periods based on style, die-links, the composition of the magistrates' names and relationship to the bronze coinage. His view of the absolute chronology placed it between c.125 BC and c.50 BC. Just 93 weights are recorded by Milne across the six Periods (Period XVI has no silver). If a pattern is observable then it probably suggests a very slight lowering of standard after Period XII. In **Fig. 13** I have combined the weights of Periods XI and XII, which for Milne span the period c.125-105 and those of Periods XIII-XVII which span c.105-50 BC.²³

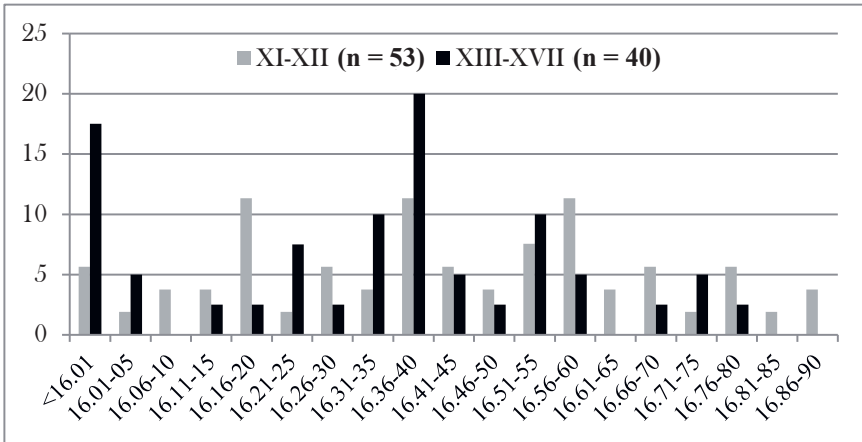


Fig. 13 – Weight distribution of tetradrachms of Smyrna Series 2-3 (Periods XI-XVII), c. 125-50 BC (%).

If there is a difference between the two populations, it is tiny. The heaviest coins of the two series are 0.10g apart (16.86-16.90 vs. 16.75-16.80), the 80th percentiles are similarly 0.10g apart at 16.61-16.65g for Periods XI-XII and 16.51-16.55 for Periods XIII-XVII. And these numbers are just 0.10g and 0.20g respectively lower than those for Series 1 (Period IX) of the mid 2nd century (**Fig. 12**). This looks remarkably stable, and the picture is borne out by the evidence of the accompanying drachms. They survive in fewer numbers, and in fact very few seem to have been produced in Periods XIII-XVII so we have no choice but to look at the coinage as a whole (**Fig. 14**).²⁴

The 80th percentile falls in the range 4.01-4.05g, and the peaks fall slightly below that weight. In general, 85% of the specimens fall in or above the 3.71-3.75 range. In the absence of a second-century Smyrnaean coinage with which to compare it, we may usefully look at another second-century drachm coinage. **Fig. 15**

²³ Specimens are drawn solely from Milne (1927) and Milne (1928).

²⁴ Specimens are drawn solely from Milne (1927) and Milne (1928).

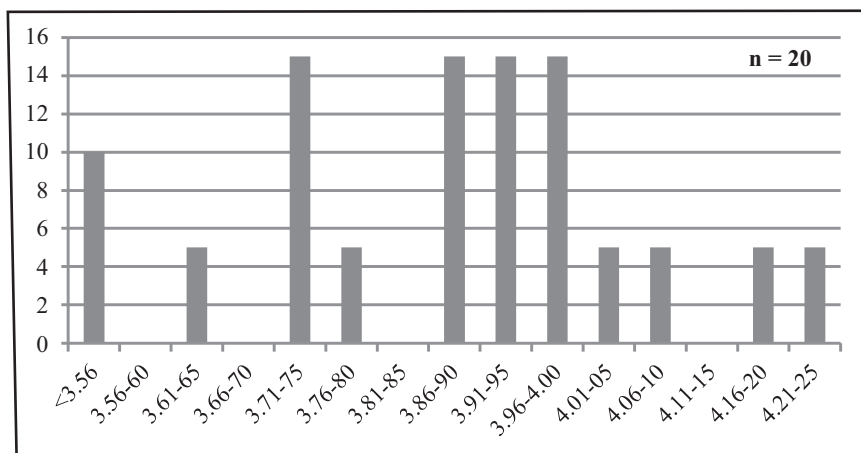


Fig. 14 – Weight distribution of drachms of Smyrna Series 2-3 (Periods XI-XVII), c. 125-50 BC (%).

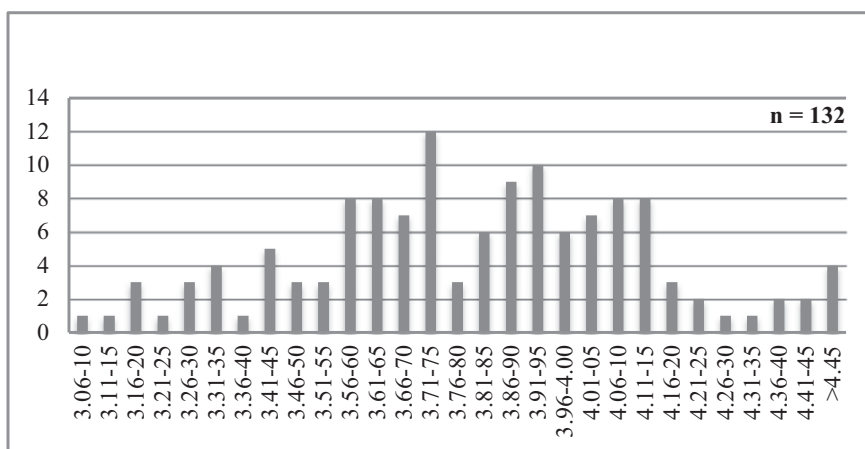


Fig. 15 – Weight distribution of 2nd-century drachms of the drachms of Myndos in CH 9.522 (%).

summarises the weights of the well-preserved drachms of Myndos of the mid second century BC in *CH* 9.522. The 80th percentile falls within the range 4.06-4.10, just 0.05g higher than that of Smyrna.

It looks very much as if the 1st-century drachm coinage of Smyrna matches the weight standard observable among the tetradrachms, i.e. the reduced Attic standard with a tetradrachm of c.16.8g and drachm of c.4.1g, and exhibits no decline in weight from the standards of the 2nd century as they appear from the coinage of Myndos.

2.4. The Troad

Confirmation of the relative stability of the reduced Attic standard through the second century down into the 1st century comes with the coinages in the names of Athena Ilias and Apollo Smintheus produced in the Troad. These coinages, originally studied by Bellinger (1961), are currently the subject of a detailed revision by Ellis-Evans, who has significantly increased the corpus of material available. Considerably better evidence survives for the former coinage, and this allows the construction of **Fig. 16**.²⁵

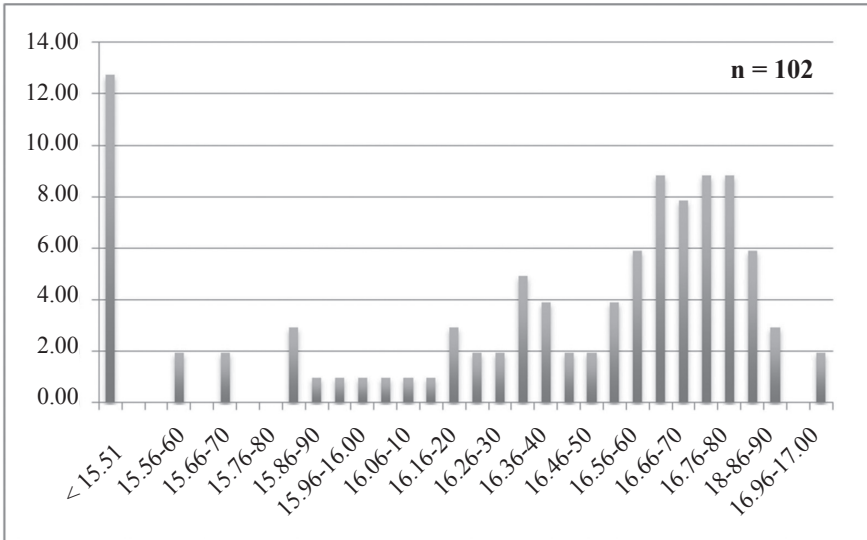


Fig. 16 – Weight distribution of tetradrachms of Athena Ilias 2nd-1st cent. BC (%).

There is little apparent difference in distribution of weights across the whole time-span of the coinage.²⁶ The 80th percentile falls within the range 16.81-16.85g. A similar picture emerges from the coinage in the name of Apollo Smintheus, probably struck from the 170s BC down to 86, for which Ellis-Evans has recorded 61 weights. For these the 80th percentile falls in the range 16.70-16.79g, essentially identical to that of Athena Ilias.²⁷ Again we seem to be looking at a robust survival of the c.16.8g reduced Attic weight tetradrachm.

²⁵ I am very grateful to Dr Ellis-Evans for a copy of his paper before its publication. It has now appeared as Ellis-Evans (2016).

²⁶ See Ellis-Evans (2016) 121.

²⁷ For the figures see Ellis-Evans, *ibid.*

2.5. Restored coinages

Within *Provincia Asia*, there are two more places where we may chart the persistence of the Attic standard into the first century. But in turning to these two mints we also encounter, in one case certainly, in the other possibly, a phenomenon that seems to be distinctively Roman, and which we will observe again before we have finished. This phenomenon is what we may term ‘restored coinage’. By this I mean the reappearance of a coin design some time after it has gone out of use. The phenomenon is well known, of course, from such instances as the restored types of Trajan produced by the mint of Rome, but also from some isolated cases at the Republican Roman mint.²⁸ In the provinces two obvious examples, although they perhaps are not generally thought of in these terms, are the proconsular *cis-tophori* of the Province of Asia,²⁹ or the parallel phenomenon in Syria, the post-humous issue of coins with the types of the Seleucid king Philip Philadelphus by Roman governors there.³⁰

A third manifestation of this phenomenon is to be found in the restoration of a number of civic silver issues in Asia Minor during the course of the 1st century BC. I have written in the past about the cases of the restored coinages of Perge, Side and Aspendos,³¹ and I will turn to those shortly (below, 3.3), but there are two possible instances of this in western Asia Minor too: Tenedos and Abydos.

2.5.1. Tenedos

The wreathed tetradrachms of Tenedos were studied by De Callatay in 1998. In the absence of hoard evidence he arranged the series on the basis of a study of the dies, stylistic grounds, and on a number of overstruck coins. After De Callatay’s publication a hoard appeared on the market in 2003 (*CH* 10.301) that produced two new issues and obverse dies, and in 2004 another new issue appeared in Triton sale 7, lot 227 (**Fig. 17**). Stylistically these three coins appear to belong with the earliest coins in De Callatay’s sequence. C. Lorber, in publishing the new hoard, noted the similarity between one of the two new dies and De Callatay’s D4.³² The other of the two hoard coins has probably now surfaced as Gemini 11 (2014) lot 166, and the monogram it bears may be a variant of that which appears on De Callatay’s issue 6, struck from his die D4 (**Fig. 17**).

²⁸ The designs of L. Piso Frugi (*RRC* 340, 90 BC) reprised by his son C. Piso Frugi (*RRC* 408, 67 BC) are an obvious example, as are the ‘restored’ issues of 82-80 BC (*RRC* 369-371, with Crawford *ad loc.*)

²⁹ Crawford (1985) 206-209; Metcalf (2018).

³⁰ *RPC* I, 4124-4126 (signed by Aulus Gabinius [57-55 BC], Crassus [54/3 BC] and Gaius Cassius [53/2 BC]) and 4127-4134, 4136-4149 (anonymous dated issues, 47/46-17/16 BC). For additional issues probably struck by the city of Antioch, see Hoover (2004).

³¹ Meadows (2015).

³² Lorber (2010) 134 *ad no.* 140.



Gemini 11 (2014) 166. 16.57g, 11h. ex R.P. Miller coll. Triton 7 (2004) 227. 16.76g.

Fig. 17 – Two new issues of Tenedos.

Incorporating the evidence of these three new coins into De Callatay's study and, for reasons discussed below, moving the product of one die to later in the sequence, it appears that the series breaks down into three main groups. The first, consisting of six issues struck from three or four obverse dies (D1, 4 and one or two new dies), exhibits high-quality engraving. There then follows a group of eight issues struck by a further eight obverse dies (D2-3, 5-10) that are die- and/or control-linked to one another. The final group consists of 14 issues and sees the introduction of drachms alongside the tetradrachms. Eleven obverse tetradrachm dies are recorded (D11-21) and ten drachm dies (A-J). This third group is also characterized by complex die-linkage between issues, suggesting parallel striking of issues. Representation of issues and dies of this corpus are summarised in **Fig. 18**.

Group	Issues	Dies	Specimens	n/d
1	5	3-4	5	1.25-1.66
2	8	8	22	2.75
3	14	11 (4dr)	45	4.09
		10 (dr)	31	3.1

Fig. 18 – Groups, issues, dies and specimens of the wreathed coinage of Tenedos.

The new hoard was significant not just for the two new coins it produced, but also because of its date. Through its combined Seleucid and Athenian content, its year of deposit can be stated almost certainly to have been 151/50 BC. It is thus clear that the first group (D1, D4 and new dies) of the wreathed issues of Tenedos had been struck by this date. Such an early date had been proposed in the past for the wreathed tetradrachms of Tenedos, and indeed De Callatay himself did not rule out the possibility that the series began in the second century BC. However, he also had cogent reasons for suggesting that some part at least of this coinage belongs in the 1st century BC. First, until the appearance of two specimens in the Commerce 2003 hoard this wreathed coinage does not appear in the other 2nd century hoards in which wreathed issues are found in abundance. We might add to this observa-

tion the remarkably low n/d ratio exhibited here by Group 1, compared both to the rest of the Tenedian series but also to those of the wreathed coinages that do feature in hoards.³³ Second, there are overstrikes. In one case, a coin of Tenedos was overstruck by a coin of Maroneia. The coin of Maroneia in question belongs to a phase of minting that seems to postdate the early-to-mid 80s BC (the date is provided by another Maroneia overstrike on a coin of Mithradates VI). If the host Tenedos coin was relatively new at the time of its overstrike, then this suggests that it too may belong in the 1st century BC. Furthermore, a significant number of the Tenedian coins (De Callataÿ identifies 6) are themselves overstrikes, and in three cases these are on tetradrachms of Thasos.³⁴ As De Callataÿ notes, these Thasian issues seem likely to be late 2nd or early 1st century imitations, which must have arrived in significant quantities in Asia Minor in the early 1st century BC.³⁵ Moreover, the overstriking of these Thasian issues seems to be concentrated at the beginning of the second group of issues (D3, D5 and D7 are all used on certain Thasian undertypes).

It would seem, therefore, that there was a brief period of striking of wreathed tetradrachms in the mid 2nd century (by 151 BC), and that the Tenedian coinage was then revived in the first half of the 1st century, perhaps, as De Callataÿ suggests, in the context of the Mithridatic conflict of the 80s BC. How does this play out in the metrology? De Callataÿ noted a slight overall tendency to lightness compared with the other wreathed issues.³⁶ With the benefit of the revised chronology, we can break the weight table down into the early and late phases (**Fig. 19**). Obviously, the sample is tiny for the second century production, but is grouped in the range 16.56-16.80g, with the 80th percentile falling within the range 16.76-16.80g, precisely as we would expect for the reduced Attic standard of the period, and as we in fact see for the other wreathed coinages of the mid-second century (De Callataÿ [1998] 112). The first century coinage survives in a much bigger sample, and displays only the very slightest reduction, if any at all. The 80th percentile falls in the range 16.61-16.65g, and so in the same general range as the earlier of the 'lion' wreathed issues of Smyrna (Milne Periods XI-XII).

A similar picture emerges from the Tenedian drachms (**Fig. 20**). These, as we have noted, belong with the 1st century tetradrachms. The 80th percentile falls in the range 3.96-4.00g. Again, this is very close (within 0.05g) to the standard we find in the drachms of Smyrna, and serves again as a contrast to the trend we noted at Chios.

³³ For the similarly small mint of Aigai in Aeolis, for example, I have collected 60 specimens from 5 obverse dies.

³⁴ One of these is on a coin struck by his D3, another perhaps on a product of D2 (control-linked to the issue from D3), which strongly suggests that they should be detached from the issues struck from D1 and D4 in the mid second century.

³⁵ De Callataÿ (1998) 113-114; De Callataÿ (2011) 68-70.

³⁶ De Callataÿ (1998) 112.

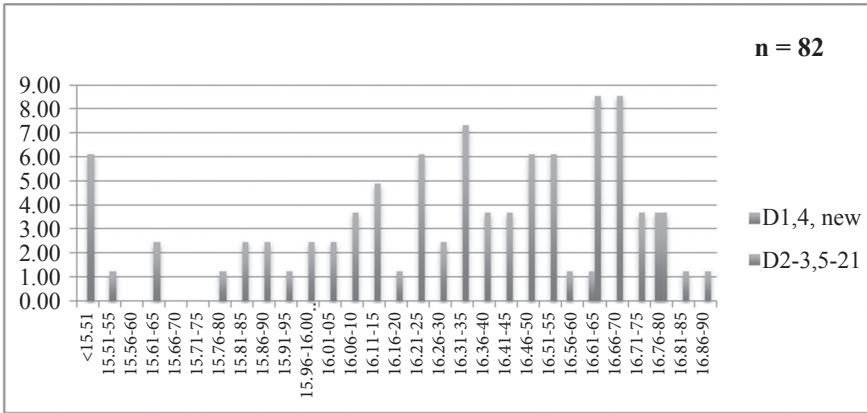


Fig. 19 – Weight distribution of tetradrachms of Tenedos 2nd-1st cent. BC (%).

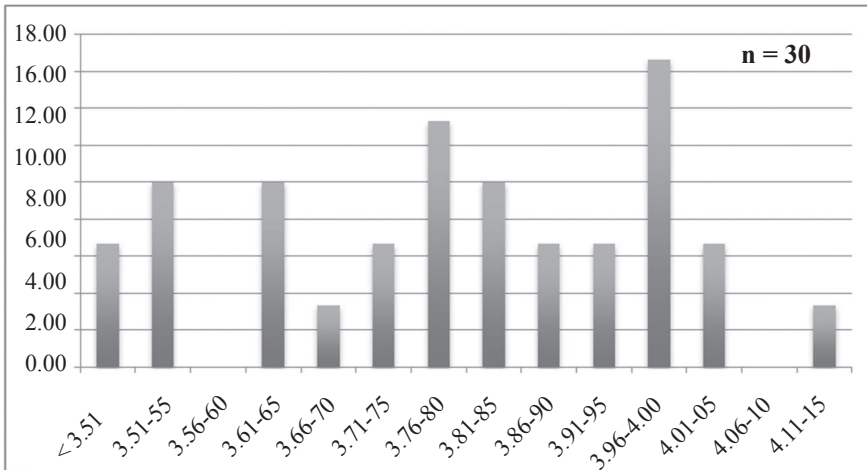


Fig. 20 – Weight distribution of drachms of Tenedos 1st cent. BC (%).

2.5.2. Abydos

De Callatay has also made a strong case for situating the wreathed coinage of Abydos in the 1st century BC, for similar reasons to that of Tenedos.³⁷ In the case of Abydos, the key overstrike is on an issue of Aesillas, again suggesting a date of production for the coinage of Abydos in the early first century BC. No new hoard evidence has come to light for this coinage, but I wonder if we may not justifiably ask whether we are dealing here again with a revived or restored coinage.

³⁷ De Callatay (1996); De Callatay (2011) 69-70.

The coin overstruck on Aesillas was struck from a pair of dies that have very distinctive stylistic characteristics (**Fig. 21**). The head of Artemis on the obverse is sharp-featured, the bun at the back of her head is minimized, and the shape of her head takes on a curious conical appearance. This is a style shared by a number of other dies (De Callatay's D24-29). On the reverse, the most remarkable feature is the enlarged, thrusting, almost pugnacious chest of the eagle.



Fig. 21 – Overstrike of Abydos on Aesillas (from De Callatay [1996] 91).

We might contrast this with some of the other dies that De Callatay, with justification, places ahead of this group in his sequence. A particularly attractive example is furnished by a coin of an issue unknown in 1996, that appeared in a Leu sale in 2008 (LHS 102, lot 268), and was struck from De Callatay's D3 (**Fig. 22**).



Fig. 22 – Tetradrachm of Abydos (LHS 102 [2008] 268) struck from De Callatay D3.

The style of the portrait is much finer, the eagle has taken fewer steroids, and the letters of the legend are smaller, less apicated and thus have an earlier look to them than the overstruck issue. The matter is subjective, but I would suggest that we are looking here at a second century coin, and perhaps one of the rare prototypes for a 1st century revival.

This must remain speculation, but the possible chronological range of the coinage must be borne in mind when we examine the weight table (**Fig. 23**).

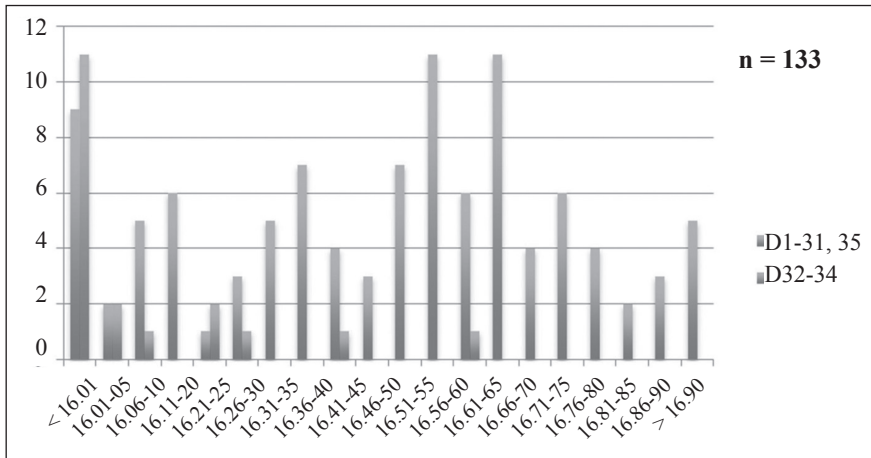


Fig. 23 – Weight distribution of tetradrachms of Abydos 2nd-1st cent. BC (%).

In general there are no obvious variations in the data, with the exception of what may be the final issue, that signed by Iphiades (D32-34). For the remainder of the coinage, the 80th percentile falls within the range 16.66-16.70g, just fractionally higher than at Tenedos (16.61-16.65g). Again there seems to be little decay from the c.16.8g standard of the reduced Attic of the mid 2nd century BC. The issue of Iphiades is exceptional in three respects. First it survives in much higher quantities than all the other issues (3 obv. dies; 21 specimens; n:d=7:1), with the exception of Apollophanes (2 dies; 14 specimens; n:d=7:1). Second, it displays a very high ratio of reverse to obverse dies within a single issue (17:3; cf. Apollophanes at 1:1. A ratio of 11:1 is attested elsewhere in the coinage [for D16], but this is spread across 7 different magistrates). Third, it appears to be minted at lower weight standard (**Fig. 24**). For this issue the 80th percentile falls in the range 16.16-16.20g. The middle 80% of the population falls within the range 15.50-16.20g, implying a drachm of c.3.87-4.05g. This is similar, as we shall see, to the weight ranges of the ‘restored’ tetradrachms of Pamphylia, as well as to the drachms of Groups D-F at Chios, and comfortably within the range exhibited by *denarii*. We may justifiably suggest, therefore, that in this (last?) phase of production the coinage in the name Abydos has dropped from the Attic to the *denarius* standard.

Before leaving Abydos we should also note a new addition to the corpus of silver of this period. A drachm signed by Iphiades appeared on the market in 2015 (CNG 99 [2015] 193; **Fig. 25**). Its weight (3.81g) is low for a fresh Attic weight issue, but fits comfortably within the lower range suggested for the tetradrachms of

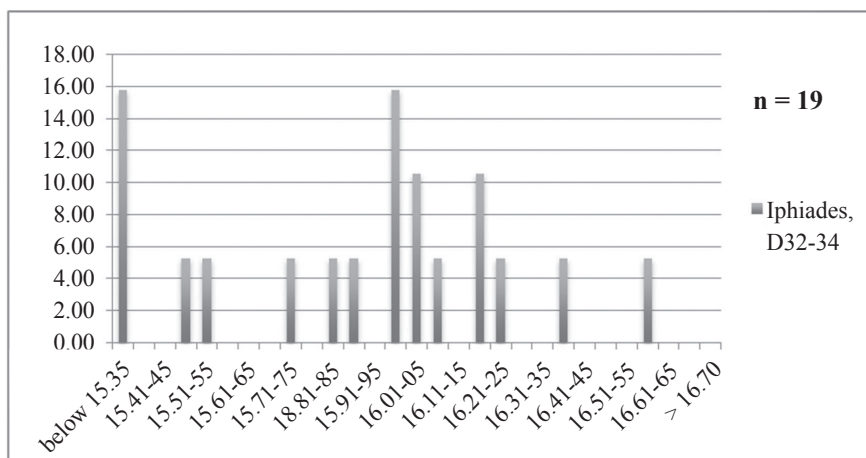


Fig. 24 – Weight distribution of tetradrachms of Abydos, signed ΙΦΙΑΔΟΥ, 1st cent. BC (%).

this issue and reinforces the notion of compatibility with the *denarius*. Unlike the tetradrachms of this issue which have a radiate head control in r. field, the drachm has a letter B. One is immediately reminded of the ‘restored’ coinage of Perge with drachms of similar weight (see below) and tetradrachms with era marks. Finally, we should note the existence of three hemidrachms of Abydos:

Berlin (Prokesch-Osten 1875)	1.96g	12h
Numismatik Naumann 37 (2015) 183	1.88g	(Fig. 26)
Savoca Online 9 (2016) 272	1.97g ³⁸	



Fig. 25 – CNG 99 (2015) 193.



Fig. 26 – Numismatik Naumann 37 (2015) 183.

It is not entirely clear where in the sequence these hemidrachms belong. The wreath that they bear in r. field does appear on an issue of tetradrachms signed ΔΙΟΔΩΡΟΥ, but the monogram between the eagle’s legs cannot easily be resolved thus. The treatment of the feathers on the eagle’s wing is not reminiscent of what appear to

³⁸ I owe this reference to A. Ellis Evans.

be the earliest tetradrachm issues of the mint, so the hemidrachms probably belong later, and in the first century. In terms of weight they appear to be half that of the new drachm of Iphiades (c.3.8-3.9g), and thus compatible with a tetradrachm of 15.2-15.6g. This is within the range of the tetradrachms of Iphiades, but significantly below that of the earlier issues. Tentatively, therefore, I would place these coins at the end of the sequence, and suggest the possibility that, if the drachm of Iphiades could pass as a *denarius*, then these hemidrachms could pass as *quinarii*. With weights of 1.88, 1.96 and 1.97g they match the weight of the Roman *quinarius*. As such, they are far from alone, as we shall shortly see. On the basis of the metrology I would tentatively suggest that this very last phase of restoration of issues of Abydos might belong in the 40s BC. If the B that appears on the drachm is indeed an era date then this may, as perhaps in Pamphylia and Cilicia, be the era of Pharsalus and thus correspond to 47/46 BC.

2.6. *Cistophori*

The evidence so far assembled suggests that the reduced Attic standard that came into being in the 170s BC, with a tetradrachm of c.16.8g remained in use and was preserved relatively unchanged by its issuing authorities well down into the first century at the mints of Athena Ilias, Alexandria Troas, Abydos, Tenedos, Smyrna and, for a while, at Chios. But it also suggests that at two mints, Abydos and Chios, there may be signs of a deliberate reduction of standard that had the effect of making the coinage compatible with the *denarius*. Before we explore this latter phenomenon further, it will be as well to take a look at the impact of the other major standard of the region, the *cistophoric*.

2.6.1. *Attalid cistophori*

The evidence for the weight of the Attalid *cistophorus* is summarized in **Fig. 27** and **Fig. 28**.

The shape of this graph is, as noted above, the classic profile for a Greek silver coinage. A sharp front (right) end, with the last element of the peak at 12.65-12.69g, and then a more gentle slope (to the left) behind this. The 80th percentile coincides with the high end of the peak at the front of the graph in the range 12.65-12.69g. If the intention was to produce a coinage equivalent to three Attic weight drachms, then the implied Attic tetradrachm weighs somewhere between 16.86 and 16.92g.³⁹

³⁹ I note in passing that if we accept this equivalence with the reduced Attic weight standard, a 'late' date for the introduction of the *cistophorus*, after the reduction in the Attic weight standard in the late 170s seems all but certain. See further Meadows (2014).

	Pergamum	Ephesus	Tralles	Sard-Synn.	Apameia	Laodicea	Ariston.	Overall
< 12.00	2.73	3.81	6.07	7.55	4.00	14.29	0.00	4.39
12.00-04	0.78	1.04	0.47	3.77	3.00	0.00	0.00	1.15
12.05-09	1.56	1.38	0.93	1.89	2.00	0.00	0.00	1.36
12.10-14	1.56	1.73	3.27	5.66	0.00	0.00	8.33	2.19
12.15-19	1.56	1.73	2.34	3.77	2.00	0.00	0.00	1.88
12.20-24	2.34	1.38	2.34	1.89	1.00	4.76	0.00	1.88
12.25-29	1.17	3.46	3.74	1.89	1.00	23.81	0.00	2.93
12.30-34	1.95	4.50	3.27	1.89	6.00	4.76	4.17	3.55
12.35-39	6.25	6.23	6.07	1.89	7.00	4.76	4.17	5.96
12.40-44	8.98	6.92	9.35	1.89	8.00	4.76	12.50	7.94
12.45-49	7.81	8.65	7.94	13.21	3.00	0.00	12.50	7.84
12.50-54	8.20	9.69	11.21	1.89	10.00	14.29	8.33	9.30
12.55-59	13.67	10.73	18.22	9.43	8.00	9.52	20.83	13.06
12.60-64	14.06	15.57	11.21	7.55	14.00	4.76	4.17	13.06
12.65-69	12.11	13.49	6.54	18.87	13.00	14.29	20.83	12.02
12.70-74	9.38	7.61	4.21	7.55	9.00	0.00	0.00	7.11
12.75-79	3.13	1.73	1.87	5.66	5.00	0.00	4.17	2.72
> 12.79	2.73	0.35	0.93	3.77	4.00	0.00	0.00	1.67

Fig. 27 – Weight distribution of Attalid *cistophori* listed in Kleiner & Noe 1977 (%).

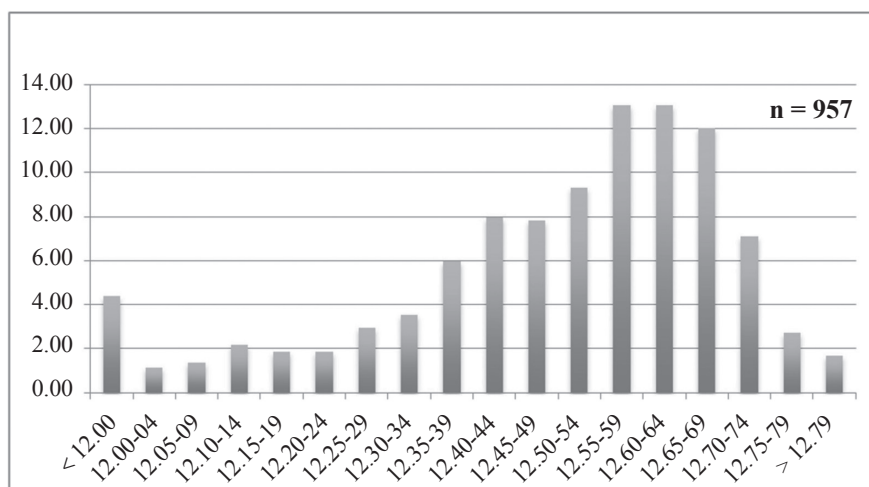


Fig. 28 – Weight distribution of Attalid *cistophori* listed in Kleiner & Noe 1977 (%).

2.6.2. *Post-Attalid cistophori*

The second phase of cistophoric production, occurring between the creation of the Roman province of Asia and the early 60s BC was struck to a very similar standard (Fig. 29-30).

	Pergamum	Ephesus	Nysa	Tralles	Apameia	Laodicea	Overall
< 12.00	5.06	0.00	13.64	8.57	14.29	17.39	6.46
12.00-04	0.84	0.00	0.00	0.00	0.00	0.00	0.45
12.05-09	1.27	1.14	0.00	0.00	0.00	2.17	1.11
12.10-14	2.95	1.14	0.00	0.00	0.00	4.35	2.23
12.15-19	2.11	0.00	0.00	2.86	4.76	2.17	1.78
12.20-24	2.53	1.14	0.00	2.86	14.29	0.00	2.45
12.25-29	3.80	5.68	9.09	17.14	0.00	4.35	5.35
12.30-34	11.81	7.95	4.55	8.57	9.52	2.17	9.35
12.35-39	7.59	10.23	4.55	2.86	4.76	8.70	7.57
12.40-44	8.44	15.91	4.55	20.00	9.52	15.22	11.36
12.45-49	11.81	9.09	18.18	8.57	4.76	10.87	10.91
12.50-54	16.03	11.36	9.09	8.57	4.76	13.04	13.36
12.55-59	8.86	11.36	13.64	5.71	4.76	8.70	9.13
12.60-64	10.13	11.36	9.09	0.00	14.29	6.52	9.35
12.65-69	3.80	7.95	4.55	5.71	9.52	4.35	5.12
12.70-74	2.11	4.55	0.00	0.00	0.00	0.00	2.00
12.75-79	0.42	1.14	0.00	2.86	4.76	0.00	0.89
> 12.79	0.42	0.00	9.09	5.71	0.00	0.00	1.11

Fig. 29 – Weight distribution of post-Attalid *cistophori* (figures from CH 8.537, CH 8.447=525, CH 8.526, as listed in Meadows [2015]) (%).

The 80th percentile falls within the range 12.55-12.59g. This is a reduction of about 0.10g from the standard suggested for the Attalid period. Interestingly it precisely mirrors the 0.10g reduction we see in Attic weight issues at Smyrna from Periods XI and XII, (c. 125-105) to Periods XIII-XVII (c. 105-50 BC). This suggests that the Attic and cistophoric standards were maintaining their 4:3 ratio at a very slightly reduced weight into the 1st century BC.

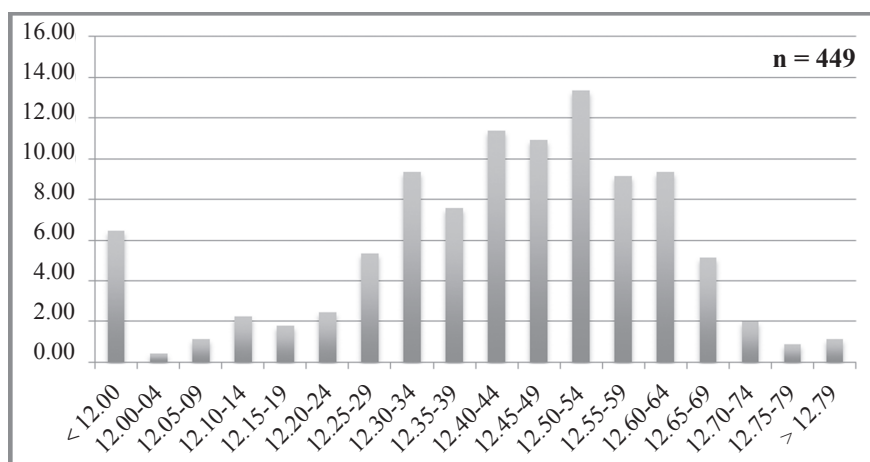


Fig. 30 – Weight distribution of post-Attalid *cistophori* (figures from CH 8.537, CH 8.447=525, CH 8.526, as listed in Meadows [2015a]) (%).

2.6.3. *Proconsular cistophori*

The *proconsular cistophori* present a somewhat different story.⁴⁰ Whereas the mints represented in the earlier two phases paint an essentially homogenous picture, those of the *proconsular* issues fall into two groups, metrologically speaking. The four mints of Pergamum, Ephesus, Apameia and Laodiceia seem all to produce coins with a similar profile, but two mints, Tralles and that (or those) of the issues signed with the monogram conventionally resolved as ATRA, have a distinctive and different profile (**Fig. 31-32**).

For the Tralles/ATRA issues the 80th percentile falls within the range 12.55-12.59g. That is to say that these coinages seem to be maintaining exactly the standard of the earlier, post-Attalid *cistophori* at all mints. The other *cistophoric* mints all seem to adopt a significantly lower standard, however. For these, the 80th percentile falls in the range 12.30-12.34g. Therefore, at this latter group of mints there seems to be an appreciable lowering of target weight, by about 0.15-0.20g. However, to focus thus on the upper end of the graph conceals another major change that seems to have occurred during this third period of *cistophoric* production. We can see this clearly in **Fig. 33** where an overview of the three series is provided.

Apart from the gradual reduction in weight at the higher end of the x-axis, the glaringly obvious difference is in the massively higher percentage (47.4%) of coins falling in the range below 12.00g in the *proconsular* series. What is going on here?

⁴⁰ The figures for the *Proconsular cistophori* are taken from Metcalf (2018).

	Attalid	Post Attalid	Procos (excl. Tralles+ATRA)	Procos Tralles + ATRA
< 12.00	4.39	6.46	47.36	28.06
12.00-04	1.15	0.45	4.03	4.32
12.05-09	1.36	1.11	4.03	4.32
12.10-14	2.19	2.23	5.54	2.88
12.15-19	1.88	1.78	6.55	3.60
12.20-24	1.88	2.45	5.79	5.76
12.25-29	2.93	5.35	4.79	5.04
12.30-34	3.55	9.35	4.28	3.60
12.35-39	5.96	7.57	3.27	4.32
12.40-44	7.94	11.36	4.28	4.32
12.45-49	7.84	10.91	3.02	4.32
12.50-54	9.30	13.36	2.52	3.60
12.55-59	13.06	9.13	2.27	7.19
12.60-64	13.06	9.35	1.01	7.91
12.65-69	12.02	5.12	0.50	2.88
12.70-74	7.11	2.00	0.76	4.32
12.75-79	2.72	0.89	0.00	0.72
> 12.79	1.67	1.11	0.00	2.88

Fig. 31 – Weight distribution of Attalid, post-Attalid and Proconsular *cistophori* (%).

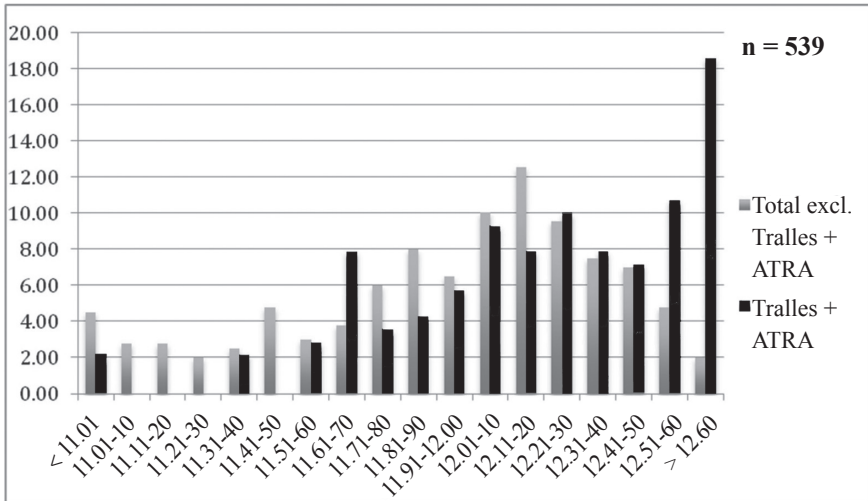


Fig. 32 – Weight distribution of proconsular *cistophori*.

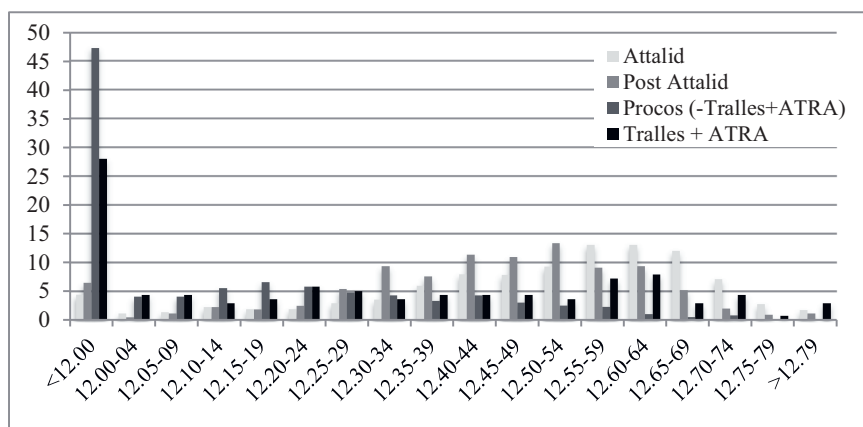


Fig. 33 – Weight distribution of Attalid, post-Attalid and Proconsular *cistophori* (%).

We gain a clearer picture if we tabulate the distribution of coins by weight across the four coinages and shade in interquartile ranges (the middle 50% of observed weights) (Tables 8 and 9). For the first two periods the extent and values are almost identical: 12.35-12.64g for the Attalid, 12.30-12.59g for the post Attalid. The interquartile range of both is 0.30g. For the main run of proconsular issues the range is 11.61-12.30g; for Tralles and ATRA the range is 11.91-12.60g. The interquartile range for both of these is 0.70g, more than twice as large as for the earlier coinages. This phenomenon has been noted in the past in other coinages by De Callataÿ. I quote here his most recent observation on the question: ‘As indicated by the enlargement of the interquartile spaces, tight control over the weight of individual coins decreased in many mints with the first Mithridatic War. For tetradrachms, this value increased from ca. 30 cg before the war to ca. 60 cg afterwards. I do not want to push this line of argument too far ... but such a large dispersion is perhaps more indicative of Roman practice than Greek.’ ([2015] 260-261). The increase in variability that De Callataÿ notes here is surely the same as that we observe at the *Cistophoric* mints after their explicit shift to Roman control.

There may, then, be a difference in production method or standard that came with Roman control and which may explain the relaxation of production tolerances within the mint. If so, then we should look at the mean, median and mode of these issues. For the lower-weight proconsular *cistophori* these are: mean = 11.94; median = 12.01; mode = 12.11-20.

But why did the standard drop suddenly in the 50s BC, when it had remained fairly stable in the century from the 160s to the 60s BC? One possibility that should be considered is the relationship of the *cistophorus* to the *denarius*. Famously, Fes-

	Attalid	Post-Attalid		Procos excl. Tralles and ATRA	Tralles + ATRA
< 12.00	4.39	6.46	< 11.01	4.51	2.14
12.00-04	1.15	0.45	11.01-10	2.76	0.00
12.05-09	1.36	1.11	11.11-20	2.76	0.00
12.10-14	2.19	2.23	11.21-30	2.01	0.00
12.15-19	1.88	1.78	11.31-40	2.51	2.14
12.20-24	1.88	2.45	11.41-50	4.76	0.00
12.25-29	2.93	5.35	11.51-60	3.01	2.86
12.30-34	3.55	9.35	11.61-70	3.76	7.86
12.35-39	5.96	7.57	11.71-80	6.02	3.57
12.40-44	7.94	11.36	11.81-90	8.02	4.29
12.45-49	7.84	10.91	11.91-12.00	6.52	5.71
12.50-54	9.30	13.36	12.01-10	10.03	9.29
12.55-59	13.06	9.13	12.11-20	12.53	7.86
12.60-64	13.06	9.35	12.21-30	9.52	10.00
12.65-69	12.02	5.12	12.31-40	7.52	7.86
12.70-74	7.11	2.00	12.41-50	7.02	7.14
12.75-79	2.72	0.89	12.51-60	4.76	10.71
> 12.79	1.67	1.11	> 12.60	2.01	18.57

Fig. 34-35 – Weight distribution of Attalid, post-Attalid and Proconsular *cistophori*. 50% coverage of all specimens shaded (%).

tus' description of Talents suggests, by the imperial period at least, an exact relationship of three *denarii* to the *cistophorus*.⁴¹

Does this reduction in weight and relaxing of exactitude for the *cistophorus* have anything to do with the *denarius*? This remains uncertain. On the one hand, as we have seen, there are reasons to think that the *cistophorus* was tied to the reduced Attic tetradrachm at the precise ratio of 3:4. This will have served to stabilize the weight of the *cistophorus*, so long as the Attic standard remained strong. And, as been shown above, this seems to have been the case down to the middle of the 1st century BC. On the other hand, there was the *denarius*. It seems that in the imperial period the *cistophorus* was worth 3 *denarii*. The question is, when did this become the case, and what effect did this have on the *cistophorus*? We have seen that an acceptable range for the weight of the *denarius* by the 40s BC seems to have been c.3.61 to 4.10g. This means that if the mint-masters of the *cistophoric* mints began to have an eye more on convertibility with the *denarius* than with the Attic drachm in the mid first century, they may have had the leeway to re-

⁴¹ Festus 359: *talentorum non unum genus Atticum est sex milium denarium Rhodium et cistophorum quattuor milium et quingentorum denarium*. Hultsch (1882) 251.

duce their target cistophoric weight to fall within that range. This would suggest an acceptable target weight for the *cistophorus* of between 10.83 and 12.30g. As it happens, 79% of the proconsular *cistophori* of the mints of Pergamum, Ephesus, Apameia and Laodicea recorded in **Fig. 31** fall within that range. Cautiously, therefore, we may suggest that the weight of the proconsular *cistophori* (excluding Tralles and ATRA) was showing the influence of the denarius.

2.6.4. Non-cistophoric *cistophori*

There is a case, therefore, for seeing the impact of the *denarius* on the standard of the *cistophorus* from the 50s BC onwards, both in terms of its actual weight, but also in terms of its method of production. Before we begin to hunt further afield for this influence in other coinages, it is worth taking a look at the cistophoric standard itself, and its influence. The evidence for non-cistophoric coinage produced on the cistophoric weight standard has been collected by Richard Ashton (2013), and need only be summarized here (**Fig. 36**).

Mint	Denom.	Weights	Date
Byzantium?:	didrs.	two specimens (5.67g pierced, 5.88g)	2nd cent. BC?
Alexandria Troas	tetradrachm	one specimen (12.11g)	69/8 BC
Magnesia ad Maeandr.	didrachms	two specimens (6.04 and 5.92g)	80s BC
Chios	drs.	13 specimens (see above)	1st cent. BC
Alabanda	tetrads., didr.	45 specimens (see below)	166-133 BC
Stratonikeia	tetradr.	one specimen (10.73g)	2nd cent. BC
Alinda	didrs.?	2 specimens (broken)	2nd cent. BC
Cibyra	tetrads, drs.	81 drs., 13 tetrads. (see below)	2nd cent. BC

Fig. 36 – Overview of Civic *cistophori*.

In short, this evidence is parlous in the extreme. Most of these issues are rare today, and may originally have been tiny and special-purpose in nature. In only two cases is there sufficient data to make investigation of the standards possible: Alabanda and Cibyra (**Fig. 36-37**).

For Alabanda the 80th percentile falls within the range 11.96-12.00g, for Cibyra, where the population is clearly struck to a higher standard, the 80th percentile falls within the range 12.51-12.55g. The issues of Cibyra are essentially of good cistophoric weight, the Alabanda issues are a full half gramme lighter than contemporary Attalid issues. The drachms of Cibyra closely match the standard of the tetradrachms (**Fig. 33**). The 80th percentile falls within the range 3.01-3.05g.

The difference between the standards employed at the two mints is probably not to be explained by the chronology of these series. The Alabandan issues, which

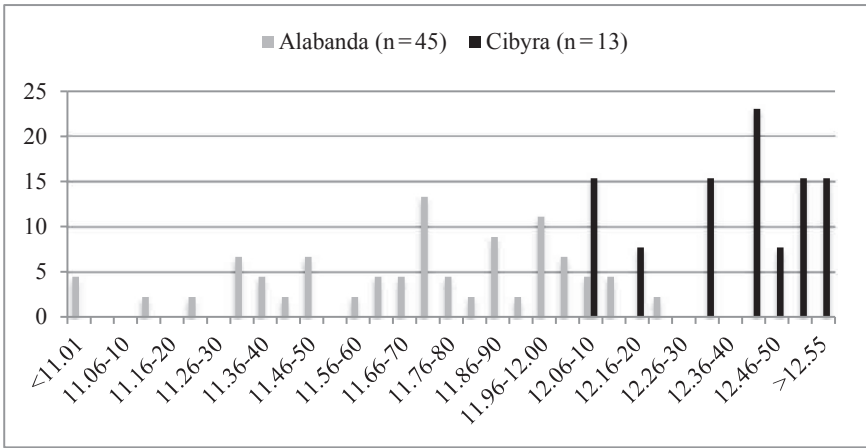


Fig. 37 – Weight distribution of cistophoric tetradrachms of Alabanda and Cibyra, 2nd cent. BC (%).

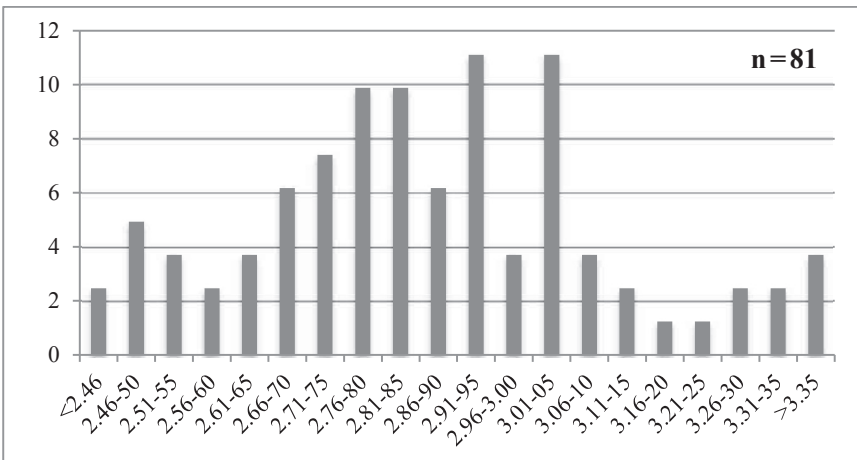


Fig. 38 – Weight distribution of cistophoric drachms of Cibyra, 2nd cent. BC (%).

are dated according to a local era, seem to have been struck between 166 and 133 BC. In a recently published study, Ashton has suggested that at least some of the issues of Cibyra may be contemporary with them.⁴² It is, of course, the case that the Alabandan *cistophori* fall very nicely within the range we would expect if an attempt were being made to accommodate them to the weight of three *denarii*. And there is a strong tradition of pro-Roman sentiment at Alabanda at precisely

⁴² Ashton (2018) 161-174.

this point in time.⁴³ However, we should be cautious in using these figures. The tetradrachms of Cibyra are mainly in good condition and reside in the major collections (10/13), and the sample is small. The Alabandan examples are less fresh and seem largely to derive from a poorly known hoard of the 1920s.⁴⁴ It will suffice to note here two general trends. The first is that, so far as the current state of evidence allows us to say, the influence of the *cistophorus* outside its main circulation zone was felt mainly in the second century BC. To this period belong the largest external *cistophoric* coinages. Thereafter, there are 1st century examples of civic *cistophori*, but those that are closely dateable to that period seem to be produced within the territory of the Province of Asia, and thus within the *cistophoric* circulation zone. Interestingly, we can say in two cases that these 1st century coinages did not exploit the relationship between the *cistophoric* and *denarius* standards, since they were issued at denominations (drachms at Chios



Fig. 39 – ‘Civic’ Cistophoric Mints of SW Asia Minor.

⁴³ Livy 43.6.1-10: *Multarum simul Graeciae Asiaeque civitatum legati Romam conuenerunt [...] Alabandenses templum Urbis Romae se fecisse commemorauere ludosque anniuersarios ei diuae instituisse; et coronam auream quinquaginta pondo, quam in Capitolio ponerent donum Ioui optimo maximo, attulisse et scuta equestria trecenta; ea, cui iussissent, tradituros. donum ut in Capitolio ponere et sacrificare liceret, petebant [...]. munera omnibus in singulos binum milium aeris data. Alabandenses scuta reportare ad A. Hostilium consulem in Macedoniam iussi.*

⁴⁴ Meadows (2008) H24. W. Asia Minor?, c.1920 (CH 10.302).

and didrachms at Magnesia) that could not easily take advantage of it. The second point to note is that we can say with some confidence that at Alabanda, Stratonikeia, Alinda and Cibyra we find the southernmost evidence for the influence of the cistophoric standard (**Fig. 39**). In and beyond the Taurus something very different would occur.

3. Into the Mountains and Beyond

The *cistophorus* did not spread into the south, although, as Ashton has suggested, there may be echoes of the standard in a somewhat reduced form in the second-century Apollo/Prow staters (tetradrachms) of Phaselis.⁴⁵ In general, however, the silver coinage in the region south of the Maeander valley in the first century BC seems to have developed a much closer link with the *denarius* and *quinarius*. I have laid out and subsequently defended the evidence for two key silver coinages elsewhere,⁴⁶ and will simply summarize it here.

3.1. Stratonikeia

At Stratonikeia in Caria where, as we have seen, there was a brief flirtation with the cistophoric standard before the adoption of the plinthophoric standard during the second century, there was another radical departure during the first century when the coinage, while maintaining its plinthophoric appearance, substantially reduced in standard. The plinthophoric drachms and hemidrachms (Group 2) have their 80th percentiles within the ranges 2.96-3.00 and 1.41-1.45 respectively. In the first century this drops massively (Group 3): **Fig. 40-41**.

This is clearly not a gentle downward reduction in standard, but a conscious shift from one to another. The new standard of Group 3 finds its 80th percentile in the range of 1.86-1.90g for the ‘drachms’ and 0.86-0.90g for the ‘hemidrachms’. In 2002 I suggested that the new standard adopted by Stratonikeia for Group 3 was in fact the Roman *quinarius* standard. As we can see now, with the benefit of better *quinarius* weight tables than I was able to use then (above, **Fig. 5-6**), the Stratonikeia ‘drachms’ are indeed very close to the *quinarius* standard for the 1st century BC, and the very low weight hemidrachms would thus appear to be *sestertii*. In 2002 I was tempted by the well-known history of Stratonikeia

⁴⁵ Ashton (2013) 261-262, following my suggestion ([2009] 79) that they may have been influenced by the plinthophoric standard of Rhodes, which was in turn close to the cistophoric. The coins in question are Heipp-Tamer Series 10, Emissions 2-3, consisting of two denominations one with an 80th percentile in the range 11.31-11.35g, the other half that in the range 5.61-5.65g.

⁴⁶ Meadows (2002); Ashton & Meadows (2008) *contra* Marcellesi (2007). Callatay (2011) 64 remains unconvinced.

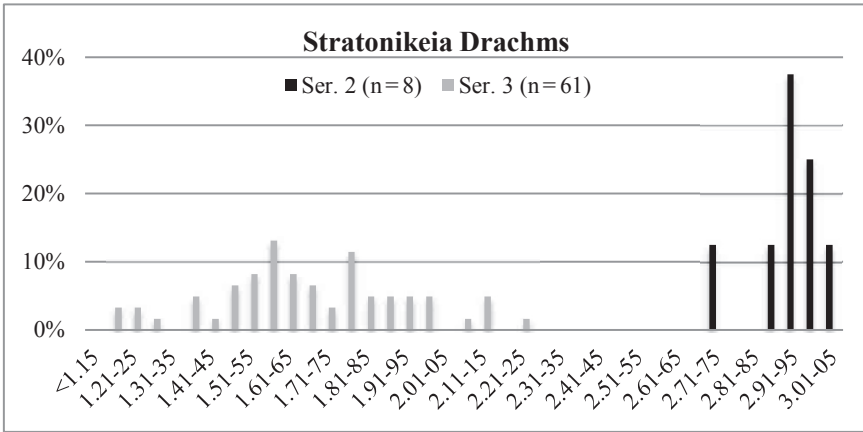


Fig. 40 – Weight distribution of drachms of Stratonikeia Groups 2 and 3, 2nd-1st cent. BC (%).

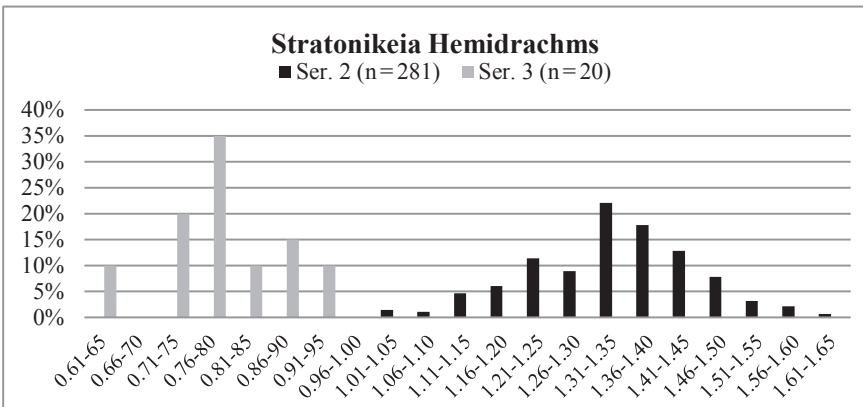


Fig. 41 – Weight distribution of hemidrachms of Stratonikeia Groups 2 and 3, 2nd-1st cent. BC (%).

in the First Mithridatic War, and the comparison with the coinage of the Lycian League (below 3b) to date this coinage to the 80s BC. However, the evidence is circumstantial and, as we shall see, there may be a case for downdating this coinage to the 40s BC.

3.2. The Lycian League

I adduced in comparison with Stratonikeia Group 3 the Lycian League silver coinage of the late 2nd and 1st century BC, where there is similar drop in standard. Troxell's Period 2 silver in the name of the cities, like Group 2 at Stratonikeia, was initially struck on the plinthophoric standard of Rhodes (series 1 and 2). The later phase of this coinage, Troxell noted, seemed to correspond to Jenkins' Group E at Rhodes, and thus run down to the period of the Mithridatic war in the 80s.⁴⁷ In its final phase (series 3), the weight of the silver dropped dramatically. Thereafter, the same standard was maintained throughout Troxell's Group 4. A weight table (Fig. 42) demonstrates plainly what the weight standard is. The 80th percentile falls within the range 1.86-1.90g, exactly as at Stratonikeia. The same is true of the Lycian 'quarter drachms' of Troxell's period 4, where the 80th percentile falls within the range 0.86-0.90g, again exactly as at Stratonikeia (Fig. 43). Following Actium, the Lycian League also began to produce drachms, now with a head of Octavian/Augustus on the obverse (Troxell period IV, series 6). The weight standard of these fits closely with the earlier coinages. The 80th percentile falls within the range 3.56-3.60g (Fig. 44). If it is correct to see these three silver denominations as part of the same metrological system, then a structure of drachm, hemi-

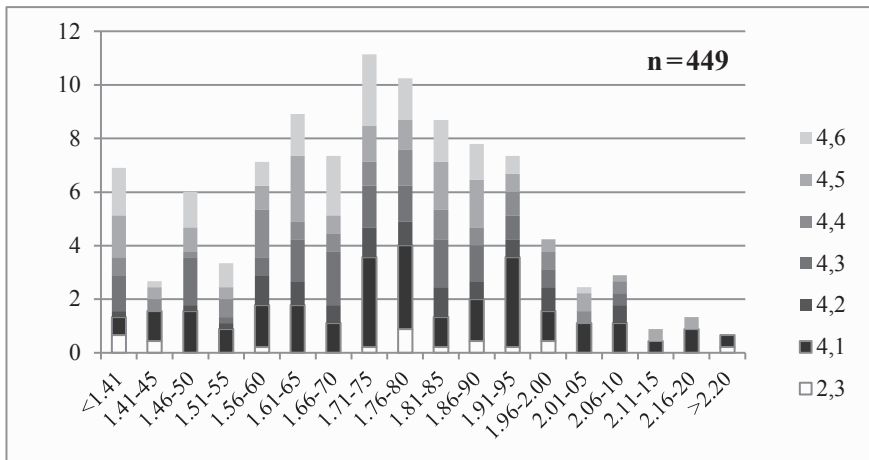


Fig. 42 – Weight distribution of Lycian League hemidrachms of Troxell's periods 2.3 and 4.1-6, 1st cent. BC (%).

⁴⁷ Troxell (1982) 83-84. Apostolou (2016) has recently suggested that the Rhodian plinthophoric hemidrachms of Jenkins Group D were struck to the Roman *sestertius* standard. However, the metrological evidence does not seem to support this (Ashton [forthcoming]: the weights are clearly full plinthophoric).

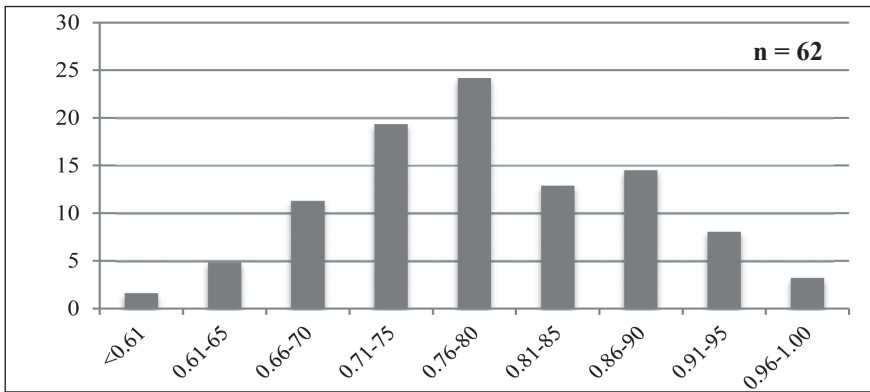


Fig. 43 – Weight distribution of Lycian League quarter drachms of Troxell's period 4, 1st cent. BC (%).

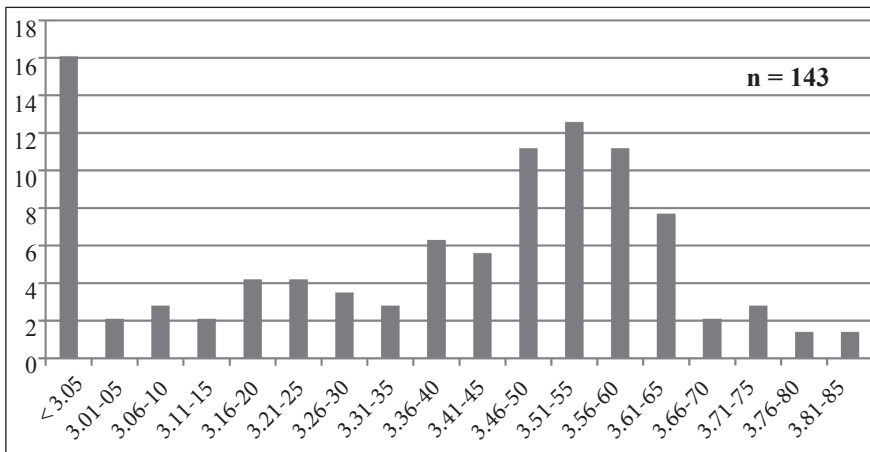


Fig. 44 – Weight distribution of Lycian League drachms of Troxell's period 4, 1st cent. BC (%).

drachm and quarter-drachm must be the relationship, as Troxell saw. But this is not a normal Greek fractional system, where the quarter drachm or trihemiobol is far from a common component. But it makes perfect sense if we are to see these three coinages as *denarii*, *quinarii* and *sestertii*, which were standard denominations within the Roman silver denominational system.

3.3. Pamphylia

In 2015 I extended this inquiry further, into neighbouring Pamphylia where, again, we can see the movement to a *quinarius* standard, in combination with the phe-

nomenon we have noted above of ‘restored’ coinage. At Perge, in the second half of the third century BC, a stunning coinage had been produced in the name of the local goddess, Artemis Pergaia. This coinage consisted of tetradrachms, drachms and hemidrachms of good Attic weight. The date of this coinage (Colin’s Series 1) is guaranteed by the hoard record.⁴⁸ At some point after its cessation, this coinage was revived. The restored coinage (Colin’s Series 2) is stylistically inferior and the weight standard is very different (**Fig. 45-47**).⁴⁹

The standard of series 2 has dropped profoundly. The tetradrachms have their 80th percentile in the range 16.06-16.10g (compared to 16.96-17.00g for series 1). The drachms at 3.66-3.70g (compared to 4.11-4.15g for series 1), and the hemidrachms at 1.76-1.80g (compared to 1.96-2.00g for series 1). Caution is required, particularly for the drachms and fractions, since the sample is so small, yet the standard of series 2 looks again like the *denarius* and *quinarius* standard we have seen in Lycia and at Stratonikeia. But there is an interesting new development. The tetradrachm coinage, though purporting by its design to be an Attic weight issue, has significantly dropped in weight. This is in stark contrast to the behaviour of the Attic weight coinages of western Asia Minor we considered above, which maintained their Attic standard of c.16.8g to the end. I would suggest that we are looking here at a later development, and I have argued (2015) that these series 2 Perge issues belong to 40s BC, and thus mark a new development in the nature of the Attic weight standard and its ‘restora-

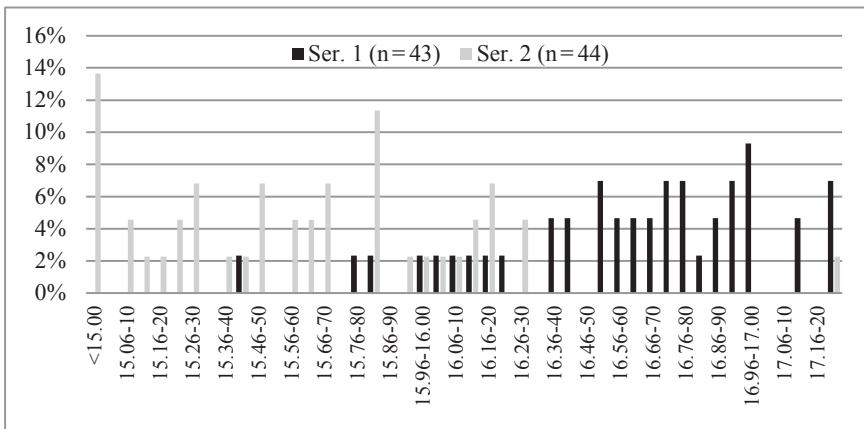


Fig. 45 – Weight distribution of tetradrachms of Perge, Series 1 and 2 (%).

⁴⁸ Colin (1996). See Meadows (2015) 412 for a summary of the hoard evidence.

⁴⁹ Figures are taken from Colin (1996) with the addition of the following tetradrachm specimens for Series 2: UBS 59 (2004) 5830; CNG MB 72 (2006) 819; Baldwins 83 (2013) 4077; Heritage 3049 (2016) 30171.

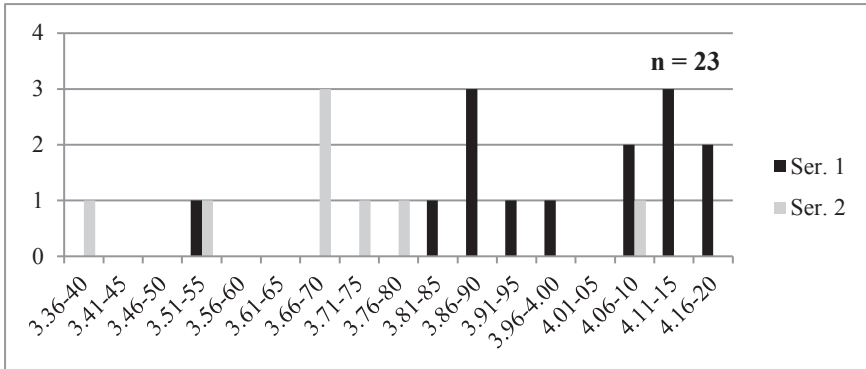


Fig. 46 – Weight distribution of drachms of Perge, Series 1 and 2 (%).

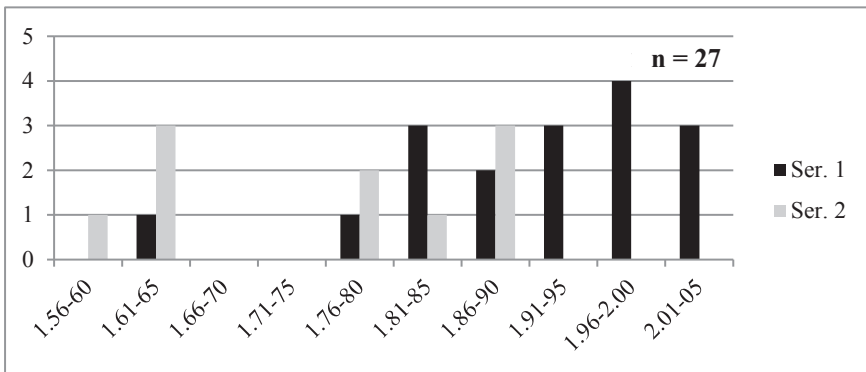


Fig. 47 – Weight distribution of hemidrachms of Perge, Series 1 and 2 (%).

tion'. With the benefit of more comparative material, it may be possible to push this argument a stage further. Aside from the profound reduction in standard, **Fig. 45** also reveals a very large number of coins below 15.30g. The shape of this chart is quite reminiscent of the distribution of the proconsular *cistophori* (excluding Tralles an ATRA) that emerges in **Fig. 33**. In fact, if we compare the interquartile ranges of the Perge series 1 and series 2 tetradrachms we can see that there is a similar phenomenon to be observed here too. For series one the range is 0.5g, from 16.41-16.45g to 16.91-16.95g. For series 2 the range is 0.75g from 15.21-15.25 to 15.96-16.00g. As with the contemporary(?) proconsular *cistophori*, we seem to be looking at a change in process of weight-control at work in the 'Pergaian' mint from Greek *al pezzo* to Roman *al marco*. This being the case, we are justified in examining the mean of the series 2 tetradrachms, which turns out to be 15.61g, suggesting a drachm of 3.90g,

very close to what the accompanying drachms in fact weigh. If it is correct to identify the latter as compatible with the *denarius*, then the tetradrachms are four-*denarius* coins, struck by the Roman method, just as the contemporary proconsular *cistophori* are three-*denarius* coins.

This phenomenon, I have suggested, can be seen in other tetradrachm coinages of this region and period. The first of these is the restored coinage of Side in the name of Kleuchares (Kleuch. 3 and 4), the second is the similar coinage of Amyntas of Galatia, to which it is die-linked (**Fig. 48**).⁵⁰

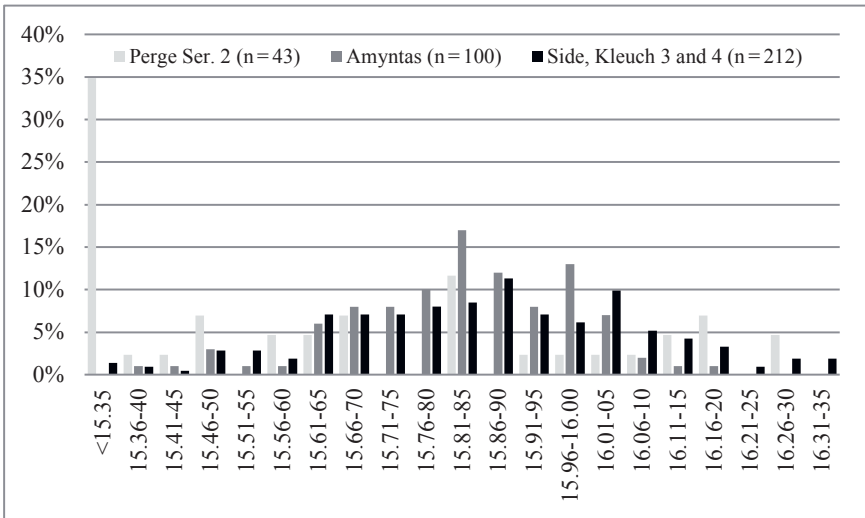


Fig. 48 – Weight distribution of tetradrachms of Perge Series 2, Side (Kleuchares 3 and 4) and Amyntas (%).

There is a clear similarity, and in fact the tetradrachms of Side and Amyntas find their 80th percentile at 16.01-16.05g and 15.96-16.00g respectively. But, again, we may be justified in examining the mean in the case of these coinages, neither of which present the distinctive Greek cliff-face on the weight table. For Side, Kleuchares 3 and 4 the mean is 15.86g, for Amyntas it is 15.83g. We are surely looking at the same weight standard across all these coinages. There may in fact be a fourth coinage to add to these, in the form of restored posthumous Alexander issues of Aspendos. To the four that I cited in 2014, we may now add a fifth.⁵¹ The coins are all quite light, though fall within the observed range for the other restored Pamphylian coinages (**Fig. 49**).

⁵⁰ For an overview of these series and their interrelationship see Meadows (2006).

⁵¹ Rauch 96 (2014) 102: 15.16g. Year 11 + triscele. I am grateful to Peter Thonemann for pointing out this specimen to me.

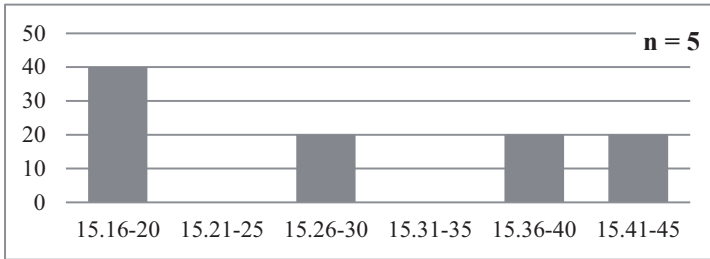


Fig. 49 – Weight distribution of restored tetradrachms of Aspendos (%).

3.4. Pisidia, Lycia and Caria

Thus far, Pamphylia. If we move northwards into Pisidia we can, I think, trace this phenomenon further.

3.4.1. Komama, Kremna and Keraitai

Until recently we knew of just a single hemidrachm of the city of Komama. In around 2008 a new hoard clearly came on to the market. The evidence has now been marshalled by Köker (2017), who has assembled a corpus of 22 specimens, 21 with known weights. Their weight standard is absolutely clear (**Fig. 50**), with the 80th percentile falling in the range 1.86-1.90g.

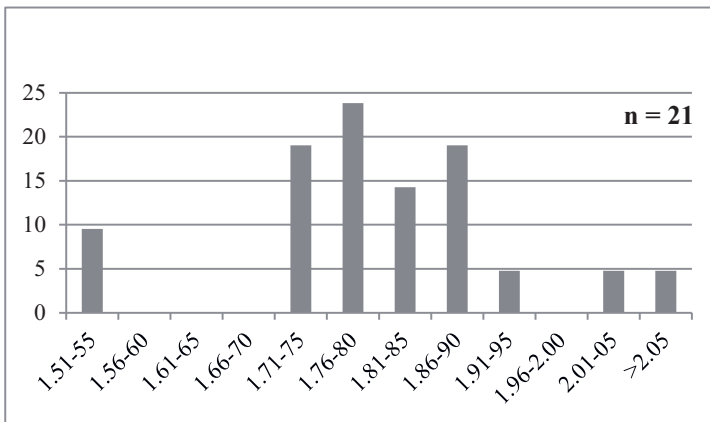


Fig. 50 – Weight distribution of the hemidrachms of Komama (%).

This is clearly the *quinarius* in precisely the same range that we find in Lycia and at Stratonikeia, and very close to that at Perge. A little to the north at the com-

bined communities of Kremna and Keraitai we find a small silver drachm coinage. I know of the weights of only 8 specimens (**Fig. 51**),⁵² scarcely an acceptable sample, but suggestive, perhaps, of a drachm at c. 3.61-3.65g. Köker has suggested that the coinages of both Komama and Kremna-Keraitai may belong to the period of Amyntas of Galatia's rule over this area.⁵³

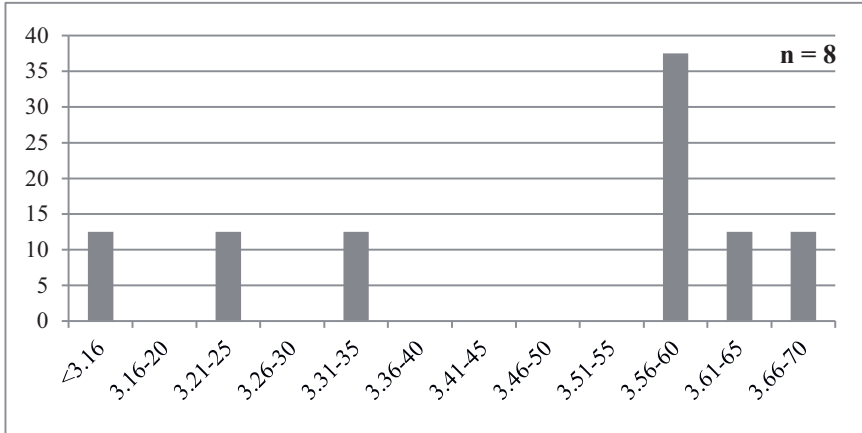


Fig. 51 – Weight distribution of the drachms of Kremna-Keraitai (%).

3.4.2. Sagalassos

A little further north still, we encounter silver coinage also at Sagalassos, in the form of didrachms and drachms. The evidence for this has recently been collected by Stroobants and van Heesch.⁵⁴ The weights of the two coinages included in their study are summarized in Charts 52 and 53.

The 80th percentile fall within the range 3.91-3.95g for the drachms. The sample size for the didrachms is too small for confidence, but is not inconsistent with this standard, which would require a didrachm of perhaps 8.10-8.19g. Although Stroobants and van Heesch have cautiously accepted a date for these coins in the reign of Amyntas, and linked the standard with that we have been discussing in Pamphylia, the weights of the Sagalassian specimens do not look entirely comfortable within that standard, and I remain cautious. A second century date and reduced Attic weight standard may be more plausible for these issues. Stylistically, indeed, they would not look out of place in the mid-late 2nd century (**Fig. 54**).

⁵² G. Hirsch 275 (2011), 3950; CNG MB 67 (2004) 797; Gorny & Mosch 229 (2015) 1373; Gorny & Mosch 195 (2011) 271; Paris, BnF, FG 343; London, BM 1901-07-04-20; London, BM 1979-01-01-932 (*SNG von Aulock* 5075); Boston, MFA, *Supplement* 242.

⁵³ Köker (2017) 233-234.

⁵⁴ Van Heesch & Stroobants (2015).

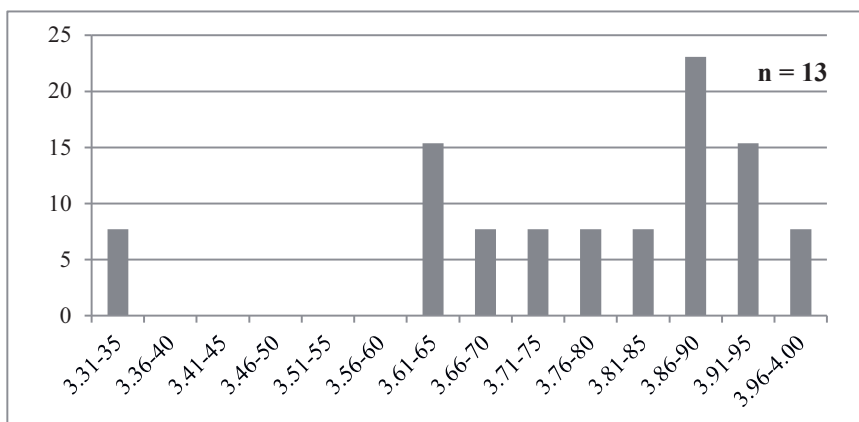


Fig. 52 – Weight distribution of the drachms of Sagalassos (%).

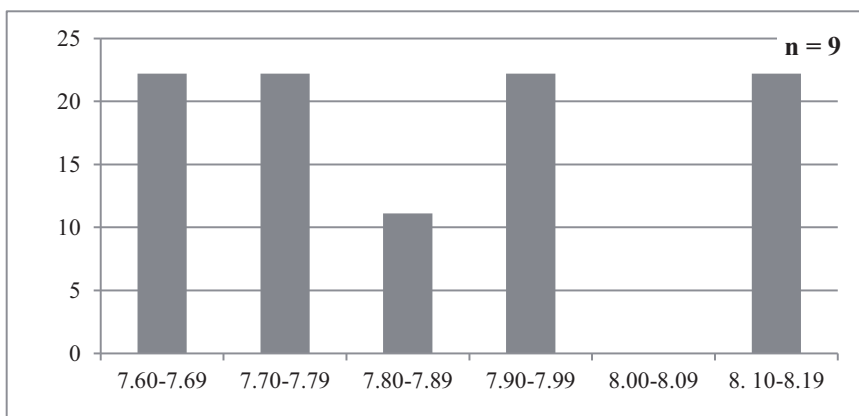


Fig. 53 – Weight distribution of the didrachms of Sagalassos (%).



Fig. 54 – Didrachm and drachm of Sagalassos, hemidrachm of Stratonikeia (late 2nd cent.), drachm of Myndos (mid 2nd cent.) compared. Van Heesch & Stroobants (2015) 20, Fig. 1 (Sagalassos); Peus 384 (2005) 305 (Myndos); G. Hirsch 303 (2014) 2798 (Stratonikeia).

3.4.3. Oinoanda

In this context, we also have to ask the question about the silver didrachms of Oinoanda, the date of which has been the subject of debate between Ashton and De Callatay.⁵⁵ Again thanks to a new hoard we have a good sample of this coinage. The standard can be gauged from **Fig. 55**.

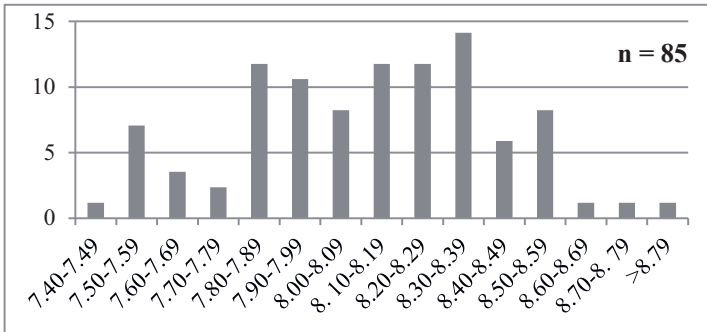


Fig. 55 – Weight distribution of the didrachms of Oinoanda (%).

The 80th percentile falls within the range 8.30-8.39g. This is much too high to be the *denarius/quinarius* standard that we have been pursuing. It is certainly reduced Attic standard at the least, and could conceivably even be full Attic weight. Comparison of the ranges for Oinoanda and Sagalassos (**Fig. 56**) suggest that they are on different standards, and perhaps that we are looking at full and reduced Attic weight coinage respectively. This would suggest a late 3rd-century date for Oinoanda and a 2nd century date for Sagalassos.

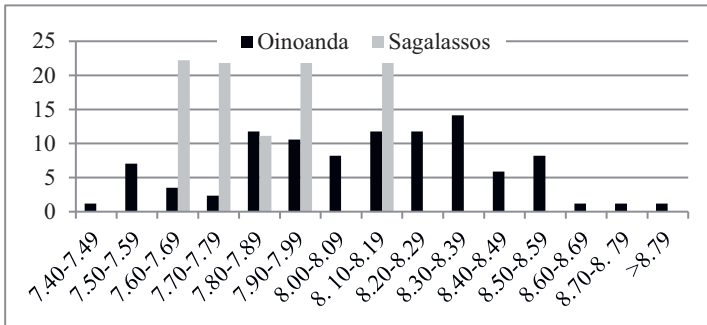


Fig. 56 – Weight distributions of the didrachms of Oinoanda and Sagalassos compared (%).

⁵⁵ See Ashton (2005); De Callatay (2007); De Callatay (2011) 65-66, Ashton (2013) 255-256.

3.4.4. Aphrodisias

These two cases must be set aside. If we return to our search for the *denarius* and *quinarius* we must now move back to Caria. The silver joint drachm issues of Aphrodisias and Plarasa have been suspected in the past of being a *denarius* coinage.⁵⁶ The weight table puts us in familiar territory (**Fig. 57**).

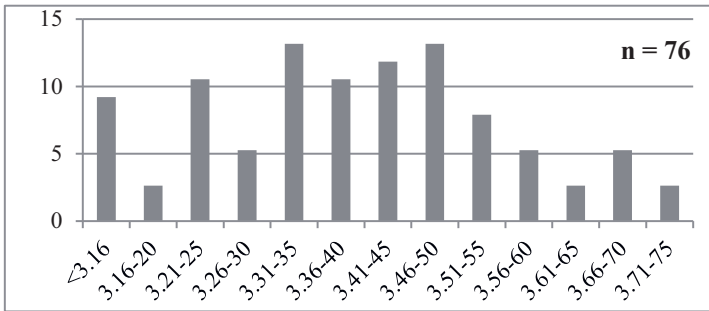


Fig. 57 – Weight distribution of the drachms of Aphrodisias (%).

The 80th percentile falls within the range 3.51-3.55g. This is 0.05-0.10g lighter than the drachms of Lycia and Kremna. The interquartile range is just 0.25g (3.26-3.30 – 3.46-3.50).

3.4.5. Attouda

Nearby at Attouda we have three surviving specimens (**Fig. 58**) of a drachm coinage that is surely contemporary. They weigh 3.70g, 3.30g and 3.44g (holed).⁵⁷



Fig. 58 – Silver drachm of Attouda (*BMC, Caria, Attouda, 1*).

⁵⁶ See the discussion in MacDonald (1992). The weight table (**Fig. 56**) is based on coins listed in his catalogue.

⁵⁷ *BMC 1*; Imhoof-Blümer (1901-1902) 123, nos. 1-2 (vol. 1). For contemporaneity with the Aphrodisian coinage on the basis of style see Thonemann (2011) 229 with n. 94.

At this point it is worth summing up the evidence of the coinages we have looked at so far in this general region.

	4dr	2dr	dr.	½dr	¼dr
Amyntas	15.96-16.00 (mean 15.83)				
Aphrodisias			3.51-55		
Aspendos	15.16-45				
Attouda			3.44		
Komama				1.86-90	
Kremna			3.61-65		
Lycia			3.56-60	1.86-90	0.86-90
Oinoanda		8.30-39			
Perge (Ser. 2)	16.06-10 (mean 15.61)		3.66-70	1.76-80	
Sagalassos		8.10-19	3.91-95		
Side (Kl. 3 & 4)	16.01-05 (mean 15.86)				
Stratonikeia				1.86-90	0.86-90
Tabae			3.71-75	1.86-90	
Rome			3.89	1.80	0.85

Fig. 59 – 80th percentile ranges (and means) compared across southern mints.



Fig. 60 – Mints in Southern Asia Minor.

We may place a question mark over the cases of Aphrodisias and Attouda, where the standard may be fractionally lower, but in general at the majority of the mints (shaded light grey on **Fig. 36**) there seems to be a convergence around a tetradrachm of c. 16g (or 15.60-15.80 using the mean), and a drachm of c. 3.6-3.7g, a hemidrachm of c. 1.8-1.9g and a quarter drachm at 0.86-0.90g. At the drachm level the weights fit within the acceptable range of circulating *denarii*. At the hemidrachm level the weights closely fit the target weight of the late first century Roman *quinarius*, and at the quarter drachm level the weights precisely match the Roman silver *sestertius*. Is this coincidence? To my mind, the last case that we must consider proves definitely that it is not.

3.4.6. *Tabae*

The late silver coinage of *Tabae* is a complex body of material that has thus far resisted a definitive treatment.⁵⁸ The survey that follows is based upon a die-study that I have completed of the mint, and which I hope to publish shortly. In brief, there are two phases of silver coinage. The first consists of drachms and hemidrachms of around 16 magistrates/issues (ΚΕΤΤΑ, COΛΩΝ ΑΡΙCTOΔΗΜΟΥ, CEΛEYKOC BPAXYΛΛΙΔΟΥ and ΑΡΤΕΜΩΝ ΠΑΠΠΟΥ for the drachms, and the last two magistrates plus a dozen others for the hemidrachms). The second consists solely of the well-known drachms (there are no hemidrachms) struck on a considerably lower weight standard, with a variety of types in the name, again, of ΑΡΤΕΜΩΝ ΠΑΠΠΟΥ. We shall return to this second phase shortly (section 4). For now, it is the first phase that fits the pattern that we have just observed (**Fig. 61-62**).

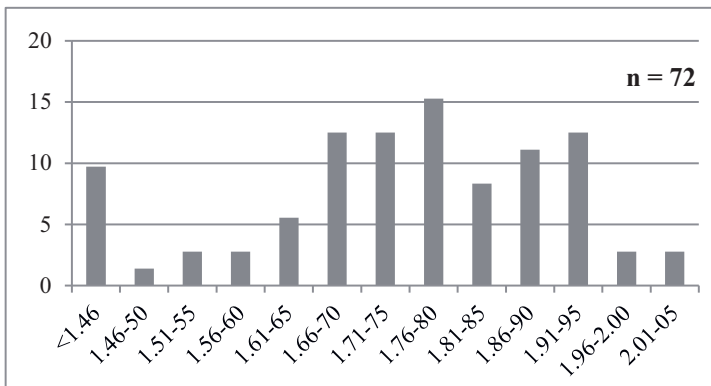


Fig. 61 – Weight distribution of the hemidrachms of *Tabae* (%).

⁵⁸ For a typological overview see Robert & Robert (1954) 123-137.

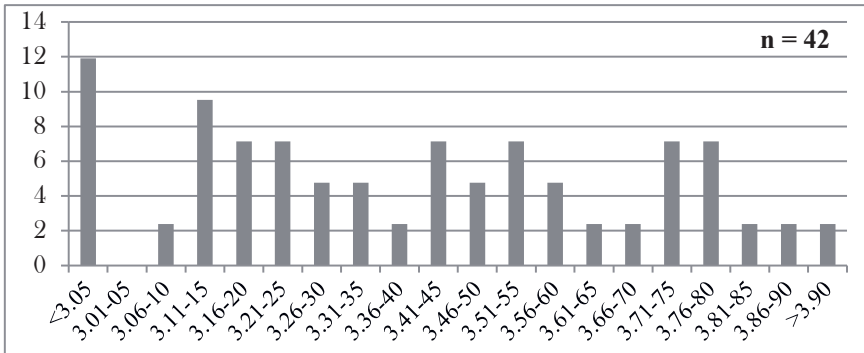


Fig. 62 – Weight distribution of the heavy drachms of Tabae (%).

Once more we are in familiar territory. The hemidrachms find their 80th percentile in the range 1.86-1.90g, while for the accompanying drachms it is within 3.71-3.75g. But these are not drachms and hemidrachms, they are without question *denarii* and *quinarii*, for their types tell us so.

The hemidrachms have on their obverse the unvarying design of a helmeted head of Athena. The reverses (**Fig. 63a-d**) all bear an image of Nike, although there is some variation in her pose. She always walks to the right. Normally she holds a palm branch over her shoulder (**a-c**), but there is one variety where she seems to hold a trophy (**d**). Normally she holds a wreath in her right hand stretched out in front of her (**a-b, d**). But on some issues she appears to have her arms flung wide (**c**).



Fig. 63a-d – Variations of the reverse type of the hemidrachms of Tabae (Vienna, 37785; Peus 414 [2015] 92; Paris, FG 998; Vienna, 18427).

With the *quinarius* denomination suggested to us by their weight, it requires only a small leap to identify the obvious prototypes for these images. The figure of Nike is almost constantly a feature of the reverse type of the *quinarius* of the Roman Republic, from the issues of the late 2nd century BC through to the early issues of the 40s. We may tabulate them as follows (**Fig. 63**):

1	c.101-97 BC Rome	RRC 326-332 and 333 King (2007), nos. 31-5 and 36	Victory crowns trophy (or in- scribes shield on trophy)	
2	c.90 BC Rome	RRC 340 King (2007), nos. 38-43	Victory stands, palm over shoulder, right arm at side	
3	c.90 BC	RRC 340 King (2007), no. 39A	Victory stands holding sword and spear	
4	c.89 BC Rome	RRC 343 King (2007), nos. 45-46	Victory seated r. holding patera	
5	c.88 BC Rome	RRC 345 King (2007), no. 47	Victory crowns trophy	
6	c.87 BC Rome	RRC 348 King (2007) no. 48	Victory dancing with out- stretched r. arm	
7	c.81 BC Uncertain	RRC 373 King (2007) nos. 49-50	Victory crowns trophy	
8	c.47 BC Rome	RRC 454 King (2007) no. 52	Victory strides r. holding wreath in r. and palm branch over l. shoulder	
9	46 BC Rome	RRC 465 King (2007) nos. 59-63	Victory walking r. holding tro- phy	
10	47/46 BC Africa	RRC 462 King (2007) no. 72	Victory seated r. holding patera	
11	43/42 BC Gaul	RRC 489 King (2007) no. 74	Victory crowns trophy	



12	43/42 Brutus, Asia Minor?	RRC 502 King (2007) no. 77	Victory walks r. holding wreath in outstretched r. and palm over l. shoulder	
13	31 BC Scarpus, Cyrenaica	RRC 546 King (2007) no. 82	Victory walks r. holding wreath in outstretched r. and palm over l. shoulder	

Fig. 64 – Variations in the depiction of Victory on Roman Republican *quinarii*.

1: R. Witschonke coll. (Numismatica Ars Classica 61 [2011] 1186). 2: R. Witschonke coll. (Numismatica Ars Classica 63 [2012] 43). 3: R. Witschonke coll. (Numismatica Ars Classica 63 [2012] 41). 4: R. Witschonke coll. (Numismatica Ars Classica 63 [2012] 74). 5: R. Witschonke coll. (Numismatica Ars Classica 63 [2012] 89). 6: Numismatica Ars Classica > Auction 70, Auction date: 16 May 2013, Lot number: 116. 7: R. Witschonke coll. (Numismatica Ars Classica 63 [2012] 170). 8: R. Witschonke coll. (Numismatica Ars Classica 63 [2012] 367). 9: R. Witschonke coll. (Numismatica Ars Classica 63 [2012] 406). 10: Numismatik Naumann 33 [2015] 448. 11: R. Witschonke coll. (Numismatica Ars Classica 63 [2012] 481). 12: R. Witschonke coll. (Numismatica Ars Classica 63 [2012] 526). 13: Berlin 18215910 (1882 Sandes).

The three varieties of pose that we see on the *quinarii* of Tabae (advancing with palm and wreath, dancing with palm and wreath and advancing holding trophy) all appear on Republican issues. The dancing pose, where Victory throws her arms wide with abandon appears once only at Rome, in 87 BC (RRC 348; King [2007] no. 48).⁵⁹ The rare variant where Victory holds a trophy also occurs once only, in 46 BC (RRC 465; King [2007] nos. 59-63). And the most common variety, where Victory walks slowly forward with a palm branch over her shoulder and a wreath in her outstretched hand, appears first on the *quinarii* struck by Brutus' mobile mint, probably in Asia Minor in 43/42 BC (RRC 502; King [2007] no. 77). The *quinarii* of Tabae tell us both explicitly that they are *quinarii*, but also implicitly that the majority of them were struck in the 40s BC, and were influenced by a *quinarius* stock that was dominated by the issues of Brutus, but which may also have contained issues dating back to the 80s.

From two points of view, therefore, it seems certain that these issues of 'hemidrachms' at Stratonikeia, in Lycia, at Komama, Perge and Tabae were viewed as compatible with *quinarii*: their precise correspondence in weight and, at Tabae, the choice of design all suggest this.⁶⁰ In three of these states (the Lycian League,

⁵⁹ It must be admitted, however, that it is unlikely that these rare issues could have been circulating in Caria over a generation later. The *denarius* of L. Vinici (RRC 436, 52 BC), with similar design conceivably offers a more recent model.

⁶⁰ We may note also that this denomination at Stratonikeia also bore a reverse type of Nike. In this case, the design was carried through from the earlier Series 2 drachms. The decision to maintain this design on a coin that bore now, in the wider world, the value of a hemidrachm may perhaps have been influenced by this association with the *quinarius*.

Tabae and Perge) there were accompanying issues of drachms, which can thus only be interpreted as *denarii*, and at two (Lycia and Stratonikeia) there were accompanying half denominations which must be *sestertii*. This last fact may have some chronological significance too. The *sestertius* was a rare element in the Roman denominational structure. Within the period of interest to us, there were just two issues of these in 91-90 BC (*RRC* 337 and 340), but then a rash of them in the years 48-44 BC (*RRC* 449, 454-455, 463-465, 472-474, 480).

The overall chronology of this shift may now be approached with a little more evidence than I was able to bring to bear in the past. In my 2002 discussion I suggested that there were three strong reasons for proposing a date in the 80s for the beginning of the Lycian League *quinarii*: metrology, hoard evidence and style. The first of these pillars, with better tabulation of the *quinarius* standard than was provided by Troxell must now fall: there is too little difference between the weights of the Roman *quinarii* of the early and late 1st century to allow us to use them as indicators. The hoard and stylistic evidence still stands, however. It remains most probable that the Lycian League *quinarii* began in the 80s BC.⁶¹ At Aphrodisias too there may be evidence to suggest a date in the earlier part of the 1st century for the ‘*denarius*’ coinage issued there.⁶² However, for the other coinages we have been considering there is no evidence that points to such an early date of adoption. I suggested in 2014 that the ‘restored’ issues of Perge and Aspendos, and, fleetingly, the coinage of Amyntas were all dated by a common era, and that this was the Pharsalus or Caesarian era beginning in 48/47 BC. Since issues are dated by year 1 at both Perge and Aspendos, and no undated issues are recorded, production presumably began in that year. The convergence between this date and that suggested by the iconography of the *quinarii* of Tabae (c.46-43 BC), and the adoption of the *sestertius* (in or after 47/46 BC?) is tantalizing in the extreme. Moreover, if we take a step back and look at the broader picture provided by coin finds, it seems that the 40s may indeed have been a significant period in the introduction of the *denarius* as an element in the monetary economy of Asia Minor, undoubtedly due to the impact of the civil wars in this region.⁶³ More specifically, a strong case can be made for the location in Lycia of a significant part of Brutus’ *denarius* output following his victory. Some of these (*RRC* 503/1, 505/4-5, 507/1b) are overtly triumphal, bearing the image of a trophy, as well as, in three cases, draw-

⁶¹ Meadows (2002), restated in Ashton & Meadows (2008) 113-114.

⁶² See Drew-Bear (1972) for the possibility that one of the Aphrodisian moneymen (Ἰάσων Σκύμνου) was the father of two men honoured at the city apparently in the 70s (*Aphrodisias & Rome* no. 5). Cf. MacDonald (1992), 36 and Reynolds *ad loc.*, who cautiously opts for a date between 80 and 48 BC. It is thus entirely possible that these issues may be associated with the Mithridatic conflict too.

⁶³ As noted by Tolga Tek in a paper delivered at the Colloquium, but not published in this volume, these coins only become noticeable in circulation during the 40s-30s BC, when many of them were issued to support the war effort in Asia Minor.

ing on the Lycians' own iconography of Apollo (*RRC* 503/1, 505/4, 507/1b). It is highly likely that these issues were struck in Lycia; the iconographic borrowing in particular makes little sense elsewhere.⁶⁴ These coinages must, of course, be added to the list of *denarius*-standard coinages produced in southern Asia Minor, and are securely datable to 43/2 BC.

4. Antony and the end of local silver

The picture we can draw of Roman impact is a complex one, and develops over time. Within the province of Asia it seems that the old cistophoric and Attic weight standards were maintained with some scrupulousness down to the 50s BC, at which point local, civic-type silver essentially ceased to be produced, and the cistophoric production moved into the hands of Roman administrators rather than Greek cities. At the edge of this world, in the mountains of Pisidia in the new province of Cilicia, or perhaps within the newly disposed *imperium* of Mark Antony, the influence of the *cistophorus* was not initially felt. In the 80s BC the Lycian League could already see the *denarius* standard as attractive. But it was not until the 40s, it seems, that this monetary outlook extended to a number of other cities and administrations in southern Asia Minor. The two variables here are time and place: within Asia and outside; before and after the battle of Pharsalus.

The *denarius*, *quinarius* and *sestertius* coinages I have identified were not long-lived. The only issues with eras, at Aspendos, Perge and Side, probably end in year 11 or 12, in the mid-30s BC. Thereafter there is little silver and nothing that looks to be on the familiar standards. There is a coda to the story, however, that may suggest how and when it all came to an end.

We can return to Tabae, and the coinage of *APTEMΩN ΠΑΠΙΟΥ*. As I have outlined above, there was a small issue of *denarius*-weight drachms of this magistrate, but then the standard of his coinage plummets (**Fig. 65**).

The 80th percentile falls in the range 2.85-2.89g, a drop of almost 1g from the weight of the heavy drachms. This is clearly not a *denarius* coinage. What I think it must be is cistophoric. Artemon switched standards, from a *denarius*-equivalent drachm to a cistophoric drachm. The *cistophorus* to which it would relate (notionally 11.40-11.56g) is not the proconsular *cistophorus* (of c. 12.30g, as we have seen) but rather the reduced-weight *cistophorus* introduced by Mark Antony in 39/38 BC (**Fig. 66**). For this the 80th percentile falls within the range 11.81-11.90g,⁶⁵ but

⁶⁴ These points have all been made by Tek, *ibid*.

⁶⁵ Weights of specimens in the collections of New York, Paris and London, to which have been added the specimens included in the Asia Minor c.1918 hoard (N. Olçay in Sutherland *et al.* [1970]) and all those recorded at Coinarchives.org, 18 April 2017 (duplicates removed).

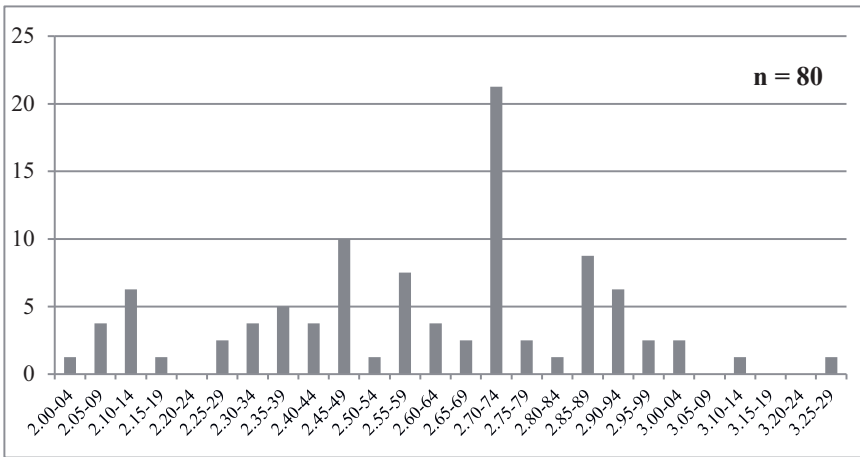


Fig. 65 – Weight distribution of the light drachms of APTEMQN ΠΑΠΙΟΥ at Tabae (%).

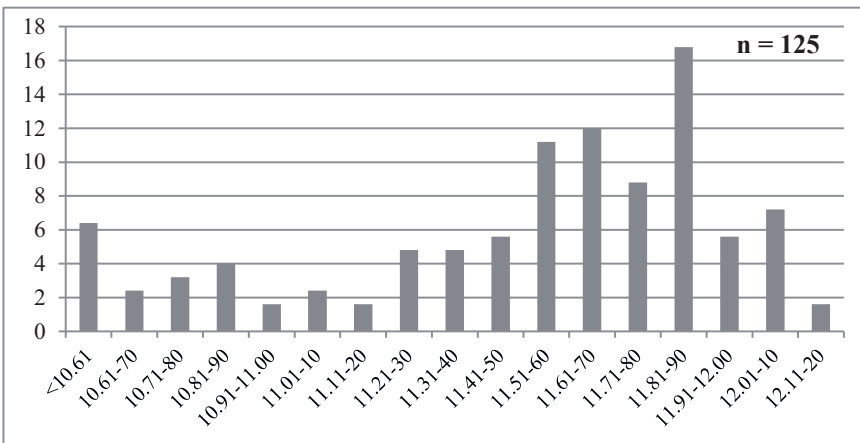


Fig. 66 – Weight distribution of the *cistophori* of Mark Antony (%).

the standard sprawls somewhat, with an interquartile range of 0.6g (11.21-11.30g – 11.81-11.90g). Once more we need to examine the mean of these issues which is indeed 11.50g, while the median falls within the range 11.61-11.70g, and so is closely compatible with Artemon’s *cistophoric* drachms.

This reduction in weight of the *cistophorus* by Antony was followed, it now seems clear, by a similar if not greater reduction in the weight of his *denarius*. Butcher and Ponting present a sample they have collected of 120 fresh legionary *denarii* of Antony. This has a mean of 3.61g, median of 3.64g and mode of 3.71g (the

80th percentile falls within the range 3.70-3.79). Metal analysis suggests that some at least of this coinage was produced at the same mint in Asia as the *cistophori*.⁶⁶

The fact that the change in weight of the *denarius* and *cistophorus* under Antony was felt so swiftly at the mint of Tabae suggests that the Roman coinage was now becoming a major feature in the lives of such civic communities. And the fact that Tabae is among the last, if not the last, in this region to strike silver coins might be taken to confirm the fact that civic silver was no longer needed. The drachms of Artemon briefly plugged a hole in the system: the need for a drachm on the *cistophoric* standard. But this apparently was only a fleeting need. If this reconstruction is correct then it may explain why the full-weight, dated *denarius*- and *quinarius*-based ‘restored’ coinages of Pamphylia do not survive beyond year 11: this equates to year 38/37 on the era of Pharsalus, and so would precisely coincide with Antony’s introduction of his new *cistophori*. But it also coincides with a period of sustained production of *denarii* in the East.⁶⁷

The ‘civic’ tetradrachm, mainstay of Greek coinage in Asia Minor for close to half a millennium, was on the verge of extinction. We can witness its final death throes, I suspect, at Cilician Aegeae.



Fig. 67 – Tetradrachm of Aegeai (CNG Electronic 365 [2015] 184).

Here a small and sad issue of tetradrachms provides a final piece of evidence for how the *denarius* was now dominant. In 1997 a hoard expanded our knowledge of this coinage from 12 to 199 specimens. The coins bear dates from years 16-18. The era, as has been suggested in the past, is likely once more to be that of Pharsalus. The coins would thus date from 34/33-32/31 BC. The weights of these hoard coins find their 80th percentile in the range 14.56-14.60g, significantly below that of the restored tetradrachms of Pamphylia (cf. **Fig. 48** and **68**).

The identity of this standard has been sought in vain among the Greek coinages of the east. Arnold-Biucchi, in publishing the hoard, has dismissed these earlier attempts and ends by suggesting that these were ‘peut-être tarifés à qua-

⁶⁶ Butcher & Ponting (2015) 163-164 Table 8.3 and Fig. 8.2 for the weights; *ibid.* 165 for the metal analyses suggesting a common mint.

⁶⁷ On Antonian policy and monetary production see now Meadows (2019).

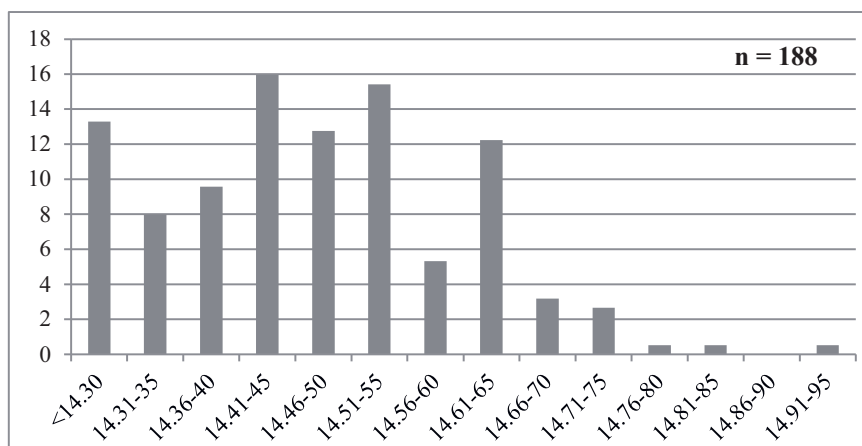


Fig. 68 – Weight distribution of the tetradrachms of Aegeai (%).

tre deniers romains'.⁶⁸ It seems to me that she must be right, but that these are too light to be 4 *denarii* on the Republican *denarius* standard of 3.9g. The *denarius* in question weighs 3.65g and must rather be the new, lower-weight *denarius* of Antony. That the experiment at Aegeai ended in 31 BC, the year of the Battle of Actium is surely no coincidence.

5. Conclusion

I have suggested that in a number of cases we can be confident that the Attic weight standard continued in use into the first century BC, recognizably close to the reduced-weight standard of c.16.80g that is generally assumed to have come into use at Antioch in the 170s BC. Smyrna maintains a standard of c. 16.51-16.65g in the second and first centuries, the coinages of Athena Ilias and Alexandria Troas c. 16.81-16.85g and 16.70-16.79g respectively, Tenedos c. 16.61-16.65g and Abydos 16.66-16.70g.

The second and first centuries also saw the rise of a new standard, first in the Attalid kingdom, and subsequently in the Roman province of Asia. This 'cistophoric' standard, apparently pegged at $\frac{3}{4}$ of the Attic standard, remained stable until the middle of the first century BC.

⁶⁸ Arnold-Biucchi (1999) 11. This may well explain the appearance of the letter Δ (=4) on the reverse of this coinage, which would identify this otherwise unusual denomination. I would interpret the Δ that appears on Arnold-Biucchi's R1 thus, rather than as a date.

In the course of the 1st century, it appears that monetary production in Asia Minor began to come under the influence of Roman practice. In certain cases (e.g. the pro-consular *cistophori*) we have seen evidence of a shift from *al pezzo* to *al marco* control of the weights. In a number of other cases we can see clear evidence for a shift away from the traditional Attic and cistophoric standards towards alignment with the denarius and its fractions, the quinarius and sestertius. A first phase of this occurs, apparently in the context of the Mithridatic Wars, at Aphrodisias, Stratonikeia and in Lycia. A second phase, encompassing mints in the Troad, Caria, Lycia, Pamphylia, Pisidia and perhaps Ionia, saw a move not only to production of denarii and fractions, but also the re-invention of the tetradrachm as a 4-denarius coin. At the same time the denarius seems to have replaced the Attic drachm as the basis of the cistophoric standard, as the *cistophorus* descended in weight to achieve the equivalence of a 3-denarius coin that is subsequently attested for the imperial period.

We can perhaps attribute the bulk of this convergence of Greek silver coinage towards the Roman to the period of the civil wars in the East in the 40s and 30s BC, when Roman coinage began not just to circulate in the East, but also to be produced there. And to the Antonian interlude in the East we can perhaps also attribute the demise of Greek silver. Only in Lycia, where convergence had started precociously in the 80s BC, would it survive into the reign of Augustus. Elsewhere, denarii from now onwards would be denarii.

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