

## The Wreathed Tetradrachms and Gold Staters of Magnesia on the Maeander

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### 1. Introduction

In the mid-140s BC, Magnesia on the Maeander produced a large tetradrachm coinage which was minted on the Attic weight standard and used civic types.<sup>1</sup> The obverse depicts a typical portrait bust of Artemis: draped, facing right, wearing a *stephane* in her hair, and with a bow and quiver at her shoulder. This will be Artemis Leukophryene, the importance of whose cult at Magnesia had become amplified after she appeared in an epiphany at some point pre-221.<sup>2</sup> As a result, her sanctuary in the heart of the city was rebuilt on a lavish scale and in 208 the Greek world recognized her festival as being of stephanitic status.<sup>3</sup> The reverse shows a naked Apollo standing *contrapposto* beside a tripod with a filleted branch in his right hand and a Maeander pattern beneath his feet. This will be Apollo Aulaites whose oracular sanctuary lay on the opposite bank of the Maeander to Magnesia and was of great significance to the city throughout antiquity.<sup>4</sup> To left and right are the city's ethnic (ΜΑΓΝΗΤΩΝ) and the name and patronymic of ten different signers.<sup>5</sup> The whole design is framed by the laurel wreath that gives rise to the traditional way of referring to these coins in the scholarship: Magnesia's wreathed tetradrachms.<sup>6</sup>

This series was the subject of a lengthy study by Nicholas Jones in 1979, which benefitted greatly from the flood of new examples that appeared following the discovery of the Kırıkhan hoard in south-east Turkey in 1972 (*CH X* 10.310). A coinage that, before 1972, had been

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<sup>1</sup> All dates are BC unless otherwise stated. I have incurred a large number of debts in the preparation of this study. My greatest is to Philip Kinns who has patiently guided me through the intricacies of Ionian coinage and at an early stage shared with me his materials on Magnesia's wreathed tetradrachms. I am also especially grateful to Nicholas Jones who very generously sent me his materials from the original die study. For help with various further queries I would like to thank Christian Schinzel (Winterthur), Austin Andrews (ANS), Julien Olivier (BnF), Frédérique Duyrat (BnF), Karsten Dahmen (Berlin), Simon Glenn (Ashmolean), Alex Morley-Smith (Roma Numismatics), and Brad Nelson (CNG). Finally, I would like to thank the editors for all their help with this paper.

<sup>2</sup> *J. Magnesia* 16.5.

<sup>3</sup> Thonemann 2007.

<sup>4</sup> For this cult's importance to Magnesia from the 5<sup>th</sup> century BC to the 5<sup>th</sup> century AD see Robert 1977a: 77-88 and for the sanctuary's likely location see Boulay 2017. Jenkins and Hipólito 1989: 138 note that, 'The Apollo type of the reverse recalls, in its pose and composition, the Apollo on the coins of Seleukos II of Syria'. The type also occasionally appears on tetradrachms of Seleukos III (*SC* 936) and bronzes of Antiochos III (*SC* 983, 1185), Seleukos IV (*SC* 1315, 1320), Demetrios I (*SC* 1693), and Antiochos VI (*SC* 2023). Magnesia's die cutters altered the type by replacing the arrow Apollo is testing on the Seleukid coins with a filleted branch. This detail also appears on the city's Imperial-era coinage and may have been a feature of the sanctuary's cult statue: *RPC* 6.5225, 5229 (Maximinus – with tripod), 7/1.516, 521, 537, 546, 556A (Gordian III), 8.ID20502 (Philip I). Numbers for *RPC* 6 and 8 are temporary.

<sup>5</sup> The ethnic is to the left for reverse dies PE1-17 and AK1-14 and then on the right thereafter. The ten signers and their abbreviations (lightly adapted from Jones 1979: 76) are as follows: 1. PE = Pausanias Euphemou; 2. AK = Apollodoros Kallikratou; 3. EP = Euphemos Pausaniou; 4. PP = Pausanias Pausaniou; 5. AnAn = Antigenes Anaxikratou; 6. ArAr = Aristokritos Aristokritou; 7. HZ = Herognetos Zopyrionos; 8. EA = Erasippos Aristeou; 9. ArAn = Aristokrates Andronos; 10. PD = Pythodoros Demokratou.

<sup>6</sup> It is also common but incorrect to refer to them as stephanephoric coinage. As Robert 1951: 105-35 and Robert 1977b: 34-45 showed, the various references in the inscriptions to *δραχμαὶ στεφανηφόροι*, *τέτραχμα στεφανηφόρα*, *δραχμαὶ/τέτραχμα τοῦ ἀργυρίου στεφανηφόρου*, and so on are only to the so-called 'New Style' Athenian coinage which is thus the only coinage properly called 'stephanephoric'. It is nevertheless convenient to refer to the series under discussion as Magnesia's wreathed tetradrachms since this is the design element which distinguishes them from the rest of the mint's output.

known from just under a hundred examples, by 1979 had more than doubled in size to 234 coins.<sup>7</sup> Since then, progress has been made on several fronts. First, the material now available and catalogued below (Section 8) has more than tripled to 887 coins (Section 2). This allows us to reconstruct the sequence of production with far greater precision than Jones was able to (Section 4). Secondly, a combination of new hoards, better understanding of old hoards, and a clearer picture of the wreathed coinage itself help us narrow down the date of the series from c. 155-145 to the mid-140s. Although only a minor change to the dating, this has significant repercussions for the historical context of the series (Section 5). This new dating in turn provides an opportunity to reassess the prosopographic links between the ten signers on these coins and other numismatic and epigraphic evidence from Magnesia (Section 6). Finally, in 2017 a previously unknown issue of gold staters appeared bearing the name of one of the signers of the wreathed coinage, Euphemos Pausaniou (Appendix 2).

It was my great good fortune when I began to be interested in Greek numismatics that Richard was one of the first people I approached. He was kind, patient, and endlessly generous with his time and knowledge. In the years since he has been a constant source of advice and encouragement in ways too numerous to count. It is a great pleasure to present him with this study as a token of my appreciation.

## 2. Knowledge of Magnesia's Wreathed Tetrachms

The wreathed tetrachms of Magnesia were already a very well-understood series when Jones published his die study in 1979. As **Table 1** illustrates, the progress made since then has been less in the number of obverse dies known (a modest rise from 36 to 40), but rather in the significant increase in the number of reverse dies and die combinations.<sup>8</sup> Thus, while our figure for the total size of the coinage is largely the same, our understanding of the complex internal structure of the coinage has been transformed.

	n	d	r	Die Pairs	n/d	Singletons <sup>9</sup>	D (Carter) <sup>10</sup>	D (Esty)
<b>Jones</b>	243	36	129	142	6.8	6	38 ±1.0	42 ±3.2
<b>Ellis-Evans</b>	887	40	198	258	22.2	5	39 ±0.3	42 ±0.9

*Table 1. Comparison of Jones (1979) and the present study.<sup>11</sup>*

<sup>7</sup> The hoard's impact on his study is acknowledged by Jones 1979: 64.

<sup>8</sup> There are in fact six new obverse dies (O7 [EP], O16 [EP, PP], O24 [EP, PP], O35 [EA], O38 [ArAn, PD], O39 [ArAn]) rather than four as the table suggests, since Jones 7 and 21 are the same die and Jones 23 is a forgery (F1 in Appendix 1).

<sup>9</sup> The five singletons are O6 (Jones 6), O35 (Jones -), O37 (Jones 35), O39 (Jones -), O40 (Jones 36). Three further dies were singletons in Jones' die study. Jones 7 (O8 – now 26 coins) is identical with Jones 21 so was not a singleton to begin with. The new examples of Jones 15 (O20 – now 9 coins) have all appeared since 1980. Jones 23 is a forgery (F1 in Appendix 1).

<sup>10</sup> It is worth noting the impossible result Carter's formula gives of an estimate of the original number of obverse dies *below* what we have in fact observed. This will occur in cases of very high coverage as a result of the simplifying assumptions Carter's model makes and is one indication (among others) of the serious drawbacks to his formula. I am grateful to Warren Esty for discussion of this point.

<sup>11</sup> The following abbreviations are used: *n* = coins observed; *d* = obverse dies observed; *r* = reverse dies observed; *n/d* = the mean number of coins per observed die (otherwise known as the index figure); *D (Carter)* = estimate of original number of obverse dies based on Carter 1983; *D (Esty)* = same based on Esty 2011.

Not all ten signers are equally well known to us: the six signers 1. PE, 2. AK, 3. EP, 4. PP, 7. HZ, and 8. EA account for 880 coins, whereas the four signers 5. AnAn, 6. ArAr, 9. ArAn, and 10. PD account for just seven coins.<sup>12</sup> There are two likely explanations for this disparity, which should not be considered mutually exclusive. First, the under-representation of these four signers could reflect the fact that they were less productive than the other six. Second, it could reflect the fact that our sample of Magnesia's wreathed tetradrachms has been skewed as a result of hoard finds, above all the enormous Kırıkhan hoard, which may be responsible for two-thirds or more of our coins (Section 3).

In the case of 5. AnAn and 6. ArAr an explanation in terms of lower production is preferable. These signers clearly operated in parallel with the well-represented signers 7. HZ and 8. EA since they share O27 with them, and faults on this die show that they can be located within the same moment of production as these signers.<sup>13</sup> Despite this, the hoards that have resulted in substantial over-representation for signers 7-8 (above all Kırıkhan) have not likewise resulted in over-representation for signers 5-6. This suggests that these signers were simply much less productive and that consequently there was less of their output to be captured by the hoard record. That being said, there is still the possibility that these signers were moderately productive, but that their output happened not to be part of the batch of Magnesia tetradrachms buried with the Kırıkhan hoard, thus causing them to be under-represented in surviving coins.

In the case of 9. ArAn and 10. PD it seems more likely that the hoard record has skewed our evidence. Although these two signers are known from only five coins, they attest four obverse dies not otherwise known in the series (O37-40). Clearly, this pair of signers (die-linked by O38) was rather more productive than their representation in our sample suggests. One possibility, as just suggested for signers 5-6, is that signers 9-10 were not part of the batch of coins making up the Kırıkhan hoard, which dominates our evidence. Alternatively, given that signers 9-10 were rather more productive than 5-6 and yet appear in none of the eight hoards containing Magnesia's wreathed tetradrachms, either these coins only reached the Seleukid kingdom (where the hoards known to us were buried) after these hoards had already closed *c.* 143-141 (Section 5), or they never went there in the first place.<sup>14</sup>

The under-representation of signers 5-6 and 9-10 raises two possibilities for the future development of our knowledge of Magnesia's wreathed tetradrachms. First, the appearance of 5. AnAn and 6. ArAr in a very well-represented section of the series using an obverse die already known to us shows that new pairs of less productive signers could well appear at other points in the series. It would therefore be incautious to infer that the ten signers we know are the only ones there were. Secondly, the apparently productive yet under-represented signers 9. ArAn and 10. PD suggest that we have an imperfect understanding of the end of the series.<sup>15</sup>

### 3. The Impact of the Kırıkhan Hoard

The Kırıkhan hoard was discovered in late 1972 and contained somewhere in the region of 3,000-5,000 tetradrachms.<sup>16</sup> To judge from the 1,000+ examples which have so far been listed,

<sup>12</sup> For these abbreviations of the signers see n. 5.

<sup>13</sup> See below in the catalogue at nn. 142 and 144.

<sup>14</sup> This possibility was already raised in Jones 1979: 79.

<sup>15</sup> Compare Jones 1979: 65: 'If ... our record of reverse signatures falls short of completion, it is almost certainly a question of issues minted later than the accumulation of the Kırıkhan lot'.

<sup>16</sup> Date: Le Rider *ap. Seyrig* 1973: 82 gives the date of discovery as 'à la fin de 1972' and Leo Mildenberg in a letter to Nancy Waggoner (27/7/1973 – ANS archive) says he saw the first group of coins from the hoard on

the hoard was overwhelmingly composed of coins produced at civic mints in western Asia Minor.<sup>17</sup> Roughly speaking, about 95% of the coins listed for the hoard are civic, of which almost all have civic types rather than posthumous Alexander/Lysimachos types, and the remaining 5% are royal.<sup>18</sup> Among these coins with civic types, by far the best represented are the wreathed tetradrachms of Magnesia and Kyme which between them account for half of all coins listed for the hoard. Clearly, therefore, the discovery of the Kırkhan hoard has had a transformative effect on our knowledge of the Magnesian series. However, quantifying the size of this impact on our sample is rather more challenging. In the catalogue below, 168 coins (19%) are marked as either certainly or probably deriving from the hoard.<sup>19</sup> The true proportion, however, will have been much higher given how much of the hoard was dispersed in trade without being recorded (between two-thirds and four-fifths depending on whether one prefers the c. 3,000 or c. 5,000 figure for the hoard's original size).

Date Range	Coins	Proportion
Pre-1972	91	10.3%
1972-1981	278	31.4%
1982-1991	150	16.9%
1992-2001	173	19.5%
2002-2011	98	11.1%
2012-2020	95	10.7%

**Table 2.** *Earliest known appearance of coins in the die study (n = 885).*<sup>20</sup>

In the 19<sup>th</sup> century, wreathed tetradrachms of Magnesia were rare and highly valued for their beauty and as such could fetch elevated prices. For example, a coin from the signer 4. PP (now known from 184 examples) went for the mighty sum of £256 in the Sotheby's sale of Lord Northwick's estate in 1859 (19/PP32 (1) in the catalogue below). According to the Bank of England's historical inflation calculator, this would be equivalent to £32,786 in 2019 prices, a figure many times greater than is fetched by the best examples today.<sup>21</sup> To judge from the catalogue I have assembled, as late as the discovery of the Kırkhan hoard in 1972, my die study of Magnesia would have consisted of just 91 coins, 10% of the total now known.

29/11/1972. Size: Mildenberg (letter quoted), Silvia Hurter (letter to Nancy Waggoner 3/8/1973 – ANS archive), and Edoardo Levante (email to Arthur Houghton 3/3/2003 – Duyrat 2016: 481) all estimate the hoard's size as 3,000+, whereas CH 1.87A introduced the figure of 5,000+ which has been repeated in subsequent listings.

<sup>17</sup> Listings: Seyrig, *Trésors* 23, CH 1.87A-B, 2.90, 8.460, 10.310, SC II.2, pp. 81-2, Duyrat 2016: 139-40, no. 231; 481-2. New material: Öztöpaş 2009, Ellis-Evans and Erol-Özdizbay 2020.

<sup>18</sup> I have not given precise figures since I do not think we are in a position to give them. While the published listings give an accurate sense of the overall composition of the hoard, they cannot be entirely trusted on the detail. As myself and Aliye Erol-Özdizbay discovered in publishing the packet from Antakya, both the number of coins and the listing of types for Antakya in CH were incorrect. In addition, the many Kırkhan hoard coins identified in die studies of the wreathed series it contained (see n. 88) have not been incorporated into the listings.

<sup>19</sup> These include: 78 in the ANS Photo File; 26 in Hatay Archaeological Museum in Antakya published by Ellis-Evans and Erol-Özdizbay 2020; 3 in Christie's NY (17/10/1984) noted in CH 8.460; 71 identified in other ways (in particular using Jones' materials). There are a further 94 in Sofia and 141 recorded as casts in Paris which were not available to study: for further information see the introduction to the catalogue in Section 8.

<sup>20</sup> Coins from the Kırkhan and Gaziantep hoard have been assigned to 1972 and 1994 respectively even if they appeared later so as not to artificially raise the figures for later decades. I have left out 2021 since at the time of writing (February 2021) no new Magnesia coins had yet been offered.

<sup>21</sup> <https://www.bankofengland.co.uk/monetary-policy/inflation/inflation-calculator> (accessed 8/7/2020). My thanks to Philip Kinns for alerting me to this particular case. Compare likewise Du Chastel 259 (22/PP41 (2)) which was bought from the Sotheby's Montagu sale in 1896 for 1,250 fr.

The impact of Kırıkhan is immediate and clear. The first appearance of just under a third of our coins (31.4%) can be traced back to 1972-1981 and just over a sixth (16.9%) to 1982-1991. Therefore, about half of our current sample (48.3%) appeared in the two decades following the discovery of Kırıkhan, quadrupling by 1991 what had been available to scholars in 1971. While most of these coins are, of course, not explicitly linked to Kırıkhan in sales catalogues, there can be little doubt that this is their origin. The picture is less clear-cut from the 1990s to the present. The discovery of the Gaziantep hoard (*CH* 10.308) in 1994 largely (but not entirely) accounts for the spike in new examples 1992-2001, since it contained 119 wreathed tetradrachms of Magnesia which reached the market in the late 1990s and early 2000s.<sup>22</sup> Looting in Iraq and, in particular, Syria in the 2000s and 2010s will undoubtedly be responsible for a proportion of the new coins which appeared in the last two decades.<sup>23</sup> That being said, we also have a number of examples of coins confirmed to be from the Kırıkhan hoard first appearing as late as 2020, almost half a century after the hoard's discovery.<sup>24</sup> Thus, while other hoard finds have contributed to the figures for the last thirty years, it is clear that some proportion of this also belongs to Kırıkhan. On a conservative estimate, therefore, the Kırıkhan hoard may have contributed two-thirds or more of all the examples in the current catalogue, a much higher proportion than the 19% that can be attributed with confidence.<sup>25</sup>

The probable impact of the Kırıkhan hoard on our knowledge of the Magnesia tetradrachms is so great, and the contribution of other hoards (with the partial exception of Gaziantep) so minor, that the catalogue presented below should be viewed as being representative not so much of what Magnesia minted as of what parts of what Magnesia minted found their way into Kırıkhan. The very high ratio of coins per observed die ( $n/d = 22.2$ ) is a consequence of the non-randomness of our sample due to Kırıkhan. This has produced the unusual situation whereby two-thirds of all die combinations are represented by more than one coin, the average number of specimens per die combination is three, and two-thirds of the 887 coins in the catalogue come from die combinations with four or more specimens. In the exceptional case of 29/EA5, a single die combination is represented by 43 coins, equivalent to almost half of all the Magnesia tetradrachms known before 1972. At least 14 of these 43 coins are certainly from Kırıkhan, thus confirming that the hoard is driving this over-representation.<sup>26</sup>

#### 4. The Sequence of Production

With the information then available, Jones was able to establish that six of the eight signers known to him operated in pairs.<sup>27</sup> Broadly speaking, this is still the pattern. The remaining two signers whom Jones thought were too different from one another to be paired (9. ArAn and 10. PD) are now die-linked by O38, while the two new signers (5. AnAn and 6. ArAr) are die-linked by O27.<sup>28</sup> However, the significant expansion in our evidence since Jones' study not

<sup>22</sup> 25 were recorded (C1075-1094) and 94 were not (C1095-1099 from the second London parcel, D1100-1193 from the Beirut parcel).

<sup>23</sup> See Wartenberg 2015, esp. 11-14 for the directly comparable case of Kyme's wreathed tetradrachms.

<sup>24</sup> For example, see Künker 341 (1/10/2020) 5571 from the Phoibos Collection (29/EA5(37)) which to the best of my knowledge has not previously been offered in a public auction. It is otherwise only known to me from a cast made of it in Munich in 1973.

<sup>25</sup> Using similar arguments, Jones 1979: 76 estimated that at least 61% of his sample was from Kırıkhan (149/243 coins).

<sup>26</sup> See already the arguments of Jones 1979: 77-8.

<sup>27</sup> Jones 1979: 66-8.

<sup>28</sup> Jones 1979: 66 on 9. ArAn and 10. PD not being linked: 'The single attested obverses of Aristokrates and Pythodoros, shared by no other issue, are so unlike each other stylistically that it seems best, pending the appearance of additional specimens, to regard the two emissions as independent of each other'.

only confirms the overall pattern of paired signers, but also reveals exceptions to this pattern and adds to our understanding of the rhythms of production in the series. In particular, the doubling in the number of die combinations has greatly clarified the complex internal structure of the coinage. In addition, the very high number of die duplicates has meant that, to an unusual degree, we are able to establish the sequence of production via developing die faults. As laid out in **Table 3**, on current evidence the series can be split into six phases, two of which overlap and are therefore designated ‘a’ and ‘b’.

	Phase 1	Phase 2a	Phase 2b	Phase 3a	Phase 3b	Phase 4
<b>1. PE</b>	O1-6	O8-9				
<b>2. AK</b>	O1-5					
<b>3. EP</b>		O7-9	O10-14 O16-19 O21-26			
<b>4. PP</b>		O8-9	O10-26			
<b>5. AnAn</b>				O27		
<b>6. ArAr</b>				O27		
<b>7. HZ</b>				O27	O29-34 O36	
<b>8. EA</b>				O27	O28-36	
<b>9. ArAn</b>						O37-39
<b>10. PD</b>						O38, O40
<b>Total Dies</b>	6	3	17	1	9	4

*Table 3. Obverse dies used by each signer in the six phases of production.*

**Phase 1 (Signers 1-2)** – 1. PE and 2. AK share the first five obverse dies. O1-4 are what Jones termed the ‘plain’ style obverses that do not subsequently recur, whereas O5 marks the move towards ‘fine’ style obverses that are characteristic of the rest of the series.<sup>29</sup> The evidence of die faults on O3 and O4 suggests that 1. PE used these obverse dies first.<sup>30</sup> The ‘fine’ style die O6, which is only attested for 1. PE, is unique in giving Artemis a decorated *stephane* and for being executed in a quite different (and arguably superior) style to much of the rest of the series.<sup>31</sup> While it is therefore possible that it belongs to the next phase, a detail that tells against this is the rendering of the tripod on the reverse. On the reverse dies paired with O1-5, the tripod has either a single horizontal strut between the three legs or none at all, whereas on reverse dies paired with O7-40 the tripod is depicted with a series of diagonal struts between the legs. The reverse die of O6 has a tripod in the former style, thus associating it with O1-5. In general, as has been well discussed by Jones, the coin types in Phase 1 are characterised by significant experimentation, with the mint only settling on the final form they would take for the rest of the series in Phase 2a.<sup>32</sup>

<sup>29</sup> Jones 1979: 69-70 provides a very clear description of the two styles: ‘The [plain] style is characterized chiefly by the treatment of Artemis’ hair, which appears to be parted at the middle and combed straight toward the ears in thick, coarse strands, then back over the diadem in several even thick er rolls; the hair at the back of the next is swept into a great upward-turned curl. By contrast, the obverses of the ‘fine’ style ... exhibit a much more refined working of what is essentially the same hair style. Though disposed in a variety of ways, the strands are invariably of finer texture, whether on the head of over the diadem; the ringlets below the ear and the locks gathered behind the head radiate in a profusion of delicate wavy curls: altogether, a portrait consistently more intricate, detailed, and polished’.

<sup>30</sup> See comments on 3/PE6 (4) and 4/PE13 (2) in the catalogue.

<sup>31</sup> I am grateful to Philip Kinns for drawing my attention to the unusual characteristics of this die.

<sup>32</sup> Jones 1979: 68-72.

**Phase 2a (Signers 1, 3-4)** – 1. PE shares the ‘fine’ style obverses O8-O9 with both 3. EP and 4. PP. Die faults on O8 indicate that 4. PP began using this die before both 1. PE and 3. EP did.<sup>33</sup> O8 is part of a sequence of obverse dies die-linked by reverses that begin Phase 2b for 4. PP (O25, O21, O20). These facts establish that 1. PE was producing coins in parallel with the next pair of signers rather than prior to them, and therefore that for the duration of O8-9 three signers were operating simultaneously.<sup>34</sup> Jones assumed that the absence of examples of 2. AK using O8-O9 alongside 1. PE was an accident of survival.<sup>35</sup> However, since no examples have turned up despite our evidence more than tripling in the interim, it instead seems more likely that 2. AK’s production came to an end with O5 and that 1. PE’s use of O8-O9 marks a new phase of production.

**Phase 2b (Signers 3-4)** – When the evidence of reverse die links, developing die faults, and shared style are taken into consideration, it proves impossible to catalogue the obverse dies of 4. PP in the same numerical order as those of 3. EP.<sup>36</sup> While many of the same dies were used under the two signers, they appear to have been used in an entirely different order to one another. This is in sharp contrast to signers 1-2 (Phase 1) and 7-8 (Phase 3b) where all the evidence suggests that the same dies were used in much the same order under both signers, but in each case with one signer (1. PE and 7. HZ respectively) taking the lead.<sup>37</sup> The most likely explanation for what we see in Phase 2b is that under 3. EP and 4. PP the mint was operating multiple workstations simultaneously and therefore using different obverse dies in parallel to one another.<sup>38</sup> As a result, some dies look like they were used by 3. EP first (e.g. O12, O13), while others look like 4. PP used them first (e.g. O8, O23, O25).<sup>39</sup> Equally, for both signers there are dies that it appears they did not get around to using before the other signer discarded them (O15 and O20 for 3. PP, O7 for 4. PP). The evidence for multiple workstations operating simultaneously suggests that Phase 2b was by far the most intense period of minting in the series. This is also reflected in the fact that 20 of the series’ 40 dies were used in Phase 2. Finally, the one and only drachm associated with the wreathed coinage belongs to this phase.

**Phase 3a (Signers 5-8)** – All four of these signers used O27. However, there are examples of 7. HZ (27/HZ1-3) and 8. EA (27/EA1-2) that lack a distinctive die fault on the neck which, by contrast, is present on the examples of 5. AnAn and 6. ArAr.<sup>40</sup> This indicates that signers 5-6 produced their coins in parallel to signers 7-8 rather than prior to or subsequent to them. Therefore, there was a brief period when four signers were operating at the same time. As in the case of 1. PE operating in parallel to signers 3-4 in Phase 2a, this shows that there are exceptions to the overall pattern of only one pair of signers operating at a time.

<sup>33</sup> See comment on 8/PP6 in the catalogue. Based on the limited evidence then available to him this was unclear to Jones 1979: 68-9.

<sup>34</sup> We can therefore discount the explanation of the die transfer of O8 in Jones 1979: 68: ‘On this one occasion, presumably, an anvil die was still comparatively fresh at the conclusion of the striking of one emission and reserved for use at the beginning of the next’.

<sup>35</sup> Jones 1979: 72.

<sup>36</sup> By contrast, Jones 1979: 66 instead stated: ‘Simultaneity of emission is also indicated by the pattern of reverse die linkage which, where attested, establishes identical sequences of obverse die use within paired issues’.

<sup>37</sup> Jones 1979: 66 remarked that: ‘Obverse die wear ... reveals no consistent priority in the use of the one or the other set of reverses with the anvil dies of a given paired emission’. On the contrary, consistent priority of one signer in the pair can now be established as noted here.

<sup>38</sup> Jones 1979: 72 raised this possibility, although he curiously thought it an unimportant point.

<sup>39</sup> For EP first use of O12 and O13 see comments in catalogue on 12/EP26 (2); 13/EP20 (1), 13/PP28. For PP first use of O8, O22, O25 see 8/PP6; 22/EP34 (1), 22/PP34 (1); 25/PP1.

<sup>40</sup> See the comment on 27/HZ2 which also explains why this die belongs at the beginning of the HZ/EA sequence and not at the end where Jones placed it.

**Phase 3b (Signers 7-8)** – The evidence of die faults suggests 7. HZ used O30 and O33 earlier than 8. EA.<sup>41</sup> O28 towards the beginning of the sequence and O35 towards the end are only attested for 8. EA.

**Phase 4 (Signers 9-10)** – These two signers are now linked by O38. 9. ArAn is missing O40 and 10. PD is missing O37 and O39. However, given how few coins are attested for these two magistrates (just five), this is not necessarily meaningful.

Two important points are worth emphasizing. First, while it remains broadly true that the series is organized as a sequence of signers operating in pairs, there are important exceptions to this where three (Phase 2a) or four (Phase 3a) signers were producing coins at the same time. It is therefore probably not the case that these pairs of signers represent annual magistrates as has recently been suggested (Section 5). Second, the pattern of die linkage we observe throughout is best explained on the assumption that Magnesia's mint often operated with more than one workstation when producing this coinage. In a valid two-dimensional die linkage diagram, it should be possible to represent all the links between obverse and reverse dies without any of them crossing (a three-dimensional diagram would be needed for this to remain true for four or more workstations). In many places in the Magnesia series, this is only possible if we assume that more than one workstation was in operation at a time. In these cases, it is assumed that obverse dies were fixed in two or more anvils and then struck with reverses which were taken out of a shared 'die box'.<sup>42</sup> For Phases 1, 3, and 4 we never need to posit more than two anvils, and one anvil is frequently sufficient to account for the pattern of die linkage. In addition, in these three phases the sequence in which the obverse die is used is the same for both signers, suggesting that they minted in tandem but sequentially (e.g. 1. PE one day, 2. AK the next *vel sim.*). By contrast, in Phase 2 the impossibility of arranging the obverse dies of 3. EP and 4. PP in the same order suggests that they were operating not only in tandem but also simultaneously and thus with more than two anvils. While production was swift throughout the series, Phase 2 clearly represents a peak of production when the mint decided it needed to go all out to meet a time-sensitive production target.<sup>43</sup>

## 5. Dating the Wreathed Tetrachms

Jones suggested a date range of *c.* 155-145 for signers 1-4 and 7-8, with 9. ArAn and 10. PD perhaps ending the series as late as *c.* 140.<sup>44</sup> More recently, Catharine Lorber has suggested narrowing this to *c.* 150-148 for three main reasons, one of which stands while the other two need to be revisited.<sup>45</sup> First, Lorber argues that the presence of Magnesia's Alexanders in, but absence of Magnesia's wreathed tetrachms from, the 'Demetrius I' hoard (*CH* 10.301) strongly suggests that production of the wreathed tetrachms had not begun when the hoard

<sup>41</sup> See the comments on 30/HZ7 (1), 33/HZ20 (1), and 33/EA23.

<sup>42</sup> Esty 1990, Carroccio 2011, Glenn 2020, pp. 20-1. I am grateful to Simon Glenn for extensive discussion of this phenomenon and how it relates to my die study.

<sup>43</sup> A further indication of how rapid production is throughout the series, but especially in Phase 2b, is the fact that dies with significant faults continued in use rather than being either re-cut or replaced. For example, all 69 examples of O11 (shared by 3. EP and 4. PP) have a significant die fault over the eye. Clearly, the fault developed very early on in the life of this die, but the mint workers continued using it all the same. Likewise, as Philip Kinns has pointed out to me, several reverse dies include spelling errors which went uncorrected, e.g. 23/EP11 (ΜΑΓΝΗΤΟΝ), 25/EP47 (ΙΙΥΣΑΝΙΟΥ), 25/PP4 (ΜΙΝΗΤΩΝ). This lack of care regarding the condition of the dies is particularly striking given how beautifully cut the dies themselves are.

<sup>44</sup> Jones 1979: 73-80.

<sup>45</sup> Lorber 2010: 157-8.

was buried in 151/0.<sup>46</sup> This remains persuasive and may provide a *terminus post quem* of 151/0 for the beginning of the wreathed tetradrachms.<sup>47</sup> Second, Lorber notes that the pattern of die-linkage in Jones' die study suggested that pairs of signers operated sequentially, and therefore that each pair might represent a single year.<sup>48</sup> Third, building on this point, she has observed that 2. AK (first pair of signers) and 4. PP (second pair) appear in the Ghonslé hoard, whose burial she dates to 148/7 based on the drachm of Alexander Balas in the hoard.<sup>49</sup> She therefore concludes that Magnesia's wreathed tetradrachms can be compressed into the years 150-148, with 1. PE and 2. AK operating in 150, 3. PE and 4. PP in 149, and 7. HZ and 8. EA in 148, just too late to enter the Ghonslé hoard. This conclusion, and the latter two arguments on which it is built, need to be revisited.

As we have seen in Section 4, the interpretation of the pairs of signers as annual magistrates is can no longer be sustained given that we now know there were points when three or four signers operated simultaneously. Moreover, Lorber's interpretation relies on there being only three pairs of signers to fill the three available years *c.* 150-148. However, we now know there were five pairs of signers, including one (5. AnAn and 6. ArAr) that must be inserted alongside 7. HZ and 8. EA. However, in addition to this there are two more fundamental objections. First, it has always been suspected that Ghonslé and Akkar are not hoards in their own right, but rather packets that originally belonged to the same hoard.<sup>50</sup> If this is correct, then it is no longer possible to argue that the presence of signers 1-4 in Ghonslé dates this part of the series before 148/7, since Akkar/Ghonslé must instead be dated by the rather later material in Akkar which suggests a burial date *c.* 142. Secondly, based on a revised die study of Kyme's wreathed tetradrachms, Aliye Erol-Özdizbay and I have recently argued that Kallias, one of the signers of Kyme's wreathed tetradrachms, was mid-production in late 143/early 142, and that this explains why the second half of Kallias' production is apparently missing from the Gaziantep and Kırıkhan hoards, and dramatically underrepresented amongst surviving coins compared to the first half of Kallias' production.<sup>51</sup> If this is correct, then, irrespective of whether Akkar and Ghonslé were originally one hoard or two, both must have been buried *c.* 143/2 since both contain Kallias tetradrachms (in the case of Akkar, confirmed to be from the first half of Kallias' output).<sup>52</sup>

**Table 4** presents the hoard evidence for Magnesia's tetradrachms as it has emerged over the course of the 20<sup>th</sup> century. All these hoards can now be dated fairly precisely *c.* 143/2-141/0. In most cases, a date *c.* 143/2 is indicated by the presence of Kallias tetradrachms (Ras Baalbek is the exception).<sup>53</sup> In the case of Aleppo, Akkar, and Kırıkhan the presence of wreathed tetradrachms of Syros and/or those of Herakleia under Latmos and Lebedos points to a *terminus*

<sup>46</sup> Magnesia Alexander in 'Demetrius I': CH 10.301.275 (Price –). See Vādan 2018: 68 for comments on where this fits in the series of Magnesia Alexanders.

<sup>47</sup> Likewise accepted in Meadows and Houghton 2010: 181.

<sup>48</sup> Lorber 2010: 158, Meadows and Houghton 2010: 182 n. 25 (instead suggesting *c.* 145-143). It should be noted, however, that Jones 1979: 80-2 had already rejected such an interpretation, in particular pointing out *inter alia* that the fairly rich epigraphic record for Magnesia attests no dual magistracies.

<sup>49</sup> Seyrig, *Trésors* 19.20-21.

<sup>50</sup> Seyrig 1973: 76, Jones 1979: 75, Meadows and Houghton 2010: 184 n. 38, Duyrat 2016: 128-9, Ellis-Evans and Erol-Özdizbay 2020: 45-6.

<sup>51</sup> Ellis-Evans and Erol-Özdizbay 2020: 46-7. Kallias consists of O12-37, of which O12-24 are found in Kırıkhan and are substantially over-represented in the die study, whereas O25-37 are not found in Kırıkhan (or indeed in any of the hoards dated *c.* 143-141) and are significantly under-represented in surviving examples.

<sup>52</sup> Seyrig, *Trésors* 18.15-17 (Akkar; no. 15 = BnF R 2083 is O17), *Trésors* 19.13 (Ghonslé).

<sup>53</sup> In addition to Akkar/Ghonslé (n. 52): Seyrig, *Trésors* 20.16 ('Caiffa' – O16); 22.20-23 (El-Aweiniye); 25.7 (Aleppo); CH 10.310 (Kırıkhan – see Ellis-Evans and Erol-Özdizbay 2020: 46-7).

*post quem* of c. 143/2.<sup>54</sup> Finally, in the case of Aleppo the countermarks of Tryphon on some of the hoard coins may specifically indicate a burial date in 141/0 or soon after.<sup>55</sup> This makes Gaziantep, buried in autumn 143, the earliest of our hoards. Given this, the absence of 7. HZ and 8. EA from Gaziantep might suggest that these signers were only active after autumn 143.<sup>56</sup> While this possibility cannot be ruled out, it is much more likely that the absence of these signers reflects our incomplete knowledge of this hoard. Of the 119 Magnesia tetradrachms in the hoard, 25 were recorded whereas 94 were not.<sup>57</sup> Unrecorded examples of signers 7-8 from Gaziantep could very easily have reached the market without our being aware of their origin. Indeed, in the decade following the hoard's discovery in 1994, 26 examples of 7. HZ and 26 examples of 8. EA in the catalogue make their first appearance. It would therefore be incautious to conclude on the basis of the 25 coins we know from Gaziantep that not one of the 94 coins we do not know from this hoard was an example of signers 7-8.

Hoard	Reference	Burial Date	Coins (Total)	Coins (Magnesia)	Signers
'Caiffa' (N. Syria), c. 1905	<i>IGCH 1556</i> <i>Trésors 20</i>	143/2	38	3	3. EP 7. HZ 8. EA
Aleppo, 1930	<i>IGCH 1562</i> <i>Trésors 25</i>	141/0	34	2	4. PP
El-Aweiniye, 1941	<i>IGCH 1550</i> <i>Trésors 22</i>	143/2	78	2	8. EA
Ghonslé, 1955	<i>IGCH 1560</i> <i>Trésors 19</i>	143/2	21	2	1. PE 2. AK
Akkar, 1956	<i>IGCH 1559</i> <i>Trésors 18</i>		70	5	3. EP 4. PP 7. HZ
Ras Baalbek, 1957	<i>IGCH 1593</i> <i>Trésors 24</i>	143/2	45	8	1. PE 2. AK 3. EP 4. PP 8. EA
Kırıkhan, 1972	<i>CH 10.310</i> <i>Trésors 23</i>	142	c. 3,000- 5,000	261 <sup>58</sup>	1. PE 2. AK 3. EP 4. PP 7. HZ 8. EA
Gaziantep, 1994	<i>CH 10.308</i>	Autumn 143	1916	119	1. PE 2. AK

<sup>54</sup> Seyrig, *Trésors* 18.61-62 (Herakleia: Lavva I), 18.70 (Syros); 25.10-13 (Lebedos: Athenaios, Apollodotos), 25.16-27 (Herakleia: Lavva I, IIB, III); *CH 10.310* (Herakleia: Lavva I, IIA-B; Lebedos: all except Zenon; Syros: up to O4 out of O1-12). Meadows and Houghton 2010: 182-5.

<sup>55</sup> For the interpretation of the *beta* in the countermarks as a reference to Year 2 of Tryphon's reign = 141/0 see Meadows and Houghton 2010: 183.

<sup>56</sup> Meadows and Houghton 2010: 181-2.

<sup>57</sup> *CH 10.308.C1075-1094* (recorded coins), C1095-1099, D1100-1193 (unrecorded coins).

<sup>58</sup> This figure represents the 168 identified as coming from Kırıkhan in the catalogue plus the 94 examples in Sofia (minus the one illustrated in *CH 1.87B*) also said to be from Kırıkhan but not available to study. However, as argued in Section 3, the real figure is undoubtedly much higher.

					3. EP 4. PP
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**Table 4.** *Development of the hoard evidence for the wreathed tetradrachms of Magnesia on the Maeander in the 20<sup>th</sup> century.*

The absence of Magnesia’s wreathed tetradrachms from the ‘Demetrius I’ hoard (buried 151/0) and the presence of signers 1-4 and 7-8 in these six hoards buried *c.* 143-141 therefore suggest a date range *c.* 150-143 for the production of the coinage. However, the fact that all our hoard coins are in almost uncirculated condition strongly suggests a date towards the end of this range. We should therefore date signers 1-8 (i.e. those represented in the hoards plus signers 5-6 which are die-linked to these) to the mid-140s and perhaps *c.* 144/3 specifically.<sup>59</sup> As discussed in Section 2, if the absence of signers 9-10 from our hoard record is not simply an accident of survival, then it may indicate a date slightly later than *c.* 142/1 for the final two signers.

The re-dating of Magnesia’s wreathed tetradrachms from *c.* 155-145 to the mid-140s makes a significant difference to the historical context of this series. Among scholars who view the wreathed tetradrachms of Aeolis (Aigai, Kyme, Myrina) and Ionia (Herakleia, Kolophon, Lebedos, Magnesia, Smyrna) as having been minted to meet Attalid military expenditure, the long-standing assumption has been that these coins were produced to support Alexander Balas in his attempt to seize the Seleukid throne *c.* 153-145.<sup>60</sup> While the numismatic characteristics of these coinages support an explanation of this kind for the wreathed coinages (see Section 7), the specific connection to Alexander Balas looks increasingly problematic in light of new hoard evidence which has suggested post-150 or post-145 dates for many of Aeolis and Ionia’s wreathed coinages.<sup>61</sup>

If the mid-140s dating proposed here for Magnesia’s wreathed tetradrachms is correct, then the series may not even have gone into production until after Alexander Balas’ death in 145. The context for this series (and perhaps several of the other later wreathed coinages) may instead be Attalid support for Antiochos VI (148-142), the child of Alexander Balas, who was championed by Diodotos Tryphon *c.* 144-142 until Tryphon allegedly did away with him. As Selene Psoma has noted, the Attalids consistently supported Antiochos IV and his royal line in Seleukid dynastic politics between the 170s and the 140s.<sup>62</sup> Eumenes II helped Antiochos IV seize the throne in 175, Attalos II supported Alexander Balas (supposedly the son of Antiochos) to do likewise in 153, and so it would make sense that Attalos would support Antiochos VI when he in turn became a candidate for the throne. Indeed, Psoma has plausibly suggested that Diodotos Tryphon positioned himself as guardian of Antiochos VI precisely so as to attract Attalid support.<sup>63</sup>

## 6. The Signers

<sup>59</sup> See already Meadows and Houghton 2010: 182 n. 25.

<sup>60</sup> The explanation in terms of support for Alexander Balas originates with Kinns 1987: 107 and has been adopted in various forms by e.g. Hoover and MacDonald 1999-2000: 114-16, Lorber and Hoover 2003: 62-3, Callatay 2013: 235-6, and Psoma 2013: 276-7; cf. Meadows 2013: 195 (not specifically invoking Alexander Balas).

<sup>61</sup> The new dates are conveniently summarized in tabular form in Meadows and Houghton 2010: 185; cf. Duyrat 2016: 374-5. The problems this causes for the Alexander Balas interpretation have been explicitly noted in Lorber 2010: 156, Duyrat 2016: 379, and Ellis-Evans and Erol-Özdizbay 2020: 48-9.

<sup>62</sup> Psoma 2013: 275-6.

<sup>63</sup> Psoma 2013: 292.

Four of the ten signers of the wreathed coinage should probably be identified with individuals who appear on other series minted at Magnesia in the mid- to late 2<sup>nd</sup> century.<sup>64</sup> First, 1. PE is probably identical with the Pausanias Euphemou who appears on bronzes with an obverse portrait of Artemis in the same style as on the wreathed tetradrachms and a reverse type of a horseman charging right.<sup>65</sup> Secondly, 2. AK is probably the same individual as the Apollodoros Kallikratou who signed bronzes with a laureate Apollo on the obverse and a cult statue of Artemis Leukophryene on the reverse.<sup>66</sup> Thirdly, 3. EP should be identified with the Euphemos Pausaniou who appears on octobols and tetrobols of the value-marked silver coinage and on Artemis/horseman bronzes.<sup>67</sup> In addition, as discussed in Appendix 2, he may also be identical with the Euphemos Pausaniou who signed an issue of gold staters c. 125-120. Finally, 8. EA is probably the same individual as the Erasippos Aristeou who appears on tetrobols of the value-marked silver coinage and on the Artemis/horseman bronzes.<sup>68</sup>

The most important epigraphic document for the prosopography of the signers is the dossier of texts relating to the arbitration of a territorial dispute between Magnesia and Priene.<sup>69</sup> In order to resolve this long-standing dispute, the two cities approached the Roman Senate which in turn nominated Mylasa as arbitrator. Mylasa decided the case in favour of Magnesia, and as a result the Magnesians commemorated their victory by publicly inscribing all the documents relating to the case on the stele which we now have.<sup>70</sup> The particular importance of this dossier for the wreathed tetradrachms is that it names a number of prominent Magnesians who could be identical with the signers known to us. In particular, the dossier ends with a list of Magnesia's *endikoi* (public advocates) whom the demos had elected to plead the city's case before the Mylasan judges. These include a Pythodoros Demokratou, a Pausanias Euphemou, and an Aristokrates Andronos who are likely to be identical with the signers 10. PD, 1. PE, and 9. ArAn respectively.<sup>71</sup> Given this, we may be justified in making two more prosopographic links. First, the Pausanias who is *neokoros* of Artemis Leukophryene in the first document may be the same man as either 1. PE or 4. PP.<sup>72</sup> Secondly, the Pythodoros who is one of two Magnesians sent along with two Prienians to Rome to request an audience with the Senate is likely to be one and the same as the *endikos* Pythodoros Demokratou and the signer 10. PD.<sup>73</sup>

Two dates twenty years apart have been suggested for this dossier depending on the identity of the praetor who granted the Magnesians and Prienians their audience with the Senate and who presided over the session which produced the *senatus consultum* on the arbitration of their dispute. In the Magnesian decree which begins the dossier this individual is initially referred to as 'the praetor of the Romans Marcus Aemilius' and thereafter either as 'Marcus' or 'the praetor (στρατηγός)'.<sup>74</sup> More helpfully, in the second document, which appears to be a very precise translation of the original *senatus consultum*, he is consistently referred to as M.

<sup>64</sup> This paragraph is based on discussion with Philip Kinns of his published and unpublished work on these series.

<sup>65</sup> Kinns 1989: 145.

<sup>66</sup> Kinns 2006: 45 n. 22.

<sup>67</sup> Value-marked silver: Kinns 1989: 144, no. 17 (octobol), CNG 111 (29/5/2019) 242 (tetrobol). Bronzes: PK collection (unpublished).

<sup>68</sup> Value-marked silver: Kinns 1989: 145, no. 21. Bronzes: *SNG Kayhan* 425, correcting (but without explicit comment to that effect) Kinns 1989: 145 where the name was misread as Κράτιππος.

<sup>69</sup> *I. Magnesia* 93 = *I. Priene*<sup>2</sup> T 4. On the whole text see most recently Camia 2009: 71-85.

<sup>70</sup> For the lengthy publication clause see *I. Magnesia* 93a.19-24.

<sup>71</sup> *I. Magnesia* 93d.6, 7, 14.

<sup>72</sup> *I. Magnesia* 93a.30.

<sup>73</sup> *I. Magnesia* 93b.7.

<sup>74</sup> *I. Magnesia* 93a.3-4: γράψαντος δὲ καὶ τοῦ στρατηγοῦ τοῦ Ῥωμαίων [Μαάρκου Αἰμίλιου πρὸς | τ]ῆν ἡμετέραν πόλιν; 8, 20: Μάαρκος; 11: στρατηγός.

Aemilius M(arci) f(ilius) praetor.<sup>75</sup> Since the lettering of the inscription indicates a 2<sup>nd</sup> century date, two possibilities have been suggested. It was initially assumed that this individual was M. Aemilius Lepidus Porcina, consul in 137 and therefore by the terms of the *lex Villia annalis* praetor in or shortly before 140.<sup>76</sup> However, in publishing a *senatus consultum* for Corcyra passed under the praetor P. Cornelius Blasio, Maurice Holleaux instead argued that the praetor in the Magnesian document was M. Aemilius Lepidus, the consul of 158 and thus praetor in or shortly before 160.<sup>77</sup> Correctly noting the remarkable similarities in how the two documents have been drafted, he argued that since Blasio dated the Corcyrean document to the late 160s the Magnesian document must likewise belong at this date, thus ruling out Porcina as the praetor.<sup>78</sup>

Although Holleaux's view has been accepted without question in much subsequent scholarship, it must in fact be wrong.<sup>79</sup> It has often been overlooked that these men do not have the same filiation: the consul of 137 is Marci f., whereas the consul of 158 is Mani f.<sup>80</sup> The careful translator of the *senatus consultum* has consistently expanded the M. f. which must have stood in the original to Μαάρκου υιός. One could argue that the translator had mistaken M'. f. for M. f., but this smacks of special pleading when there are no such rudimentary slips elsewhere in the text. In addition to this, it is now clear that the close parallels with the letter to Corcyra which encouraged Holleaux to raise the date to the 160s instead point to the 140s. First, Harold Mattingly identified Blasio with the moneyer P. Blas who was active 169-158 along with L. Licinius Murena and A. Terentius Varro.<sup>81</sup> This implies that Blasio was at the start rather than the pinnacle of the cursus in the 160s, and therefore led Mattingly to argue that Blasio was praetor c. 140.<sup>82</sup> Subsequently, the publication of a milestone from the *Via Egnatia* has shown that the Γναίος Ἐγνάτιος Γαίου υιός Στηλατίνας who is named first in the senatorial *consilium* in Blasio's letter must be identical with the Cn. Egnatius C. f. named on the milestone who was praetor and proconsul of Macedonia c. 143 and responsible for building the *Via Egnatia*.<sup>83</sup> This makes it all but certain that Blasio's praetorship dates to the late 140s, and thus that the compelling parallels Holleaux identified between the letters to Corcyra and Magnesia argue for a date two decades later than Holleaux had assumed.

Now that the arbitration between Magnesia and Priene can be firmly dated to the late 140s it becomes clear that this document is almost precisely contemporary with the production of the wreathed tetradrachms c. 144/3 and shortly after. The same individuals who were entrusted with crucial tasks such as advocating for Magnesia in a decades-long territorial dispute, going

<sup>75</sup> *I. Magnesia* 93b.2, 14, 16, 25, 28: Μάαρκος Αιμίλιος Μαάρκου υιός στρατηγός. Precise translation: Holleaux 1924: 386-7.

<sup>76</sup> Colin (1905), p. 509 n. 2, Münzer (1920), p. 240. Holleaux (1924), p. 396 n. 1 objects that the passage of Front. *De Aquis* 1.7, p. 5 (ed. Bücheler) which Colin and Münzer use to identify Marcus Aemilius as the praetor may not be relevant. While this may be true, it is not necessarily pertinent: as Broughton (1951-1960), vol. 1: p. 473 n. 1 points out, a praetorship c. 140 is independently indicated by his consulship in 137.

<sup>77</sup> Holleaux (1924), pp. 396-7 n. 1.

<sup>78</sup> Holleaux (1924), pp. 384-7, 396-7.

<sup>79</sup> Accepted, for example, by Magie (1939), p. 174 n. 1, Magie (1950), 1, p. 113, 2, p. 964 n. 82, Broughton (1951-1960), vol. 1, pp. 443-4 n. 2, Sherk (1969), p. 46 (cautious), Gruen (1984), p. 108 n. 54, Ager (1996), p. 326 n. 1, Chandezon (2003), p. 219, Blümel and Merkelbach (2014), p. 584-5.

<sup>80</sup> Sumner (1973), p. 47-8, Brennan (2000), p. 295 n. 167.

<sup>81</sup> Mattingly (1969), pp. 103-4 discussing *RRC* 189.

<sup>82</sup> The arguments of Holleaux (1924), pp. 393-5 for Blasio already being senior in the 160s were, by his own admission, highly speculative (p. 395: 'Toutefois, il ne s'agit ici que d'une simple conjecture, et que d'aucuns jugeront peut-être médiocrement solide').

<sup>83</sup> Cn. Egnatius C. f. in Corcyra document: *SEG* III 451.16-17. Milestone from *Via Egnatia*: Romiopolou (1974).

on an embassy to the Senate, and serving as *neokoros* in the city's most important cult were also playing a prominent role in the production of the city's coinage at this time.

Why are these individuals named on the wreathed tetradrachms? Jones argued that they had paid for the coinage as part of a monetary liturgy and were therefore named on the coins to honour their contribution.<sup>84</sup> However, this argument faces two problems. First, monetary liturgies resulting in signed coins are only attested for the Roman Imperial period and only for bronze coinage. The example which Jones cites for the Hellenistic period, the famous honorific decree for Menas of Sestos (*I. Sestos* 1), did not in fact result in signed coins. Secondly, the sums involved seem beyond the means of even a very wealthy Hellenistic citizen. Estimates for the productivity of dies range from 10,000 to 20,000 coins per die, but if we split the difference at 15,000 then a single tetradrachm die equates to about 10 T of silver. On the monetary liturgy hypothesis, therefore, a particularly productive signer such as 3. EP, who was also responsible for octobols and tetrobols of the value-marked silver at this time, would have spent upwards of 100 T in a few short years – an incredible sum. For comparison, at the time Olbia honoured Protogenes, the wealthiest civic benefactor known to us from the Hellenistic period, he had disbursed 6,700 gold staters (equivalent to 22.33 T of silver), with the largest amount spent on a single occasion being 1,500 staters (5 T of silver).<sup>85</sup> It is simply improbable that Euphemos Pausaniou should have spent four to five times this amount on a single monetary liturgy. Jones appears to have been conscious of this difficulty and so suggested that the signers might only have been responsible for a fraction of the cost of the silver coinage.<sup>86</sup> However, if the individuals signing the coinage were not actually paying for all of it, then the whole explanation in terms of a monetary liturgy, which assumes that the naming of the individual on the coin is a mark of honour for their benefaction, is undermined.

While the size of the wreathed coinage rules out this particular explanation, it may point to an alternative one. When cities spent public funds, they typically designated a relevant office-holder or appointed an individual on an *ad hoc* basis who would oversee the expenditure and could be held accountable if the funds were misspent. The production of Magnesia's wreathed coinage, amounting to expenditure somewhere in the region of 400 T of silver, would certainly merit such oversight and accountability. As the prosopographic links noted above indicate, the individuals Magnesia appointed to this role were some of the most influential and well-respected citizens involved in civic politics at the time and thus eminently suited (at least in theory) to the task at hand.

## 7. Conclusions

A wide variety of explanations have been proposed for the wreathed coinages of Aeolis and Ionia over the years. Since the 1980s, however, there has been a notable shift away from commercial interpretations of this phenomenon and in favour of military explanations.<sup>87</sup> This shift broadly coincides with the wave of die studies which appeared in the 1980s and early 1990s and which had been made possible by the flood of new material from the Kirikhan

<sup>84</sup> Jones (1979), p. 82-9.

<sup>85</sup> Duyrat (2016), pp. 414-18, esp. 415.

<sup>86</sup> Jones (1979), p. 89: 'In both instances [silver tetradrachms and bronze coinage], it may be conjectured, the two Magnesians served a function comparable to that of Menas and his colleague, *although one would hesitate to assume in the case of the silver that private individuals were asked to provide bullion in any appreciable quantity*'; 90: 'Nor does the supposition of a monetary liturgy, which, as far as can be determined, was limited in its function to the (*partial*) funding of the coinage, help us to understand the policy that lay behind it [i.e. the wreathed coinage]'. My emphasis in both quotations.

<sup>87</sup> See Psoma (2013), especially the efficient summary of previous bibliography at pp. 265-6.

hoard.<sup>88</sup> As we have come to understand the numismatic characteristics of the wreathed coinages more fully, commercial explanations have become ever more difficult to sustain. While this is not the place to explore this debate in full, it may be valuable to note a few of the ways in which this expanded die study of Magnesia's wreathed tetradrachms favours a military explanation.

It is now clear that we are dealing with a coinage which was intensively produced in a short period of time in the mid-140s (Sections 4-5). In particular, the frequent use of multiple workstations throughout the series and especially in Phase 2 (which also accounts for 20 of the 40 obverse dies) suggests that the mint was working to a tight deadline to produce a particular quantity of coinage. Such rapid, intense, and brief production at scale is difficult to reconcile with any of the suggested commercial explanations. By contrast, these characteristics are readily explicable on the view that these coins were minted at the behest of Attalos II to be sent to Syria as a subsidy to support Antiochos VI and Diodotos Tryphon.

The fact that the Kırıkhan hoard appears to be the origin of two-thirds or more of the wreathed tetradrachms of Magnesia which are known to us (Sections 2-3) may also support the argument that the coinage was minted for a military purpose. The recent lowering of the dates for the wreathed coinages of Aeolis and Ionia has revealed that the majority of the coins in the Kırıkhan hoard probably only reached Syria shortly before the hoard's burial *c.* 142.<sup>89</sup> The mint-fresh condition of the wreathed tetradrachms in the hoard is certainly consistent with the view that these coins had arrived straight from western Asia Minor and had not instead accumulated in Syria through the more roundabout means of commerce and exchange.<sup>90</sup> Given that the gap between the production and the burial of these coins is so short, the character of the Kırıkhan hoard probably reflects the initial use to which the wreathed coinages were put in Syria and thus the purpose for which these coins were minted. The unusually large size of the hoard (*c.* 3,000-5,000 coins = *c.* 2-3.33 T of silver), the fact that, to the best of our knowledge, it consisted almost entirely of tetradrachms, and the discovery of the hoard near a strategic pass in the Amanus mountains all point to this being a military fund in the possession of an army leader who buried it in emergency circumstances.<sup>91</sup>

If Magnesia's wreathed tetradrachms were minted at the behest of the Attalids and, in all probability (considering the amounts involved), with Attalid silver, then it is significant that several of the signers can be identified with prominent Magnesians (Section 6) and that, among the mints producing wreathed coinages, the practice of signers operating in pairs is particular

<sup>88</sup> Magnesia: Jones (1979). Kyme: Oakley (1982). Myrina: Sacks (1985). Lebedos: Amandry (1989). Herakleia: Lavva (1993). Kinns (1987), p. 107 was able to provide die figures for then unstudied mints (Herakleia, Lebedos) as well as those which are still to receive published die studies (Aigai, Smyrna).

<sup>89</sup> See n. 61 above.

<sup>90</sup> For a representative sample of what coins which can be attributed to Kırıkhan with absolute certainty look like see the plates for Ellis-Evans and Erol-Özdzibay (2020) illustrating the Antakya packet.

<sup>91</sup> For similar explanations of large hoards (*i.e.* 1,000+ tetradrachms) compare Davesne and Le Rider (1989), pp. 346-8 on the Meydancıkale hoard and Duyrat (2016), pp. 346, 418-20 on the Saida hoard. For the find spot of the Kırıkhan hoard at 'Baghras village' (actually Ötençay village below Bakras castle) see the correspondence reproduced in Duyrat (2016), p. 481. Bakras is a defensible rocky knoll at an elevation of about 350m which enjoys commanding views of the plain of Antioch and controls the only major route through the Amanus mountains between Cilicia and Syria. The modern place name is a variation of its ancient name, Pagrae, known to Strabo (16.2.8) as a strong fortress whose principal importance was in controlling the route through the Amanus mountains: χωρίον ἐρυμνὸν κατὰ τὴν ὑπέρθειν τοῦ Ἀμανοῦ τὴν ἐκ τῶν Ἀμανίδων πύλων εἰς τὴν Συρίαν κείμενον. Bakras played a similar role throughout the medieval period: Edwards (1983). Pagrae would have been of obvious strategic importance in the fighting between Antiochos VI/Diodotos Tryphon and Demetrios II and thus an eminently plausible place at which to find a hoard such as Kırıkhan.

to Magnesia (Section 4). Clearly, the production of the coinage was administered at Magnesia and by Magnesians, even if the impetus to mint and, in all likelihood, the silver with which to do so came from Attalos II. Thus, in terms of the degree of central direction and royal support behind their production, the wreathed coinages minted at free cities did not differ all that much from the contemporary cistophoric coinages which were minted at subject cities. The key difference was instead that the cistophoric coinages presented themselves as being produced at a variety of local mints when in fact they were the result of centralized royal production, whereas the wreathed coinages presented themselves as being produced at various civic mints and really were.<sup>92</sup> The free status of the mints producing the wreathed coinages did not mean that they never did what the Attalid king asked of them, but rather that when they did accede to a request they did so on their own terms.<sup>93</sup>

## 8. Catalogue

The following catalogue is based on CoinArchives for online sales (up to early February 2021), the auction sale collections of the Sackler Library (Oxford), the Institut für Numismatik und Geldgeschichte (Vienna), and the American Numismatic Society (New York), and various museum collections. Amongst the latter, the 26 Magnesia tetradrachms from Hatay Archaeological Museum in Antakya are an important addition since they derive from the Kırıkhan hoard and were unavailable to Jones.<sup>94</sup> The ANS gave me access to their photo file for the Kırıkhan hoard which included 78 Magnesia tetradrachms photographed at Bank Leu and MM Basel at the time the hoard was coming to market in 1973. Philip Kinns provided me with a list of examples he had noted in sales from the 1970s to the 1990s which drew many further items to my attention.

Nicholas Jones kindly gave me access to the collection of casts, photos, and index cards he had used for his original die study. Access to Jones' casts allowed me to identify most of the coins he knew from from casts and private collections. Those from Geneva were communicated to him by N. Dürr in November 1973, those from Saarbrücken by P. Franke, and those from Munich by H. Kütthmann (Franke and Kütthmann were actively recording the Kırıkhan hoard in summer 1973 and all their examples are casts of coins in trade). Those from Paris were not among Jones' casts but are likely to correspond to the casts made by Seyrig and Le Rider in winter 1972/3 which are currently unavailable for study (see below). Since they may duplicate coins known to me from later sales, I have listed them under the relevant signers but excluded them from my figures.

I was unable to access two large bodies of material. First, there are 94 Magnesia tetradrachms in the National Museum in Sofia. These belong to a find of 372 tetradrachms reportedly discovered in a field in southern Bulgaria in 1973 which was immediately suspected of being a packet from the Kırıkhan hoard that had been in transit to western Europe. The find was reported by Yordanka Yourukova in 1978 and listed in *CH* 1.87B.<sup>95</sup> Yourukova's promised publication of this material never appeared, but I understand from Boryana Russeva of the National Museum that one is now being prepared. Secondly, in the winter of 1972/3, Henri Seyrig and Georges Le Rider collected casts of 450 coins from the Kırıkhan hoard which they

<sup>92</sup> For the organisation of cistophoric production see Kleiner and Noe (1977), pp. 120-4.

<sup>93</sup> Psoma (2013), pp. 280-9 plausibly suggests that the free cities agreed to mint these coinages as part of a *quid pro quo* with the Attalids in return for protection and benefaction.

<sup>94</sup> Now published in Ellis-Evans and Erol-Özdizbay (2020).

<sup>95</sup> Yourukova (1978), p. 73. I am grateful to Ulrike Peter for locating this article and summarizing the contents for me.

had seen in Switzerland, Belgium, and Paris. This body of material included 141 Magnesia tetradrachms.<sup>96</sup> Frédérique Duyrat of the Bibliothèque nationale de France informs me that Seyrig's casts are currently in deep storage, but will hopefully be available for study in 2023. It is of course likely that many of these coins will already be catalogued here under later sales.

Die combinations are given in the form '1/PE1' = obverse die 1 + reverse die 1 of Pausanias Euphemou. A running concordance with the die study of Jones (1979) is provided in the next column in the form '1/aJ' where '1/a' is the die combination in Jones, 'J' marks a coin listed in Jones, and '-' indicates a die unknown to Jones. Finally, a number of coins are marked 'Gaziantep?' or 'Kırıkhan?' when there is circumstantial evidence that the coin originated from these large but incompletely recorded hoards. The following abbreviations are used for the signers:

1. PE = Pausanias Euphemou
2. AK = Apollodoros Kallikratou
3. EP = Euphemos Pausaniou
4. PP = Pausanias Pausaniou
5. AnAn = Antigenes Anaxikratou
6. ArAr = Aristokritos Aristokritou
7. HZ = Herognetos Zopyrionos
8. EA = Erasippos Aristeou
9. ArAn = Aristokrates Andronos
10. PD = Pythodoros Demokratou

All dies are adjusted to 12h unless otherwise noted. Reports of a coin's weight which differ by more than 0.1g from the most recent sale are recorded in square brackets. Finally, **Table 5** summarizes the weights and diameters of the coins.

Mean	Median	Mode	80 <sup>th</sup> Percentile <sup>97</sup>	Average Diameter
16.71	16.70-9	16.90-9	16.90-4	31.9

**Table 5.** Average weights ( $n = 826$ ) and diameters ( $n = 655$ ) of Magnesia's wreathed tetradrachms.

- Obv.* Bust of Artemis r. wearing *stephane*; bow and quiver at shoulder; the bow's finial in the shape of a rudimentary stag's head.
- Rev.* Apollo standing l. on Maeander pattern, filleted branch in r. hand, tripod at his l.; ΜΑΓΝΗΤΩΝ and the singer's name and patronymic written vertically either side (ethnic l. on PE1-17, AK1-14, ethnic r. on rest); the whole encircled by a laurel wreath.

#### Pausanias son of Euphemos (PE)

Dies	Jones	mm	g	References / Notes
<i>'Plain' style obverse, ethnic left reverse.</i>				

<sup>96</sup> Seyrig (1973), pp. 82-3.

<sup>97</sup> For the use of the 80<sup>th</sup> percentile as a means of establishing the target weight of a coinage see Meadows this volume and for an application of the method alongside others to the tetradrachms of Antioch on the Maeander see Thonemann (2019), pp. 66-8.

1/PE1 <sup>98</sup>	1/aJ	32	16.83	Berlin 18275869 (C. R. Fox, 1873; J. J. Whittall, 1851) = Dumersan (1829) 85, Pl. XV.3 (Allier de Hauteroche).
1/PE2 (1)	1/bJ	32	16.59	ANS 1951.24.1 = Feuardent (11/6/1913) 285 (G. Burel). <sup>99</sup>
1/PE2 (2)	1/b	30	-	Alain Weil (3/2/2005) 37.
1/PE3	1/-	33	16.76	Heritage Auctions 3082 (21/1/2020) 33120 = Spink 110 (4/10/1995) 37 = J. Schulman 287 (18/4/1988) 1207 = 286 (28/9/1987) 1529 = J. Schulman FPL 215 (Spring 1979) 165.
1/PE4 <sup>100</sup>	1/-	32	16.73	Elsen 30 (12/6/1993) 91.
1/PE5	1/-	32x35	16.73	Bourgey FPL (Mar. 1998) 9.
2/PE1 (1) <sup>101</sup>	2/aJ	32	16.73	<b>Seyrig, Trésors 24.40 (Ras Baalbek, 1957; c. 143/2).</b> ANS 1961.179.38 = SNG Berry 1069.
2/PE1 (2)	2/aJ	34	16.48	BnF Fonds Général 1422 = Waddington 1725. <sup>102</sup>
2/PE1 (3)	2/a	31	16.9	<b>CH 10.310 (Kırıkhan, 1972; c. 142).</b> Antakya 6498 (Ellis-Evans and Erol-Özdizbay 2020: no. 56).
2/PE1 (4)	2/a	32	16.53	Monnaies d'Antan 23 (19/5/2018) 571 (F. Febrer) = Parsy (10/5/2007) 37.
2/PE1 (5)	2/a	33	16.54	Alain Weil (30/3/2004) 218 = Poindessault & Védrines (30/12/1994) 36.
2/PE1 (6)	2/a	34	16.68	Christie's (3/10/1988) 1014 = Stack's 330 (17/9/1980) 159.
2/PE1 (7)	2/a	32	16.69	CNA 21 (26/6/1992) 88.
2/PE1 (8)	2/a		16.66	GM 31 (24/4/1985) 144.
2/PE1 (9)	2/a	33	15.99	Maison Palombo 11 (30/11/2012) 8.
2/PE1 (10)	2/a		16.76	Superior 24 (12/6/1978) 2250.
2/PE5 (1)	2/-	32	16.84	<b>CH 10.308.C1075 (Gaziantep, 1994; Aug-Oct. 143).</b>
2/PE5 (2)	2/-	32	16.80	H. W. Müller 62 (19/5/1989) 88 = Peus 305 (25/5/1981) 85 = Auctiones Basel 10 (12/6/1979) 190 [16.78g].
2/PE5 (3)	2/-	31	16.77	Cederlind 168 (26/2/2013) 121.
2/PE5 (4)	2/-	31	16.93	Elsen 93 (15/9/2007) 697.
2/PE5 (5)	2/-	29	16.90	<b>CH 10.308.C1076 (Gaziantep, 1994; Aug-Oct. 143).</b> GM 71 (3/5/1995) 313.
2/PE5 (6)	2/-	32	16.63	<b>Kırıkhan?</b> Hess Divo 307 (7/6/2007) 1238 ('ARTNUMISMATIQUE, Genève 1976').
2/PE5 (7)	2/-	31	16.87	Lanz 44 (16/5/1988) 207.
2/PE6	2/cJ		17.01	<b>CH 10.310 (Kırıkhan, 1972; c. 142).</b> ANS Photo File (MM Basel).
2/PE7 (1)	2/bJ	32	16.99	<b>CH 10.310 (Kırıkhan, 1972; c. 142).</b> Alain Weil (27/3/2001) 30 = Glendinging (6/12/1978) 54 = ANS Photo File (Bank Leu).
2/PE7 (2)	2/bJ	33	16.95	<b>CH 10.310 (Kırıkhan, 1972; c. 142).</b> CNG 100 (7/10/2015) 1455 (Friend of a Scholar) = Ceresio 1 (26/9/1987) 127 = ANS Photo File (MM Basel).
2/PE7 (3)	2/b	31	16.76	Heritage Auctions 3024 (18/4/2013) 24679 = Morton & Eden 57 (3/7/2012) 112.
2/PE7 (4)	2/b	33	16.72	Kölner Münzkabinett 31 (2/11/1981) 55.
2/PE8 (1)	2/-	32	16.80	Kurpfälzische 42 (2/6/1992) 245 = SBC 23 (20/9/1989) 118 [16.76g].
2/PE8 (2)	2/-	32	16.95	Roma Numismatics E-Sale 40 (28/10/2017) 174.

<sup>98</sup> Jones (1979), p. 70 notes that the patronymic on PE1 appears to have been added as an afterthought: 'At this very early stage there was evidently some uncertainty as to just what information was to be presented on the type'.

<sup>99</sup> The Winterthur cast of a J. P. Lambros coin at 16.65g which Jones catalogues separately is identical with this coin.

<sup>100</sup> PE2-4 are the only reverses in the series which use the parallel double line Maeander pattern seen on earlier Magnesian coinage: Jones (1979), p. 70 (discussing PE2).

<sup>101</sup> The bow finial in the shape of a stag's head on O2 is notable for having detailed antlers rather than the rudimentary representation typical of most other dies in the series.

<sup>102</sup> Jones mixes this up with BnF Fonds Général 1423 = Waddington 1726.

2/PE9	2/-	34	16.66	CNG 34 (6/5/1995) 137.
2/PE10	2/-	36x30	16.61	Alfa Numismatics 3 (7/2/2021) 24 = Gerhard Hirsch 352 (25/9/2019) 2367 = 343 (26/9/2018) 2177 (Slg. R. P.) = Kunst und Münzen 28 (18/6/1992) 223 = Rauch 37 (20/10/1986) 149.
3/PE6 (1)	3/-	33	16.86	Superior 139 (5/12/1997) 1470 ('19.21g' in catalogue) = SBC 43 (15/9/1997) 149 [16.86g].
3/PE6 (2)	3/-	34	17.04	Künker 333 (16/3/2020) 809 <sup>103</sup> = Peus 301 (25/5/1981) 406.
3/PE6 (3)	3/-	34	16.59	Roma Numismatics E-Sale 70 (7/5/2020) 595 (from the inventory of a German dealer).
3/PE6 (4)	3/-	30	16.78	Parsy (6/6/2001) 92 = SBC 33 (20/9/1993) 303 [16.62g] = Christie's (22/4/1986) 410 [16.57g]. <sup>104</sup>
3/PE8 (1)	3/aJ	35	16.73	<b>CH 10.310 (Kırkhan, 1972; c. 142)</b> . Elsen 114 (15/9/2012) 106 = 113 (16/6/2012) 120 = ANS Photo File (MM Basel).
3/PE8 (2)	3/a	32	16.87	OGN Numismatique-Pierre Crinon (6/10/2017) 215 = Vinchon (25/5/1998) 59 [16.96g].
3/PE8 (3)	3/a	34	16.6	<b>CH 10.310 (Kırkhan, 1972; c. 142)</b> . Antakya 6497 (Ellis-Evans and Erol-Özdizbay 2020: no. 57).
3/PE8 (4)	3/a	34	16.90	Empire Coins 10 (6/5/1989) 53.
3/PE8 (5)	3/a	33	16.81	CNG EA 457 (14/11/2019) 83.
4/PE11 (1)	4/aJ	34.5	16.91	Spink 121 (7/10/1997) 71 = Bourgey (9/11/1976) 85.
4/PE11 (2)	4/a	34	16.93	C. Burgan (2/7/1988) 271.
4/PE12	4/-	30	16.73	Künker 20 (30/9/1991) 158.
4/PE13 (1)	4/bJ		16.77	<b>CH 10.310 (Kırkhan, 1972; c. 142)</b> . ANS Photo File (Bank Leu).
4/PE13 (2)	4/b		16.76	H. G. Oldenburg 26 (1/11/1991) 185 = 25 (7/12/1990) 26 = 24 (14/10/1989) 70. <sup>105</sup>
4/PE14	4/-	32	-	<b>Kırkhan?</b> JNFA 3.2-4 (Autumn 1974) H203d.
4/PE15 (1)	4/-	33	16.7	<b>CH 10.310 (Kırkhan, 1972; c. 142)</b> . Antakya 6522 (Ellis-Evans and Erol-Özdizbay 2020: no. 58).
4/PE15 (2)	4/-	34	16.80	<b>CH 10.310 (Kırkhan, 1972; c. 142)</b> . Istanbul 1616/12 (Öztopbaş 2009: no. 8).
4/PE15 (3)	4/-	31.5	16.73	Frankfurter 149 (1/7/1998) 8 = SBC 43 (15/9/1997) 150.
<i>'Fine' style obverse, ethnic left reverse.</i>				
5/PE16 (1)	5/aJ	32	16.88	Bank Leu 28 (5/5/1981) 154 = Gitta Kastner 4 (27/11/1973) 121 [16.76g].
5/PE16 (2)	5/aJ		16.81	<b>CH 10.310 (Kırkhan, 1972; c. 142)</b> . GM 249 (11/10/2017) 290 = Künker 288 (13/3/2017) 185 = Private Collection (Saarbrücken Cast).
5/PE16 (3)	5/a	32	16.85	Rauch 56 (5/2/1996) 156.
6/PE17 <sup>106</sup>	6/aJ	35	16.59	<b>Seyrig, Trésors 18.66 (Akkar, 1956; c. 143/2)</b> . BnF 1973.1.158 (H. Seyrig).
<i>'Fine' style obverse, ethnic right reverse.</i>				
8/PE18 (1)	7/aJ	32	16.87	Hess Divo 329 (17/11/2015) 95 = MM DE 40 (4/6/2014) 237 = Kress 158 (8/11/1973) 415.

<sup>103</sup> The catalogue reference in the Künker sale to Vinchon (26/4/1999) 195 is instead the provenance for lot 810.

<sup>104</sup> Die fault appears on fourth braid of hair down covering the *stephane* to create abnormally large, globular braid (always present for AK).

<sup>105</sup> Die fault on cheek appears (always present for AK).

<sup>106</sup> For the unusual characteristics of this obverse die see the main text at n. 31.

8/PE18 (2)	7/a	31	16.80	Künker 326 (7/10/2019) 846 (Slg. Phoibos).
8/PE19	7/-	32	16.62	MM DE 43 (26/2/2016) 86 = Freeman & Sear 13 (25/8/2006) 745.
9/PE19	8/aJ	35	16.80	Gitta Kastner 4 (27/11/1973) 120.
<i>Unidentified Tetradrachms</i>				
-	-		-	Seyrig, <i>Trésors 24.41 (Ras Baalbek, 1957; c. 143/2).</i>
1/PE or AK	1/?		-	Dix Noonan Webb (15/3/2012) 1491 (lot of 4) – Only obv. illustrated so could be PE or AK. Does not correspond to any examples of O1 in the catalogue.

#### Apolodoros son of Kallikrates (AK)

Dies	Jones	mm	g	References / Notes
<i>'Plain' style obverse, ethnic left reverse.</i>				
1/AK1 (1)	1/aJ	32	16.18	BnF M 4377 (A. Dicuodonné, RN [1901] 437, no. 50 [16.20g] – recent acquisitions).
1/AK1 (2)	1/aJ	32	16.91	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> GM 22 (25/5/1982) 110 = ANS Photo File (Bank Leu).
1/AK1 (3)	1/a	34	16.8	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Antakya 6488 (Ellis-Evans and Erol-Özdizbay 2020: no. 59).
1/AK1 (4)	1/a	31x35	16.77	GM 118 (15/10/2002) 1445.
1/AK1 (5)	1/a	32	16.71	Künker 94 (27/9/2004) 1094.
1/AK1 (6)	1/a	33	16.23	Künker 216 (8/10/2012) 410.
2/AK1 (1)	2/-	32	16.50	<b>CH 10.308.C1078 (Gaziantep, 1994; Aug-Oct. 143).</b> GM 76 (3/5/1995) 188 = 71 (3/5/1995) 312.
2/AK1 (2)	2/-	31	-	<b>Kırkhan?</b> JNFA 3.2-4 (Autumn 1974) H203c.
2/AK1 (3)	2/-	31	16.77	<b>CH 10.308.C1077 (Gaziantep, 1994; Aug-Oct. 143).</b>
2/AK1 (4)	2/-	35	16.90	Superior 16 (19/8/1975) 3324.
2/AK2	2/aJ	31	16.78	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> NFA 4 (24/3/1977) 290 = ANS Photo File (Bank Leu).
2/AK3 (1)	2/bJ	32	16.25	Harvard 1.1965.2286 (A. S. Dewing) = Glendining (31/1/1951) 215 (W. Cunningham) = Naville 1 (4/4/1921) 2462 (S. Pozzi).
2/AK3 (2)	2/bJ	32	-	Coin Galleries FPL 4.4 (1963) D60 = Hesperia Art Bulletin 16 (undated – 1961) 44.
2/AK3 (3)	2/bJ	32	16.73	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Albuquerque 28 (20/6/1991) 42 = ANS Photo File (Bank Leu).
2/AK3 (4)	2/b	33	16.83	Elsen 138 (8/9/2018) 113 = 93 (15/9/2007) 293 = SBC 33 (20/9/1993) 304.
2/AK3 (5)	2/b	32	-	Kricheldorf 28 (18/6/1974) 110.
2/AK3 (6)	2/b		16.77	Parsy (6/6/2001) 91.
2/AK4 (1)	2/-	32	16.53	CNG 96 (14/5/2014) 437.
2/AK4 (2)	2/-	31	16.86	SNG Kayhan 423 = CNG 37 (20/3/1996) 502 [16.77g].
2/AK5 (1)	2/-	33	16.6	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Antakya 6494 (Ellis-Evans and Erol-Özdizbay 2020: no. 60).
2/AK5 (2)	2/-	31.5	16.82	<b>Kırkhan?</b> CGB.fr Live (5/3/2019) 515451 (Docteur J.-M. F.) = CGB.fr 43 (29/4/2010) 188 = 38 (30/4/2009) 216 ('Provient certainement du trésor de Kırkhan'). <sup>107</sup>

<sup>107</sup> CGB.fr is unusual in frequently claiming Kırkhan as the provenance of coins in its sales (8/15 coins in the catalogue). Of the eight coins where this is claimed, one is a proven Kırkhan coin, three have earlier provenances which make them likely Kırkhan coins, and four have no earlier provenance. Conversely, of the seven coins where a Kırkhan provenance is not claimed, three have provenances which suggest they in fact derive from the

3/AK6 (1)	3/aJ	33	16.28	SNG Hunterian 427 (= MacDonald, <i>Hunterian</i> 2.347, no. 8).
3/AK6 (2)	3/a	35	16.81	Roma Numismatics 5 (23/3/2013) 329 = 3 (31/3/2012) 228.
3/AK7 (1)	3/bJ		16.85	<b>CH 10.310 (Kırıkhan, 1972; c. 142)</b> . ANS Photo File (Bank Leu).
3/AK7 (2)	3/bJ		16.65	<b>CH 10.310 (Kırıkhan, 1972; c. 142)</b> . ANS Photo File (Bank Leu).
3/AK7 (3)	3/b	31.5	16.72	<b>Gaziantep? PK</b> (acq. 21/2/1995).
3/AK7 (4)	3/b	35	16.79	Bourgey (26/10/1981) 58 = (13/11/1980) 64 – Rev. double struck.
3/AK7 (5)	3/b		16.98	Banque Populaire du Nord FPL 26 (Dec. 1982) 121 = 22 (Feb. 1982) 18.
3/AK7 (6)	3/b	34	16.73	Bourgey (26/6/1989) 41 = (7/11/1983) 75.
3/AK7 (7)	3/b	33	16.57	Auctiones Basel 29 (12/6/2003) 680.
3/AK7 (8)	3/b	35	16.87	Morton & Eden 91 (7/12/2017) 398 (lot of 2) = Christie's (4/3/1975) 27.
3/AK7 (9)	3/b		16.75	Morton & Eden 9 (25/5/2004) 360 = Glendining (1/9/1976) 179.
3/AK7 (10)	3/b		16.73	Védrines (21/12/1982) 53.
4/AK8 (1)	4/aJ	34	16.56	<b>Seyrig, Trésors 19.20 (Ghonslé, 1955; c. 143/2)</b> . BnF 1973.1.159 (H. Seyrig).
4/AK8 (2)	4/a	33	16.82	Rauch 43 (5/6/1989) 368 = Asta del Titano 5 (4/7/1980) 30.
4/AK9 (1)	4/-	32	16.68	Gerhard Hirsch 242 (22/9/2005) 2125.
4/AK9 (2)	4/-	33.5	-	<b>CH 10.310 (Kırıkhan, 1972; c. 142)</b> . Sofia = CH I 87B, Fig. 10.4.
4/AK10 (1)	4/bJ		16.81	<b>CH 10.310 (Kırıkhan, 1972; c. 142)</b> . Glendining (4/12/1985) 102 = ANS Photo File (MM Basel).
4/AK10 (2)	4/b	37	16.6	<b>CH 10.310 (Kırıkhan, 1972; c. 142)</b> . Antakya 6489 (Ellis-Evans and Erol-Özdizbay 2020: no. 61).
4/AK11 (1)	4/cJ	36	16.87	<b>CH 10.310 (Kırıkhan, 1972; c. 142)</b> . MM DE 46 (15/2/2018) 199 = MM Basel FPL 444 (May 1982) 15 = 429 (Jan. 1981) 18.
4/AK11 (2)	4/c	34	16.58	Auctiones EA 57 (17/9/2017) 29 (acq. privately from COFOP Placements, France, 1992; diameter 24mm in catalogue – error).
4/AK12 (1)	4/dJ		16.69	<b>CH 10.310 (Kırıkhan, 1972; c. 142)</b> . Gerhard Hirsch 176 (19/11/1992) 279 = 173 (19/2/1992) 382 = 170 (22/5/1991) 514 = 164 (28/11/1989) 301 [16.69g] = ANS Photo File (Bank Leu) [16.96g]. <sup>108</sup>
4/AK12 (2)	4/d	32	16.76	Noble 119 (20/11/2018) 4652 (Dr. V. J. A. Flynn) = The New York Sale 34 (6/1/2015) 154 = Noble 99 (17/4/2012) 3685 = 78A (5/4/2005) 5037 = CNG 63 (21/5/2003) 489 = Empire Coins 7 (2/5/1987) 58.
4/AK12 (3)	4/d	32	16.95	Christie's (3/10/1988) 1015.
4/AK12 (4)	4/d		16.75	The New York Sale 34 (6/1/2015) 153.
4/AK12 (5)	4/d	35	16.89	Leu Numismatik Web Auction 12 (30/5/2020) 363 = 11 (22/2/2020) 164 – From an old Swiss collection, formed in the 1970s. <sup>109</sup>
<i>'Fine' style obverse, ethnic left reverse.</i>				
5/AK9 (1)	5/bJ	33	-	Superior 12 (17/6/1974) 257.

hoard. It is therefore unclear how seriously one should take a Kırıkhan provenance when it is claimed in a CGB.fr sale but no other provenance is given.

<sup>108</sup> 16.96g on the photo file card may well be the correct weight and 16.69g an error made in the first Gerhard Hirsch sale and then repeated thereafter.

<sup>109</sup> Die fault on cheek (clearly present on all other examples of this die combination) has been visibly filed off.

5/AK9 (2)	5/b	33	16.88	Heritage Auctions 3049 (8/9/2016) 30140.
5/AK9 (3)	5/b		16.59	Parsy (13/11/2007) 36.
5/AK10 (1)	5/-	33	16.92	Roma Numismatics 20 (29/10/2020) 177 (from the inventory of a German dealer) = Numismatica Genevensis 12 (18/11/2019) 118 [16.89g] = Elsen FPL 189 (Mar. 1997) 52 [16.91g] = Albuquerque 31 (5/12/1991) 18 [16.73g] = Peus 330 (24/4/1991) 110 = Galerie des Monnaies FPL 40 (Summer 1982) 474.
5/AK10 (2)	5/-	31	17.09	Bourgey (14/6/1978) 91 = Piollet-Sabatier (28/3/1977) 90 [17.10g].
5/AK13 (1)	5/aJ	33	15.83	Naville 12 (18/10/1926) 1798 (Bissen <i>et al.</i> ) = Brüder Egger 39 (15/1/1912) 313 (Vienna duplicates).
5/AK13 (2)	5/aJ		16.57	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Bayerische Vereinsbank Münzschätze 15 (Sep. 1977) 41 = 12 (Nov. 1976) 97 = ANS Photo File (Bank Leu) [16.78g].
5/AK13 (3)	5/aJ	33	16.59	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> MM Basel FPL 464 (Mar. 1984) 29.
5/AK13 (4)	5/a	31	16.64	Alde (19/10/2016) 97 = Parsy (28/5/2002) 16 = (18/11/1999) 22.
5/AK13 (5)	5/a		16.80	Maison Palombo EA 3 (3/5/2019) 11 = Galerie des Monnaies & Spink (10/10/1977) 231 = Superior 19 (15/11/1976) 1911.
5/AK13 (6)	5/a	35	16.73	Elsen FPL 40 (Jan. 1982) 19.
5/AK13 (7)	5/a	31	16.89	NAC L (18/5/2001) 1358.
5/AK14 (1)	5/-	31	16.84	Gerhard Hirsch 185 (15/2/1995) 294 = 183 (20/9/1994) 448.
5/AK14 (2)	5/-	35	16.82	MM Basel 95 (4/10/2004) 52.
5/AK14 (3)	5/-		16.40	SNG Keckman 254 = H. W. Müller 57 (27/2/1988) 57.
5/AK14 (4)	5/-	34	16.66	<b>CH 10.308.C1079 (Gaziantep, 1994; Aug-Oct. 143).</b> Spink 106 (11/10/1994) 70.
<i>Unidentified Tetradrachms</i>				
-	-		16.56	<b>Seyrig, Trésors 18.63 (Akkar, 1956; c. 143/2).</b>
-	-		-	<b>Seyrig, Trésors 24.36 (Ras Baalbek, 1957; c. 143/2)</b>

#### Euphemos son of Pausanias (EP)

Dies	Jones	mm	g	References / Notes
7/EP1 (1) <sup>110</sup>	-/-	33	16.87	CNG 42 (29/5/1997) 452 = NFA 14 (29/11/1984) 148.
7/EP1 (2)	-/-		16.71	Poindessault & Védrières (29/12/1983) 35 = Bourgey (26/10/1981) 59.
7/EP1 (3)	-/-	32	16.69	GM 50 (24/9/1990) 341.
7/EP2 (1)	-/-	30	16.80	Triton 7 (12/1/2004) 235 = GM 122 (10/3/2003) 1415 = Rauch 53 (28/11/1994) 82 [16.77g].
7/EP2 (2)	-/-	34	16.86	CNG 39 (18/9/1996) 575.
8/EP1 (1) <sup>111</sup>	21/-	32	16.26	CNG EA 125 (26/10/2005) 70 (John F. Sullivan) = Ariadne Galleries 3 (7/12/1982) 104.
8/EP1 (2)	21/-		-	J. Schulman 293 (19/5/1992) 1015.
8/EP3	21/aJ	32	16.78	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> NAC Autumn Sale (26/10/1995) 219 = ANS Photo File (Bank Leu).
8/EP4 (1)	21/c	32	16.55	<b>CH 10.308.C1086 (Gaziantep, 1994; Aug-Oct. 143).</b> CNG 32 (7/12/1994) 178.

<sup>110</sup> O7 is only attested for EP. All examples of O7 have a significant die fault across the jaw.

<sup>111</sup> Jones incorrectly treated O8 as two separate dies (his O7 and O21). Note e.g. the die fault under the chin which steadily develops (O8/EP5 is put last on this basis).

8/EP4 (2)	21/c	30	16.87	CNG Web Shop 250193 = Morton & Eden 2 (13/11/2002) 530 = 1 (18/4/2002) 24 = NFA 23 (14/12/1989) 579.
8/EP4 (3)	21/cJ		-	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Private Collection, Geneva.
8/EP5 (1)	21/b	31	16.83	Peus 371 (24/4/2002) 156 = 369 (31/10/2001) 184 = Künker 20 (30/9/1991) 156.
8/EP5 (2)	21/b	32	16.33	NFA 31 (18/3/1993) 228.
8/EP5 (3)	21/b	32	16.91	Noble 112 (25/7/2016) 3663 = 111 (5/4/2016) 4536 = 97 (26/7/2011) 3316 = 74 (26/11/2003) 4535 = CNG EA 63 (23/4/2003) 19 = Spink 159 (11/7/2002) x950.
8/EP5 (4)	21/b	31	16.95	Bourgey (25/3/1977) 66 = Glendining (7/4/1976) 26.
8/EP5 (5)	21/bJ		16.79	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
9/EP6	8/aJ	33.5	16.58	BnF Fonds Général 1419.
9/EP7 (1)	8/bJ		-	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Private Collection, Geneva.
9/EP7 (2)	8/b	31	16.38	GM 216 (15/10/2013) 2528.
9/EP7 (3)	8/b	31	16.93	Sternberg 19 (18/11/1987) 190.
9/EP7 (4)	8/b	32	16.93	Bourgey (21/6/1992) 16 = Albuquerque 21 (19/4/1990) 81.
9/EP8 (1)	8/dJ	32	16.75	Inasta 30 (23/5/2009) 61 = Bank Leu 7 (9/5/1973) 226.
9/EP8 (2)	8/d	31	16.72	Lanz 38 (24/11/1986) 324.
9/EP8 (3)	8/d		16.89	Künker 341 (1/10/2020) 5568 (Slg. Phoibos).
9/EP9	8/eJ		16.86	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Private Collection, Geneva.
9/EP10 (1)	8/-	33	16.88	Argenor 5 (29/4/2002) 75 = CNG 63 (21/5/2003) 490.
9/EP10 (2)	8/-		16.85	Davissons 12 (18/11/1999) 62.
9/EP11	8/-	33	16.92	CNG EA 375 (1/6/2016) 394 = iNumis (20/5/2010) 11 = Poindessault & Védrières (14/12/1995) 58 = Schulten 21 (20/10/1987) 198 = Kunst und Münzen FPL 60 (May 1987) 188.
9/EP12 (1)	8/-	33	16.61	CGB.fr Live Auction (13/6/2017) 431924 = CGB.fr 4 (26/6/1998) 100 [16.58g].
9/EP12 (2)	8/-	34	16.63	Albuquerque 100 (20/6/1999) 2.
9/EP12 (3)	8/-	32	17.05	Heritage Auctions 3076 (5/9/2019) 30136.
9/EP13	8/-	33	16.72	Parsy (7/6/2000) 34.
9/EP14 (1)	8/cJ	33	16.86	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Elsen 26 (12/9/1992) 280 = Peus 329 (31/10/1990) 197 = ANS Photo File (Bank Leu).
9/EP14 (2)	8/c	30	16.92	Auction World 15 (19/1/2019) 3032 = NFA 16 (2/12/1985) 205 = NFA FPL 20 (Spring 1981) 18 = GM 16 (20/3/1980) 384.
9/EP14 (3)	8/c	32	16.82	Elsen 141 (15/6/2019) 57 = Elsen FPL 26 (Oct/Nov. 1980) 10.
9/EP15 (1)	8/-	34	16.79	<b>Kırkhan?</b> CGB.fr Live Auction (14/3/2017) 421519 = CGB.fr 57 (20/2/2013) 153 ('Provient très certainement du trésor de Kırkhan, du stock Bourgey et de la collection JMB').
9/EP15 (2)	8/-	31	17.05	Harmers 1 (25/9/2020) 9 = Gerhard Hirsch 195 (5/5/1997) 289 [16.98g] = Auctiones Basel 27 (10/12/1996) 318 [17.04g].
9/EP15 (3)	8/-	30	16.55	CNG 33 (15/3/1995) 283.
9/EP15 (4)	8/-	35	16.68	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Istanbul 1616/10 (Öztopbaş 2009: no. 10).

9/EP15 (5)	8/-	33	16.94	Elsen 6 (4/11/1986) 66. <sup>112</sup>
9/EP15 (6)	8/-	33	16.77	C. Burgan 24 (22/12/1990) 45.
9/EP15 (7)	8/-	30	16.79	Spink 175 [5014] (28/9/2005) 130.
9/EP15 (8)	8/-	31	16.83	GM 265 (14/10/2019) 391 = Gerhard Hirsch 178 (12/5/1993) 323 [16.74g] = 175 (23/9/1992) 353.
9/EP15 (9)	8/-		-	Barthold & Poplavsky (20/10/1977) 29.
9/EP15 (10)	8/-	33	16.26	Rauch 76 (17/10/2005) 335.
<b>CH 10.310 (Kirkhan, 1972; c. 142).</b>				
10/EP16 (1)	9/aJ		16.77	Gemini 5 (6/1/2009) 623 = ANS Photo File (Bank Leu).
10/EP16 (2)	9/aJ		16.94	ANS Photo File (MM Basel).
10/EP16 (3)	9/a	30	16.68	Gerhard Hirsch 183 (20/9/1994) 444.
10/EP16 (4)	9/a	30	16.82	Cederlind 120 (12/9/2000) 66 = GM 42 (11/10/1988) 316 = Kunst und Münzen 26 (13/5/1988) 85.
10/EP16 (5)	9/a	33	16.83	Heritage Auctions 3051 (8/1/2017) 30104.
10/EP16 (6)	9/a		16.89	Künker 295 (25/9/2017) 312.
10/EP16 (7)	9/a	36	16.58	Münzzentrum FPL 26 (Aug. 1977) 57.
10/EP17 (1)	9/bJ	32	-	Vinchon (17/12/1973) 30.
10/EP17 (2)	9/bJ	34.5	16.78	Rauch 107 (12/11/2018) 152 = Kricheldorf 47 (29/7/2002) 105 = Superior 12 (17/6/1974) 256 [16.61g].
10/EP17 (3)	9/bJ	33	16.89	Künker 333 (16/3/2020) 810 = Vinchon (26/4/1999) 195 [16.67g] = Bourgey (24/6/1975) 22 = SKA Bern FPL 12 (Dec. 1973) 18.
10/EP17 (4)	9/bJ		-	Private Collection, Geneva. <sup>113</sup>
10/EP17 (5)	9/b	33	16.75	CNA 21 (26/6/1992) 87.
10/EP17 (6)	9/b	34	16.63	Stack's (8/1/2016) 30100 = Heritage Auctions 3042 (17/9/2015) 29091 [16.58g].
10/EP17 (7)	9/b	32	16.63	Heritage Auctions 3051 (8/1/2017) 34028.
10/EP17 (8)	9/b	31	16.71	Spink 165 [3014] (8/10/2003) 64 = NCirc 111.2 (Apr. 2003) GK0869 = NAC F (17/4/1996) 1252 (mis-catalogued as Myrina).
10/EP17 (9)	9/b	31	16.95	MM Basel FPL 442 (Mar. 1982) 7.
10/EP18 (1)	9/cJ	31.5	16.27	ANS 1977.158.353 = Gans 14 (9/3/1954) 530.
10/EP18 (2)	9/c	33	16.85	Hess Divo 314 (4/5/2009) 1161. <sup>114</sup>
10/EP18 (3)	9/c	33	16.52	C. Burgan (30/6/1987) 304 = (24/5/1986) 349.
10/EP18 (4)	9/c		16.75	Maison Palombo 19 (12/12/2020) 49 = 16 (21/10/2017) 15.
10/EP19 (1)	9/dJ	34	15.90	Vinchon (20/5/1959) 546 = Bourgey (5/12/1932) 231 (H. Gallice) = Sotheby's (23/5/1894) 254 (R. Carfrae).
10/EP19 (2)	9/d	32	16.76	Bourgey (1/3/1990) 12 = (13/6/1986) 47.
10/EP19 (3)	9/d	32	16.79	Ponterio & Associates 89 (12/8/1997) 267.
10/EP20	9/-	33	16.9	Antakya 6508 (Ellis-Evans and Erol-Özdizbay 2020: no. 66 – wrongly stated to be new obv. die).
<b>CH 10.310 (Kirkhan, 1972; c. 142).</b>				
11/EP15 (1) <sup>115</sup>	10/cJ	31.5	16.80	Peus 284 (9/12/1974) 400 = ANS Photo File (Bank Leu).

<sup>112</sup> My records include a mislabelled photo of a duplicate of this coin which is lot 144 in a sale. The recorded reference (Sternberg 16 [15/11/1985] 144) is incorrect and I have been unable to ascertain the correct reference.

<sup>113</sup> Jones' index cards suggest that the other Geneva coin for this die combination is in fact this coin double counted.

<sup>114</sup> The catalogue reference to Antika (Lyon) (17/10/1985) 48 is instead the provenance for lot 1162.

<sup>115</sup> All examples of O11EP and PP are characterized by a large die fault which starts in the hairline, goes down across the top of the eye, and ends slightly to its left.

11/EP15 (2)	10/c	32	16.52	<b>CH 10.308.C1080 (Gaziantep, 1994; Aug-Oct. 143).</b> Gemini 8 (14/4/2011) 73 = UBS 56 (28/1/2003) 131.
11/EP15 (3)	10/c	31	16.65	CNG 53 (15/3/2000) 465.
11/EP19 (1)	10/aJ		16.84	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Catawiki 43109579 (user-9f587d4, Belgium) = Suffren Numismatique (Nantes) (eBay 322952997506 – seen 21/4/2019) = Parsy (29/4/2016) 8 = Private Collection, Geneva.
11/EP19 (2)	10/aJ		16.39	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
11/EP19 (3)	10/a	32	16.75	Lanz 46 (28/11/1988) 272 = GM 38 (30/11/1987) 179.
11/EP19 (4)	10/a	35	16.8	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Antakya 6506 (Ellis-Evans and Erol-Özdizbay 2020: no. 63).
11/EP19 (5)	10/a	34	16.6	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Antakya 6552 (Ellis-Evans and Erol-Özdizbay 2020: no. 62).
11/EP19 (6)	10/a	34	16.75	The New York Sale 11 (11/1/2006) 150.
11/EP21 (1)	10/bJ		16.20	BnF Fonds Général 1423 (Waddington).
11/EP21 (2)	10/b	34	17.05	Pegasi Numismatics 25 (8/11/2011) 153 = CNG 67 (22/9/2004) 686 (Tony Hardy) = 43 (24/9/1997) 546 [16.99g] = Kurpfälzische 49 (13/12/1995) 211 = H. W. Müller 15 (19/9/1975) 61.
11/EP21 (3)	10/b		-	Malloy 16 (7/7/1980) 88.
11/EP21 (4)	10/b		-	Malloy FPL 31 (May/June. 1973) 359.
11/EP21 (5)	10/b	32	16.92	Gulbenkian 988.
11/EP22 (1) <sup>116</sup>	10/b	31	17.03	Bourgey (29/1/1991) 85.
11/EP22 (2)	10/dJ		-	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Private Collection, Geneva.
11/EP22 (3)	10/d	31	16.77	Heritage Auctions 3020 (6/9/2012) 24994 (Kim Werner) = Sotheby's NY (21/6/1990) 494 (Bunker Hunt II).
11/EP22 (4)	10/d	31	16.69	Frankfurter 132 (30/5/1989) 56.
11/EP22 (5)	10/dJ	32	16.71	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> GM 196 (7/3/2011) 1683 = SBC 38 (12/9/1995) 215 = Private Collection (Saarbrücken Cast).
11/EP22 (6)	10/d		16.80	Superior 75 (10/12/1988) 1950 = Gerhard Hirsch 158 (4/5/1988) 106.
11/EP22 (7)	10/dJ		16.88	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
11/EP23 (1)	10/eJ	32.5	16.20	Vienna Gr 17392.
11/EP23 (2)	10/e	34	16.6	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Antakya 6553 (Ellis-Evans and Erol-Özdizbay 2020: no. 64).
11/EP23 (3)	10/eJ	32	16.82	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Peus 333 (6/5/1992) 281 = 332 (23/10/1991) 197 = NFA 17 (27/6/1986) 364 [16.78g] = 6 (27/2/1979) 294 = FPL 3 (Dec. 1977) 62 = ANS Photo File (Bank Leu).
11/EP23 (4)	10/e		16.60	Sotheby's (23/5/1988) 127.
11/EP23 (5)	10/e	32	16.59	SBC 24 (23/1/1990) 50.
11/EP23 (6)	10/e	34x31	16.54	Heritage Auctions 3037 (4/1/2015) 30043 = CNG 96 (14/5/2014) 438 (Ronald J. Hansen) = Noble 75 (31/3/2004) 1821 [17.19g – error] = CNG 61 (25/9/2002) 692 = 49 (17/3/1999) 563.
11/EP23 (7)	10/e	35	16.89	Künker 77 (30/9/2002) 171 = Künker 43 (29/9/1998) 136 [16.92g] = Superior 139 (5/12/1997) 1471 = SBC 43 (15/9/1997) 146.

<sup>116</sup> Significant die fault appears at top right beyond edge of wreath on O11/EP22. Development of this fault determines order of O11/EP22-25.

11/EP24 <sup>117</sup>	10/fj	32	14.99	Wulfing 325 = Münzhandlung Basel 6 (22/3/1937) 357 [15.97g – error] = Brüder Egger 46 (11/5/1914) 953 = Adolph Hess 230 (28/4/1936) 693.
11/EP25 (1)	10/-	30	16.60	CNG Web Shop 197142.
11/EP25 (2)	10/-	31	16.98	Crédit de la Bourse FPL (Oct. 1986) 690 = Banque Populaire du Nord FPL 30 (Dec. 1983) 369.
11/EP25 (3)	10/-	32	17.06	GM 84 (13/10/1997) 5312.
11/EP25 (4)	10/-	34	16.67	GM 142 (10/10/2005) 1542.
11/EP25 (5)	10/-	32	16.42	NFA Winter MB (15/1/1982) 218.
11/EP25 (6)	10/-	34	-	SBC FPL (Summer 1996) 984.
11/EP25 (7)	10/-	34x36	16.82	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Istanbul 1616/11 (Öztopbaş 2009: no. 11).
11/EP25 (8)	10/-	32	16.69	Kölner Münzkabinett 37 (22/11/1984) 26.
11/EP25 (9)	10/-	34	16.62	Peus 361 (3/11/1999) 176.
11/EP25 (10)	10/-		16.65	Jacquier FPL 33 (Autumn 2005) 136.
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12/EP26 (1)	19/bj	33	15.53	ANS 1967.152.445 = Brüder Egger 39 (15/1/1912) 314 (Vienna duplicates).
12/EP26 (2) <sup>118</sup>	19/b	35	16.62	Würzburg Ka 1294 / H 6661 (H. Wellhöfer, 2014-2016) = GM 219 (10/3/2014) 234 = Elsen FPL 17 (Sep/Oct. 1979) 41.
12/EP26 (3)	19/b		-	Galerie Numismatique Drouot 11 (26/10/1979) 23.
12/EP26 (4)	19/b	35	16.58	C. Burgan (16/11/1985) 267.
12/EP26 (5)	19/bj		16.81	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Poinsignon 118234 (no date – early 2010s) = ANS Photo File (Bank Leu) [16.79g].
12/EP27	19/aJ	34	-	<b>Seyrig, Trésors 20.36 (N. Syria, 'Caiffa', c. 1905; c. 145-143).</b> Dupriez 90 (12/12/1906) 33.
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13/EP20 (1) <sup>119</sup>	18/-	30	16.78	Triton 10 (9/1/2007) 299 (Richard Winokur) = Heritage Auctions (10/1/2004) 12074 = Bank Leu 83 (6/5/2002) 313 = Stack's 490 (3/12/1996) 64 (Michael F. Price).
13/EP20 (2)	18/-	31	16.69	Waddell 2 (12/9/1987) 223 = SBC FPL (Autumn 1980) 88 = (Autumn 1975) 175.
13/EP20 (3)	18/-		16.65	HJBerk Buy or Bid 59 (1/11/1989) 273.
13/EP20 (4)	18/-		16.61	Künker 347 (22/3/2021) 741 (Sig. Walter Weise) = Monetarium 42 (Autumn 1984) 40.
13/EP27 (1)	18/aJ	34	15.98	Stack's (11/1/2010) 155 (estate of Cornelius C. Vermeule) = MM Basel FPL 292 (Sep. 1968) 7.
13/EP27 (2)	18/a	29	-	Alain Weil (19/6/1996) 14.
13/EP27 (3)	18/a		16.74	Tkalec (15/4/1985) 72.
13/EP28	18/bJ	31.5	16.95	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Peus 368 (25/4/2001) 187 = 334 (4/11/1992) 435 = ANS Photo File (Bank Leu).
<hr/>				
14/EP24	22/-	35	16.61	Ira & Larry Goldberg 90 (2/2/2016) 3142 = NAC 88 (8/10/2015) 418.
<hr/>				
16/EP24	-/-	32	16.59	Kricheldorf 43 (11/3/1992) 249.
<hr/>				
17/EP29 (1)	12/-		16.57	Waddell FPL 65 (1995) 43.

<sup>117</sup> Small horizontal break joins arms of Macander pattern on left-hand side. Also present on examples of EP24 combined with O14, O16-O19.

<sup>118</sup> Die fault starts to develop over eye on O12/EP26 (2) and is very pronounced on O12/EP26 (5), O12/EP27, and O12/PP30.

<sup>119</sup> Order of O13EP reverse dies determined by worsening die fault on neck which is difficult to see on O13/EP20 but clearly visible on EP27-28.

17/EP29 (2)	12/-		16.65	Peus EA 7 (16/6/2018) 22 (bought from Brandt, Tübingen, 2005) = Künker 54 (7/3/2000) 1944.
17/EP24 (1)	12/cJ		-	H. Schulman & A. Kreisberg (20/5/1966) 723 = Beckenbauer stock (3/4/1964) – Winterthur cast (catalogued as separate coin in Jones).
17/EP24 (2)	12/cJ		16.71	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
17/EP24 (3)	12/c	32	16.64	Glendining (14/12/1988) 177 = Münzzentrum 47 (10/11/1982) 139.
17/EP24 (4)	12/c	34	16.70	Spink 183 [6018] (26/9/2006) 688.
17/EP30 (1)	12/aJ	33	16.69	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Triton 6 (14/1/2003) 355 = ANS Photo File (MM Basel).
17/EP30 (2)	12/a	32	16.88	<b>Kirkhan?</b> Bourgey (24/2/1983) 85 = (10/6/1982) 107 = Barthold 1 (13/10/1980) 366.
17/EP30 (3)	12/a	32	16.77	Künker 333 (16/3/2020) 241 (Slg. Dr. W. R.) = H. Grün 43 (10/5/2005) 389 [16.86g] = MM Basel FPL 586 (May 1995) 13.
17/EP30 (4)	12/a	35	16.67	NAC 54 (24/3/2010) 122.
17/EP30 (5)	12/a		15.98	Alain Weil (20/3/1986) 33 = Poindessault & Védrines (7/7/1984) 51.
17/EP31	12/bJ	36	16.49	Berlin 18275865 (C. R. Fox, 1873) = Sotheby's (5/12/1859) 1062 (Lord Northwick).
18/EP24	24/-		16.88	Poindessault & Védrines (29/12/1983) 34.
18/EP31 (1)	24/aJ		16.18	SNG Lewis 931 = Hoffmann (15/1/1882) 1511 (Bompois; Winterthur cast at 16.25g catalogued as separate coin in Jones).
18/EP31 (2)	24/aJ	30	16.82	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Tradart (18/12/2014) 152 (René Baron) = Poindessault & Védrines (30/3/1989) 50 [16.74g] = Poinsignon 2 (16/3/1985) 172 = Bank Leu 13 (29/4/1975) 235 = ANS Photo File (Bank Leu).
18/EP31 (3)	24/a		16.60	Gerhard Hirsch 293 (25/9/2013) 2360 – Obv. and rev. double struck.
18/EP31 (4)	24/a		16.54	Noble 125 (24/11/2020) 4570 (ex CNG private sale in Melbourne 19/7/1995).
18/EP32	24/bJ	34	16.55	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Albuquerque 47 (11/12/1994) 3 = SBC 33 (20/9/1993) 300 = Private Collection, Geneva.
19/EP24 (1)	13/aJ		-	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Private Collection, Geneva.
19/EP24 (2)	13/aJ	31	16.71	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Kölner Münzkabinett 69 (18/11/1998) 136 = ANS Photo File (Bank Leu).
19/EP24 (3)	13/a	31	16.78	Cederlind 166 (3/10/2012) 75 = 163 (28/2/2012) 96 = Stack's (6/1/2012) 255 [16.83g] = V. C. Vecchi 1 (13/5/1983) 69 [16.82g].
19/EP30 (1)	13/cJ	32	16.65	MM Basel FPL 360 (Sep. 1974) 8.
19/EP30 (2)	13/cJ	30	16.61	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Auctiones Basel 16 (1/10/1986) 171 = ANS Photo File (MM Basel) [17.04g].
19/EP30 (3)	13/c	32	16.91	CNG 38 (6/6/1996) 329.
19/EP30 (4)	13/c	32	16.60	GM 36 (8/4/1987) 208.
19/EP30 (5)	13/c	34	16.70	<b>CH 10.308.C1081 (Gaziantep, 1994; Aug-Oct. 143).</b> Alpha Bank 5292 = GM 71 (3/5/1995) 314.
19/EP30 (6)	13/c	32	16.98	Künker 280 (26/9/2016) 230.
19/EP30 (7)	13/c	32	16.59	NFA 20 (9/3/1988) 726.

19/EP31	13/-	34	16.93	Elsen FPL 45 (Jun. 1982) 13 = 32 (May 1981) 9 = 21 (Mar. 1980) 17 – Obv. double struck.
19/EP33 (1)	13/bJ	33	16.70	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> C. Burgan (19/11/1988) 244 = NFA 1 (20/3/1975) 167 [16.65g] = ANS Photo File (Bank Leu).
19/EP33 (2)	13/b		16.63	Künker EA 57 (3/12/2019) 44 (Slg. Phoibos).
19/EP34	13/-	32	16.8	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Antakya 6500 (Ellis-Evans and Erol-Özdizbay 2020: no. 65).
21/EP33 (1)	14/aJ	33	16.65	BnF Armand Valton 433.
21/EP33 (2)	14/a	30	16.72	Gerhard Hirsch 256 (5/5/2008) 222 = UBS 76 (22/1/2008) 1289 = SBC 33 (20/9/1993) 301 [16.69g] = GM 19 (12/5/1981) 65.
21/EP33 (3)	14/a	32.5	16.55	CGB.fr 11 (21/2/2002) 118.
21/EP33 (4)	14/a		17.04	Noble 87 (8/4/2008) 4523 = 85 (24/7/2007) 3148.
21/EP33 (5)	14/a	32	16.77	Heritage Auctions 232015 (8/4/2020) 62093 = Münzzentrum 62 (4/11/1987) 253.
21/EP33 (6)	14/a		-	<b>Gaziantep?</b> CNR 20.3 (Fall 1995) SP3016 = CNR 20.2 (Summer 1995) SP2011.
21/EP35	14/-	36	16.75	CNG 35 (20/9/1995) 286.
21/EP36	14/-		-	Poinsignon 38 (Nov. 1994) 629.
22/EP34 (1) <sup>120</sup>	16/-	30	16.73	GM 236 (7/3/2016) 248 (bought at Münzbörse Karlsruhe on 16/10/2005 from R. Kaiser, Frankfurt) = H. G. Oldenburg 26 (1/11/1991) 186.
22/EP34 (2)	16/-		17.03	Waddell FPL 64 (1994) 57.
22/EP37 (1)	16/aJ	30	16.88	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Hess Divo 326 (28/5/2014) 49 = NAC 52 (7/10/2009) 169 [16.90g] = Peus 396 (5/11/2008) 365 = UBS 57 (15/9/2003) 264 = MM Basel FPL 372 (Oct. 1975) 8.
22/EP37 (2)	16/a	33.5	16.93	Peus 404 (2/11/2011) 2282 = Ira & Larry Goldberg 46 (26/5/2008) 39 [16.50g] = GM 133 (11/10/2004) 218.
22/EP37 (3)	16/aJ		16.76	Waddell FPL 64 (1994) 56.
22/EP38 (1)	16/-	30	16.81	H. Grün 60 (12/11/2012) 144 = Frankfurter 152 (7/12/1999) 89.
22/EP38 (2)	16/-	33	16.97	<b>CH 10.308.C1084 (Gaziantep, 1994; Aug-Oct. 143).</b> NCirc 102.10 (Dec. 1994) 7717.
23/EP37 (1)	17/-		16.97	Aufhäuser 13 (7/10/1997) 148.
23/EP37 (2)	17/-		16.75	C. Burgan (17/11/2017) 66 = Kampmann (26/11/1975) 119.
23/EP37 (3)	17/-	31	16.78	CNG EA 215 (29/7/2009) 197.
23/EP37 (4)	17/-	29	16.83	GM 46 (30/10/1989) 255.
23/EP38 (1)	17/-	30	16.69	C. Burgan 30 (3/7/1992) 456 = 25 (18/6/1991) 397 = Barthold & Poplavsky (17/2/1977) 25.
23/EP38 (2)	17/-		16.64	Alde (19/10/2016) 98 = Piollet-Sabatier (28/3/1977) 89 [16.50g].
23/EP38 (3)	17/-	34	16.83	Elsen FPL 191 (May/Jun. 1997) 60 = NAC G (10/4/1997) 1206.
23/EP38 (4)	17/-	30	16.60	MDC Monaco 6 (29/10/2020) 71.
23/EP39 (1)	17/cJ	32	16.60	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Aureo & Calicó 263 (29/10/2014) 1011 = Hess Divo 307 (7/6/2007) 1239 ('ARTNUMISMATIQUE, Genève 1976') = Private Collection, Geneva.
23/EP39 (2)	17/c		16.90	Hess Divo 328 (22/5/2015) 59.

<sup>120</sup> O22EP is a later die state than O22PP, since the die fault between the top of the *stephane* and the hair is present on all of O22EP but only on some of O22PP (see n. 140).

23/EP39 (3)	17/c	32	16.80	Rauch 110 (2/7/2020) 102 = Peus 386 (26/4/2006) 221 = Rauch 42 (16/1/1989) 3043 [16.79g] = Scheiner FPL D-24 (c.1975-1983) 5440.
23/EP39 (4)	17/c	33	16.91	Leu Numismatik 6 (23/10/2020) 193 (Kleinkunst Collection) = Poinson (4/12/1985) 146 = Bourgey (10/3/1980) 118 [16.88g].
23/EP40 (1)	17/-	30	16.91	Christie's (28/2/1989) 1329 = Elsen FPL 95 (Dec. 1986) 41.
23/EP40 (2)	17/-	32	16.93	CNG 34 (6/5/1995) 139.
23/EP11 (1) <sup>121</sup>	17/aJ	35.5	16.48	Vilmar Numismatics (VCoins, seen 2/11/2012) = Gerhard Hirsch 284 (26/9/2012) 2069 (bought from Bruno Vigne, Paris, Mar. 1984) = Sotheby's (1/2/1984) 213 (V. M. Brand) = Jacob Hirsch 20 (13/11/1907) 396 (H. C. Hoskier) = 13 (15/5/1905) 3723 (A. Rhusopoulos).
23/EP11 (2)	17/aJ	29	16.31	Jacob Hirsch 21 (16/11/1908) 2870 (Consul Weber).
23/EP11 (3)	17/a		16.64	Künker 204 (12/3/2012) 295 = NAC 9 (16/4/1996) 337 [16.70g].
23/EP11 (4)	17/a	34	16.84	<b>CH 10.308.C1083 (Gaziantep, 1994; Aug-Oct. 143).</b> Spink 1012 (2/12/2010) 1249 = NCirc 102.8 (Oct. 1994) 6274.
23/EP11 (5)	17/a	30	16.80	Christie's NY (13/3/1990) 82.
23/EP11 (6)	17/a	30	16.84	Triton 12 (6/1/2009) 291.
23/EP11 (7)	17/a		16.89	Davissons 5 (25/7/1995) 87.
23/EP11 (8)	17/a		16.85	Künker 27 (27/9/1994) 141.
23/EP11 (9)	17/a	30	16.86	NFA 8 (6/6/1980) 256.
23/EP11 (10)	17/a	32	16.87	Superior 68 (12/12/1987) 442.
23/EP11 (11)	17/a		16.80	NCirc 113.6 (Dec. 2005) GK1760.
23/EP11 (12)	17/a	30	16.90	Heritage Auctions 3076 (5/9/2019) 30135.
23/EP41 (1)	17/bJ	30.5	15.74	Ashmolean HCR06257 (acq. E. S. G. Robinson, 1964) = Glendining (18/4/1955) 486 (Property of a Nobleman [Lowal]) = J. Schulman 194 (30/3/1936) 150 [15.80g] = (19/12/1910) 254. <sup>122</sup>
23/EP41 (2)	17/bJ	29	16.75	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Leu Numismatik Web Auction 15 (27/2/21) 428 (from an old Swiss collection formed in the 1980s) = MM Basel FPL 444 (May 1982) 14 = ANS Photo File (MM Basel).
23/EP41 (3)	17/b	31	16.73	C. Burgan (2/7/1988) 270 = (30/6/1987) 305 = Barthold (4/7/1986) 16.
23/EP41 (4)	17/b	31.5	16.76	<b>CH 10.308.C1082 (Gaziantep, 1994; Aug-Oct. 143).</b>
23/EP41 (5)	17/b	33	16.89	Monnaies d'Antan 15 (16/5/2014) 234 = 12 (22/11/2012) 26.
23/EP41 (6)	17/b		16.75	LHS Numismatik 95 (25/10/2005) 670.
23/EP41 (7)	17/b	35	16.92	Raffaele Negrini EA (16/5/2019) 94 = NAC Q (6/4/2006) 1400.
24/EP11	-/-	30	16.87	GM 38 (30/11/1987) 178.
24/EP42 (1)	-/-	35	16.91	SBC 43 (15/9/1997) 148.
24/EP42 (2)	-/-	33	16.60	CNG EA 244 (10/11/2010) 167.
24/EP43 (1)	-/-	32	16.83	CNG EA 343 (28/1/2015) 173 = Seaby 736 (Dec. 1979) C1300.
24/EP43 (2)	-/-		16.79	Kampmann (3/5/1984) 35 = Baudey (14/12/1976) 51 – Rev. double struck.

<sup>121</sup> Die break develops under chin on O23/EP11 and O23/EP41, thus placing them at the end. The ethnic also appears to read MAGNETON (as noticed by Philip Kinns).

<sup>122</sup> Jones mistakenly listed the coin in the Schulman sale as separate from the Ashmolean coin when they are in fact the same coin.

24/EP43 (3)	-/-	33	16.78	CNG 46 (24/6/1998) 405 = Italo Vecchi 2 (12/9/1996) 480 [16.80g].
24/EP43 (4)	-/-		16.60	NCirc 97.6 (Jul.-Aug. 1989) 3870.
24/EP44	-/-	31	16.74	The New York Sale 34 (6/1/2015) 153 = iNumis (10/12/2013) 6 (diameter 21mm in catalogue – error).
25/EP44 (1) <sup>123</sup>	20/bJ	31	16.55	Adolph Hess 208 (14/12/1931) 625 = Sotheby's (11/12/1894) 269.
25/EP44 (2)	20/b	30	16.64	Maison Palombo 11 (30/11/2012) 7.
25/EP44 (3)	20/b		17.06	Astarte 20 (30/10/2009) 33.
25/EP45 (1)	20/aJ	32	16.47	ANS 1950.112.1 = Glendining (19/7/1950) 133 (H. P. Hall, from the P. Mathey collection) = Naville 16 (3/7/1933) 1395 = Feuardent (9/5/1910) 540 (G. Duruflé).
25/EP45 (2)	20/a	30	16.87	CNG Web Shop 734735 = GM 121 (10/3/2003) 178 = Peus 371 (24/4/2002) 155 [16.92g] = Lanz 102 (28/5/2001) 266 = GM 33 (3/6/1986) 181.
25/EP45 (3)	20/a	35x37	16.71	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Istanbul 1616/9 (Öztopbaş 2009: no. 9).
25/EP45 (4)	20/a	33	17.12	<b>CH 10.308.C1085 (Gaziantep, 1994; Aug-Oct. 143).</b>
25/EP45 (5)	20/a		16.59	Banque Populaire du Nord FPL 22 (Feb. 1982) 18.
25/EP45 (6)	20/a	33	16.95	CNG 42 (29/5/1997) 453.
25/EP45 (7)	20/a	32	-	Empire Coins FPL 74 (Apr. 1995) 47.
25/EP45 (8)	20/a	33	16.87	<b>CH 10.308.C1087 (Gaziantep, 1994; Aug-Oct. 143).</b>
25/EP45 (9)	20/a	30.5	16.81	Lanz 40 (25/5/1987) 271.
25/EP45 (10)	20/a	33.5	16.71	Numismatica Genevensis 3 (29/11/2004) 37.
25/EP46 (1)	20/cJ		16.48	SNG Lewis 930 = Sotheby's (26/5/1880) 288 (Lake Price).
25/EP46 (2)	20/c	33	16.82	MM Basel 94 (16/12/2003) 434 = GM 42 (11/10/1988) 317 = 38 (30/11/1987) 177.
25/EP46 (3)	20/c	33	17.26	Elsen FPL 239 (Jan.-Mar. 2007) 88 = Künker 111 (18/3/2006) 6247 [17.19g] = Lanz 125 (28/11/2005) 368 = HJBerk Buy or Bid 135 (10/12/2003) 111 = 127 (25/6/2002) 209.
25/EP46 (4)	20/c	34	16.88	Elsen 89 (9/9/2006) 802 = MM Basel FPL 596 (May 1996) 18.
25/EP46 (5)	20/c	32	16.95	The New York Sale 27 (4/1/2012) 514 (bought from Spink London 2/8/1984) = MM Basel 64 (30/1/1984) 154.
25/EP46 (6)	20/c	31	16.89	GM 215 (14/10/2013) 881 = Athena 1 (8/10/1987) 101.
25/EP46 (7)	20/c		17.02	Ars Time Company EA 1 (25/4/2013) 21.
25/EP46 (8)	20/c	34	16.70	Heritage Auctions (30/7/2002) 11114 (Dr. Joseph M. Seventko) = CNA 18 (3/12/1991) 155 [16.67g] = 9 (7/12/1989) 95.
25/EP46 (9)	20/c	35	17.1	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Antakya 6510 (Ellis-Evans and Erol-Özdizbay 2020: no. 67).
25/EP46 (10)	20/c	33	16.69	Triton 23 (14/1/2020) 360 = Morton & Eden 100 (2/5/2019) 286 = Peus 291 (30/3/1977) 258 [16.75g].
25/EP46 (11)	20/c	35	17.23	Vinchon (26/4/1999) 194.
25/EP46 (12)	20/c		16.74	Italo Vecchi 16 (9/10/1999) 224.
25/EP46 (13)	20/c		-	Myntauktioner i Sverige 12 (19/9/2014) 107.
25/EP46 (14)	20/c		16.75	Noble 49 (22/11/1995) 2034.
25/EP47 (1) <sup>124</sup>	20/-	29	16.68	Gerhard Hirsch 183 (20/9/1994) 445.
25/EP47 (2)	20/-		17.06	Alain Weil (9/3/1985) 32.

<sup>123</sup> Parallel diagonal die breaks develop over the eye on O25/EP44 which are not there on O24/EP44, thus indicating the order of these obverse dies.

<sup>124</sup> The signer's patronymic is incorrectly spelled ΠΥΣΑΝΙΟΥ (as noticed by Philip Kinns).

25/EP47 (3)	20/-		17.00	Barry P. Murphy (VCoins, seen 8/8/2008).
26/EP48	25/-	32	16.56	<b>Kirkhan?</b> Alain Weil (3/4/2003) 39 = Barthold 1 (13/10/1980) 367.
26/EP49 (1)	25/aJ	37	15.93	Gulbenkian 989 = Locker Lampson 304 = Weber 3.6003 = Chapman (19/2/1885) 334 (Simpson sale, Edinburgh).
26/EP49 (2)	25/aJ		16.59	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
26/EP49 (3)	25/a	33	16.56	CNG 38 (6/6/1996) 328.
26/EP50	25/dJ	31	16.95	Münzzentrum 24 (12/5/1976) 151 = R. J. Myers 13 (9/12/1976) 174.
26/EP51 (1)	25/bJ	35	16.30	Schlessinger 13 (4/2/1935) 1270 (Hermitage).
26/EP51 (2)	25/bJ		16.30	Ashmolean HCR6266 (acq. from N. Zitelli, Rhodes, 11/6/1929) – 10h.
26/EP51 (3)	25/b	33	16.76	<b>Gaziantep?</b> CNG 69 (8/6/2005) 401 = Baldwin's 37 (4/5/2004) 654 [16.80g] = CNR 21.1 (Spring 1996) SP125.
26/EP51 (4)	25/b	34	16.55	CNG EA 97 (8/9/2004) 43.
26/EP51 (5)	25/b	31	16.90	Christie's NY (7/9/1989) 70.
26/EP51 (6)	25/b	32	16.75	CNG 37 (20/3/1996) 503.
26/EP52 (1)	25/cJ	33.5	16.46	BM RPK,p133B.1.MagMea (= <i>BMC Ionia</i> 162,36 = Head, <i>Principal Coins</i> 72,14).
26/EP52 (2)	25/cJ	31	16.53	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> NFA 32 (10/6/1993) 74 = Sotheby's NY (19/6/1991) 348 (Bunker Hunt IV) = ANS Photo File (Bank Leu).
26/EP52 (3)	25/cJ		16.85	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> ANS Photo File (MM Basel).
26/EP52 (4)	25/cJ		16.65	Sotheby's (9/10/1992) 1112 = Sobelar 4 (31/5/1974) 333.
<i>Unidentified Tetrachms</i>				
9/EP7 (X)	8/bJ		-	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Private Collection (Paris Cast).
11/EP21 (X)	10/eJ		-	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Private Collection (Paris Cast).
-	-		16.70	<b>Seyrig, Trésors 24.38 (Ras Baalbek, 1957; c. 143/2).</b>
-	-		16.75	<b>Seyrig, Trésors 24.39 (Ras Baalbek, 1957; c. 143/2).</b>
-	-		16.33	<b>Seyrig, Trésors 25.14 (Aleppo, 1930; c. 143/2).</b>
-	-		16.73	NAAC 7 (11/4/1991) 559 – <i>Non vidi</i> .
-	-		16.76	Harmer-Rooke (19/6/1973) 184C – <i>Non vidi</i> .
<i>Drachms</i>				
a/EPa	N/A	20	3.48	BM 1919,1120.105 = Weber 3.6004 (W. T. Ready, 1894) – Die axis 5h, possibly overstruck. <sup>125</sup>

#### Pausanias son of Pausanias (PP)

Dies	Jones	mm	g	References / Notes
25/PP1 <sup>126</sup>	20/-	33.5	16.60	SKA Bern 7 (27/4/1987) 229.
25/PP2 (1)	20/-		16.86	Barthold-Poplavsky (15/6/1976) 82.

<sup>125</sup> This remains the only drachm attested for the series. Jones (1979), p. 64 n. 3 and 68 n. 8 incorrectly suggests there is also a drachm in the ANS signed by Erasippos Aristeuou. However, as Kinns (1989), p. 145 n. 33 has noted, this is in fact an example of the contemporaneous value-marked series.

<sup>126</sup> Order of reverse dies for O25PP determined by parallel diagonal die breaks over eye which develop from too faint to make out on O25/PP1 to more pronounced than on O25EP on O25/PP6.

25/PP2 (2)	20/-		16.97	Parsy (24/6/2004) 18.
25/PP3 (1)	20/aJ	32	15.94	Gulbenkian 990 = J. Schulman (26/11/1913) 2569 (J. M. M. van Belle) = (27/11/1911) 738.
25/PP3 (2)	20/aJ		-	<b>CH 10.310 (Kirikhan, 1972; c. 142).</b> Private Collection, Geneva.
25/PP4 (1) <sup>127</sup>	20/bJ		16.74	<b>CH 10.310 (Kirikhan, 1972; c. 142).</b> Auciones Basel 20 (8/11/1990) 1360 = ANS Photo File (MM Basel) [16.80g].
25/PP4 (2)	20/b	31	16.67	SNG Kayhan 424 = CNG 41 (19/3/1997) 560 [16.58g].
25/PP4 (3)	20/b	30	16.91	CNG 34 (6/5/1995) 138.
25/PP4 (4)	20/b	30	16.95	Gerhard Hirsch 242 (22/9/2005) 2127.
25/PP5 (1)	20/cJ		-	<b>CH 10.310 (Kirikhan, 1972; c. 142).</b> Private Collection, Geneva.
25/PP5 (2)	20/cJ		16.88	<b>CH 10.310 (Kirikhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
25/PP5 (3)	20/c		17.19	Dix Noonan Webb 177 (3/6/2020) 383 = St. James 2 (11/5/2005) 3 = Noble 53 (9/4/1997) 2127 = 51 (3/7/1996) 2157 = 50 (20/3/1996) 2134.
25/PP5 (4)	20/c	33	17.0	<b>CH 10.310 (Kirikhan, 1972; c. 142).</b> Antakya 6540 (Ellis-Evans and Erol-Özdizbay 2020: no. 74).
25/PP5 (5)	20/c		16.68	Pegasi Numismatics 24 (5/4/2011) 155 = Bourgey (19/11/2001) 66 [16.72g].
25/PP5 (6)	20/c		16.77	Sotheby's (10/4/1992) 106.
25/PP5 (7)	20/c		16.94	Noble 49 (22/11/1995) 2035.
25/PP6 <sup>128</sup>	20/-	31	16.86	Elsen 64 (2/12/2000) 213 = 60 (11/12/1999) 230 = Alain Weil (17/11/1991) 44 = Kunst und Münzen 16 (19/10/1976) 97 [17.00g].
8/PP6 <sup>129</sup>	21/-	30	17.03	Monetarium 59 (Spring 1993) 72 = Aufhäuser 9 (7/10/1992) 127 = GM 48 (2/4/1990) 415.
8/PP1	21/bJ	31	16.37	Berlin 18275874 (F. Imhoof-Blumer, 30/3/1872).
8/PP7 (1)	21/-	32	16.54	Numismatica Genevensis 4 (11/12/2006) 95 = GM 141 (10/10/2005) 146.
8/PP7 (2)	21/-	31	16.63	Maison Palombo 7 (13/6/2009) 113.
8/PP7 (3)	21/-	30.5	16.75	CNG 33 (15/3/1995) 284 = Coin Galleries (10/2/1993) 80 = Stack's 443 (9/12/1991) 154 = Coin Galleries (10/4/1991) 122.
8/PP7 (4)	21/-	30	16.54	Münzzentrum 62 (4/11/1987) 254.
8/PP7 (5)	21/-		16.92	Numismatica Vienna FPL 4 (Mar. 1975) 166.
8/PP7 (6)	21/-		16.87	Peus 421 (1/11/2017) 1110.
8/PP8	21/-	31	16.40	HJBerk Buy or Bid 165 (28/7/2009) 194 (purchased from HJBerk in 1980s).
8/PP9	21/aJ	37	15.94	SNG Copenhagen 844 (Ramus 1, Mionnet Suppl. 6.233, no. 1007).
8/PP5 (1)	21/-	32	16.64	HJBerk FPL 7 (Fall 1980) 133 = Superior 32 (30/5/1980) 2198.
8/PP5 (2)	21/-		-	Scheiner FPL D-29 (c. 1984-1995) 7892 = D-27 (Christmas 1983) 963 = D-21 (c. 1975-1983) 4831 = D-20 (c. 1975-1983) 5098.

<sup>127</sup> The ethnic is incorrectly spelled ΜΙΝΗΤΩΝ (as noticed by Philip Kinns).

<sup>128</sup> Die fault on *pi* of ΠΑΥΣΑΝΙΟΥ absent on O25/PP6 but present on O8/PP6 hence order of these two obverse dies.

<sup>129</sup> Order of reverse dies for O8PP determined by vertical die break below chin with branching die break to left. This is absent on O8/PP6, barely there on O8/PP1, small on O8/PP7, there on O8/PP8, and developed on O8/PP5. The consequences of this are that: **1)** PP started using O8 slightly earlier than PE and EP; **2)** PE used O8 and O9 in tandem with EP and PP; **3)** O8-9PE therefore needs to be detached from O1-6PE; **4)** pairs of signers are a feature of Magnesia's wreathed tetradrachms but not a hard and fast rule.

21/PP2	14/bJ	34	16.23	Vinchon (7/11/1977) 95 = (29/4/1974) 108 (Roger Peyrefitte) = Bourgey (18/11/1957) 114 = Feuardent (12/2/1919) 337 (M. Collignon) = Sotheby's (28/5/1900) 357 [256 grains = 16.59g] (Late Collector).
21/PP10	14/-	36	16.33	Superior 75 (10/12/1988) 1951 = 32 (30/5/1980) 2196.
21/PP11 (1)	14/aJ		16.79	<b>CH 10.310 (Kırıkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
21/PP11 (2)	14/a	31	16.92	GM 81 (3/3/1997) 313 = Auctiones Basel 26 (16/9/1996) 223.
21/PP11 (3)	14/a	32	16.8	<b>CH 10.310 (Kırıkhan, 1972; c. 142).</b> Antakya 6537 (Ellis-Evans and Erol-Özdizbay 2020: no. 70).
21/PP11 (4)	14/a	33	16.73	<b>CH 10.308.C1093 (Gaziantep, 1994; Aug-Oct. 143).</b> NCirc 114.5 (Oct. 2006) GK1991 = 112.4 (Aug. 2004) GK1339 = 107.4 (May 1999) 1942 = 103.9 (Nov. 1995) 6072.
21/PP11 (5)	14/a		16.1	Jesús Vico 143 (5/11/2015) 498.
20/PP2 <sup>130</sup>	15/aJ		-	<b>CH 10.310 (Kırıkhan, 1972; c. 142).</b> Private Collection (Saarbrücken Cast).
20/PP12 (1)	15/-	30	16.56	<b>CH 10.308.C1092 (Gaziantep, 1994; Aug-Oct. 143).</b> MM DE 14 (16/4/2004) 583 = Glendining (27/4/2000) 35 = NCirc 103.7 (Sep. 1995) 4725 = Spink 106 (11/10/1994) 69.
20/PP12 (2)	15/-	32	16.75	Elsen 46 (21/9/1996) 301 = Tradart (18/11/1993) 106 = (12/12/1991) 154.
20/PP12 (3)	15/-	33	16.60	NAC 2 (21/2/1990) 192.
20/PP13 (1)	15/-	31	16.50	Freeman & Sear FPL 7 (Spring 2003) G156 = Bank Leu 83 (6/5/2002) 314 [16.48g] = MM Basel FPL 499 (May 1987) 29.
20/PP13 (2)	15/-	31	16.72	CNG EA 293 (19/12/2012) 100.
20/PP13 (3)	15/-	29	16.83	Gerhard Hirsch 183 (20/9/1994) 446.
20/PP13 (4)	15/-		16.84	Poindessault (18/6/1980) 142.
20/PP14	15/-	31	16.69	Glendining (9/10/1989) 119.
9/PP15 (1)	8/cJ	31	16.61	CNG Web Shop 732296 = CNG 55 (13/9/2000) 507 = MM Basel 54 (26/10/1978) 292 = 41 (18/6/1970) 200 = MM Basel & Bank Leu (3/12/1965) 384 (Niggeler I, acq. 1954) = Jameson I (1913) 1504 = Sotheby's (23/3/1896) 571 (H. Montagu).
9/PP15 (2)	8/c	31	16.59	UBS 78 (9/9/2008) 1052 = SBC 33 (20/9/1993) 299.
9/PP15 (3)	8/c	32	16.81	CNG 78 (14/5/2008) 786 (Collection C. P. A.) = Elsen 58 (12/6/1999) 945.
9/PP16 (1)	8/-	32	16.77	Triton 16 (8/1/2013) 457 = 8 (11/1/2005) 418.
9/PP16 (2)	8/-	32.5	16.77	CNG EA 460 (29/1/2020) 244.
9/PP17 (1)	8/-	38	16.73	Parsy (20/10/1998) 32 = C. Burgan (2/7/1988) 269.
9/PP17 (2)	8/-	31	16.93	Vinchon (1/12/2015) 108 = Parsy (22/3/2005) 15 [16.89g].
9/PP18 (1)	8/dJ	33	-	Kress 158 (8/11/1973) 414.
9/PP18 (2)	8/d	31	16.05	Berlin 18204005 (F. Imhoof-Blumer, 1900).
9/PP18 (3)	8/d	31	16.93	GM 244 (6/3/2017) 306.
9/PP18 (4)	8/d	32	16.68	Heritage Auctions 3021 (6/1/2013) 21236 = Superior (1/10/2001) 1046 = CNG 53 (15/3/2000) 463 [16.78g].
9/PP18 (5)	8/d		16.88	Superior 75 (10/12/1988) 1952 = 24 (12/6/1978) 2251.
9/PP18 (6)	8/d		16.75	NCirc 95.4 (May 1987) 2845.

<sup>130</sup> O20 is only attested for PP.

9/PP19 (1) <sup>131</sup>	8/bJ	30	16.88	Morton & Eden 104 (14/11/2019) 68 = MM Basel FPL 390 (Jun. 1977) 5.
9/PP19 (2)	8/b	33	16.93	Bank Leu 91 (10/5/2004) 158 = Sotheby's Geneva (12/11/1990) 28.
9/PP19 (3)	8/b		16.77	H. Grün 77 (12/11/2019) 33 = 76 (14/5/2019) 74 = Helios 6 (9/3/2011) 68 [16.69g].
9/PP19 (4)	8/b		16.87	MM DE 10 (22/3/2002) 220.
9/PP19 (5)	8/b		16.76	Monetarium 34 (Spring 1981) 48.
9/PP20 (1)	8/aJ	34	16.33	Seyrig, <i>Trésors</i> 24.42 [16.67g] (Ras Baalbek, 1957; c. 143/2). BnF 1973.1.157 (H. Seyrig).
9/PP20 (2)	8/a	33	16.73	CNG 102 (18/5/2016) 453 (Allan Smith, M.D.) = 85 (15/9/2010) 422 = The New York Sale 20 (7/1/2009) 199 = Triton 8 (11/1/2005) 417 (Ronald Cohen) = Tkalec (19/2/2001) 120 = Sternberg 13 (17/11/1983) 182 = MM Basel FPL 446 (1982) 182.
9/PP20 (3)	8/a	34	16.81	NAC 84 (20/5/2015) 656 = LHS Numismatik 102 (29/4/2008) 276 (Star Collection) = Tradart (18/11/1993) 107 = Vinchon (20/11/1992) 81 [16.78g].
9/PP21 <sup>132</sup>	8/-	31.5	16.56	CNG EA 362 (28/10/2015) 142 = Rauch 89 (5/12/2011) 1168 = 82 (23/4/2008) 98 = 31 (6/6/1983) 306 [16.66g].
11/PP19 (1) <sup>133</sup>	10/aJ	32	16.74	Gitta Kastner 6 (26/11/1974) 128.
11/PP19 (2)	10/a	31	16.93	CNG Web Shop 734493 = UBS 56 (28/1/2003) 132 [16.50g].
11/PP19 (3)	10/a	31	16.9	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Antakya 6509 (Ellis-Evans and Erol-Özdizbay 2020: no. 69).
11/PP19 (4)	10/a	38	16.22	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Istanbul 1616/8 (Öztopbaş 2009: no. 12).
11/PP19 (5)	10/a	30	16.85	Gerhard Hirsch 185 (15/2/1995) 293 = 183 (20/9/1994) 447.
11/PP18	10/-	32	16.7	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Antakya 6515 (Ellis-Evans and Erol-Özdizbay 2020: no. 68).
11/PP20	10/-		16.37	Rauch MB 9 (23/9/2005) 230 – Rev. double struck.
11/PP22 (1)	10/bJ	32	16.91	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Münzzentrum FPL 26 (Aug. 1977) 58 = ANS Photo File (Bank Leu).
11/PP22 (2)	10/b	38x34	16.34	Künker FPL 141 (Jun. 1998) 26 = 136 (Dec. 1997) 46 = SBC 43 (15/9/1997) 147.
11/PP23	10/cJ	31	16.94	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Künker 236 (7/10/2013) 92 = 97 (7/3/2005) 741 = Malter 1 (9/11/1973) 142 = ANS Photo File (Bank Leu).
11/PP24 (1)	10/dJ		16.74	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Coins and Antiquities FPL 2 (1974) G680 = ANS Photo File (Bank Leu). <sup>134</sup>
11/PP24 (2)	10/dJ		-	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Galerie des Monnaies FPL 40 (Summer 1982) 473 = Private Collection, Geneva.
11/PP24 (3)	10/dJ		-	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Private Collection, Geneva.
11/PP24 (4)	10/d	31	-	Kurpfälzische 6 (9/5/1974) 74.
11/PP24 (5)	10/d	34	16.98	CNG 73 (13/9/2006) 326.
11/PP24 (6)	10/d	32	16.74	Künker 326 (7/10/2019) 847 = GM 244 (6/3/2017) 307 ('Aus der Sammlung eines Münchner Arztes, erworben von den 1960er bis in die späten 1990er Jahre').

<sup>131</sup> Die fault below front of neck on O9/PP19-21 places these reverse dies last (often off flan, but clearly visible on O9/PP21).

<sup>132</sup> Significant die fault at bottom right on wreath for O9/PP21 and O23/PP21.

<sup>133</sup> See n. 115.

<sup>134</sup> Double counted as the first and fourth coins of Jones 10d.

11/PP24 (7)	10/d	32	16.64	Westfälische Auktionsgesellschaft 66 (16/9/2013) 14 = H. Grün 60 (12/11/2012) 145 = 15 (28/11/1995) 973 = Kurpfälzische 48 (8/6/1995) 182.
11/PP24 (8)	10/d		17.34	Italo Vecchi 1 (1/2/1996) 300.
11/PP25 (1)	10/eJ	36	16.81	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Peus 400 (22/4/2010) 159 = Monimat-Rauch (22/11/1989) 65 [16.77g] = ANS Photo File (Bank Leu).
11/PP25 (2)	10/e		16.89	Athena 2 (4/10/1988) 154 = Athena FPL 11 (1981/2) 26 [16.90g].
11/PP25 (3)	10/e		16.91	Noble 54 (22/7/1997) 1730.
11/PP25 (4)	10/e	32.5	16.70	Aeternitas Numismatics (VCoins, SKU GAM233 – seen 28/2/2020) = Soler y Llach 1108 (9/5/2019) 67 = Superior 108 (11/12/1992) 2128 = 58 (11/6/1986) 1150 [16.68g].
11/PP26 (1)	10/-		16.34	Künker 182 (14/3/2011) 291 = Alain Weil (6/2/2010) 64.
11/PP26 (2)	10/-	35	16.63	Noble 110 (17/11/2015) 2700 = NAC N (26/6/2003) 1313.
11/PP26 (3)	10/-	32	16.85	<b>CH 10.308.C1088 (Gaziantep, 1994; Aug-Oct. 143).</b>
11/PP26 (4)	10/-	32.5	16.23	<b>CH 10.308.C1089 (Gaziantep, 1994; Aug-Oct. 143).</b>
11/PP26 (5)	10/-	34.5	16.56	CNG 38 (6/6/1996) 327.
11/PP26 (6)	10/-	31	16.70	Davissons 19 (1/5/2003) 59 = Spink 160 (9/10/2002) x727 (part of lot of 10).
11/PP26 (7)	10/-	33	16.84	Vinchon (12/11/1982) 24.
11/PP26 (8)	10/-		16.73	Gerhard Hirsch 229 (17/9/2003) 1874.
10/PP26 <sup>135</sup>	9/-	32	16.7	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Antakya 6499 (Ellis-Evans and Erol-Özdizbay 2020: no. 72 – wrongly stated to be new obv. die).
10/PP27	9/-	35	16.83	TNA 1 (13/12/1982) 110.
13/PP28 <sup>136</sup>	18/-	32	16.82	Artemide Aste 41 (29/11/2014) 94 = 30 (9/10/2010) 89 = Elsen 86 (10/12/2005) 116 = Elsen FPL 233 (Jul/Sep. 2005) 39 = Spink 5003 (31/3/2005) 52 = NCirc 112.3 (Jun. 2004) GK1269.
13/PP29 (1)	18/a	34	16.64	Schulten 6 (26/3/1981) 40 = Kurpfälzische 6 (9/5/1974) 73.
13/PP29 (2)	18/aJ	34.5	16.52	<b>Seyrig, Trésors 19.21 (Ghonslé, 1955; c. 143/2).</b> Bourgey (8/3/1999) 13 = (10/6/1982) 106 = R. J. Myers 2 (11/5/1972) 126 = Santamaria (7/10/1959) 60 [16.63g].
12/PP30 (1) <sup>137</sup>	19/-	35	16.7	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Antakya 6538 (Ellis-Evans and Erol-Özdizbay 2020: no. 73).
12/PP30 (2)	19/-	34.5	16.74	Rauch 85 (26/11/2009) 220.
15/PP31 (1) <sup>138</sup>	11/aJ	35	15.63	Netherlands Royal Coin Cabinet (The Hague) 5785.
15/PP31 (2)	11/aJ		16.91	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
16/PP31	-/-	33	16.8	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Antakya 6539 (Ellis-Evans and Erol-Özdizbay 2020: no. 75).

<sup>135</sup> O10 not known to Jones for PP.

<sup>136</sup> Die fault on neck (see n. 119) similarly serious to O13/EP27 and 28, so O13PP a later die stage than O13/EP20.

<sup>137</sup> See n. 118 for this being a later die stage than O12EP.

<sup>138</sup> O15 only attested for PP and very close in style to O17.

17/PP31 (1)	12/aJ	33	16.83	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Peus 398 (28/4/2009) 266 = NAC 18 (29/3/2000) 214 = ANS Photo File (Bank Leu) [16.91g].
17/PP31 (2)	12/a		16.91	Empire Coins 7 (2/5/1987) 57.
17/PP32 (1) <sup>139</sup>	12/bJ		15.49	SNG Manchester 1221 = Naville 1 (4/4/1921) 2460 (S. Pozzi).
17/PP32 (2)	12/bJ	32	16.75	Gitta Kastner 4 (27/11/1973) 122.
17/PP32 (3)	12/b	32	16.86	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Shanna Schmidt Numismatics (VCoins, SKU gk1002 – seen 7/7/2018) = Künker 236 (7/10/2013) 591 = Peus 351 (23/4/1997) 218 = 348 (2/5/1996) 167 = 343 (26/4/1995) 145 = 334 (4/11/1992) 434 = Christie's NY (17/10/1984) 5 ( <i>CH</i> 8.460).
17/PP32 (4)	12/b		16.95	Sternberg 10 (25/11/1980) 117.
17/PP32 (5)	12/b	32.5	16.46	GM 64 (11/10/1993) 153.
17/PP32 (6)	12/b	33	16.77	Crédit de la Bourse (12/6/1997) 66.
19/PP32 (1)	13/aJ		16.71	Glendining (10/12/1986) 284 = (21/2/1961) 2308 [16.11g] = SNG Lockett 2830 = Christie's (27/6/1922) 304 (W. H. Newall) = Sotheby's (3/2/1909) 684 [16.71g] (F. Sherman Benson; sold to Rollin) = (7/12/1896) 186 (E. Bunbury; ex Dr. Neligan) = (5/12/1859) 1061 (Lord Northwick – sold for £265).
19/PP32 (2)	13/aJ	31	-	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Stockholm 29823 (NNÄ [1973-4] 187, Fig. 4) = ANS Photo File (Bank Leu).
19/PP32 (3)	13/a	29	16.85	Sovereign Rarities (VCoins, SKU BM01237 – seen 26/3/2018) = Ira & Larry Goldberg 96 (14/2/2017) 1720 [16.78g] (bought privately from HJBerk in 1980s, ex Herbert and Aphrodite Rubin) = HJBerk Buy or Bid 97 (12/8/1997) 171 = Waddell FPL 56 (Summer 1992) 33 = NFA FPL 35 (Summer 1988) 65.
19/PP33 (1)	13/bJ		16.20	Sotheby's (24/4/1907) 192 (A. Delbeke) = (5/6/1905) 249 (Harlan P. Smith).
19/PP33 (2)	13/b	35	16.77	Harvard 2002.39 (gift of Cornelius C. Vermeule III) = CNG 53 (15/3/2000) 464 (Marian A. Sinton).
19/PP33 (3)	13/b	32	16.72	Aureo & Calicó 264 (11/12/2014) 11 = Elsen 92 (9/6/2007) 131 = 91 (24/3/2007) 96 ('Provient de Jean Elsen, février 1979' – possibly a private sale).
19/PP33 (4)	13/b	29	16.81	Pecunem 31 (3/5/2015) 187.
19/PP33 (5)	13/b	30.5	17.00	Lanz 48 (22/5/1989) 322 = 38 (24/11/1986) 325.
19/PP33 (6)	13/b		16.71	Banque Populaire du Nord & Nomisma FPL 32 (Jun. 1984) 126.
19/PP33 (7)	13/b	31	16.72	Bourgey (2/6/1988) 92.
19/PP33 (8)	13/b	32	16.90	<b>CH 10.308.C1090 (Gaziantep, 1994; Aug-Oct. 143).</b>
19/PP33 (9)	13/b	32	16.79	CNG 36 (5/12/1995) 2008.
19/PP33 (10)	13/b		16.77	Poindessault & Védrières (8/1/1986) 82.
19/PP33 (11)	13/b		16.77	Superior 58 (11/6/1986) 1151.
19/PP34	13/cJ	29	16.48	NCirc 94.9 (Nov. 1986) 7481 = 89.4 (Apr. 1981) 2821 = Sotheby's (15/5/1974) 48.
19/PP35 (1)	13/-		16.92	Freeman & Sear 13 (25/8/2006) 746.
19/PP35 (2)	13/-	33	16.52	Roma Numismatics ES 11 (23/8/2014) 47.
19/PP35 (3)	13/-		16.76	Alain Weil (20/6/1979) 12.

<sup>139</sup> The order of the examples of O17/PP32 is determined by diagonal parallel die breaks which develop on the reverse first across the Maecander pattern and then Apollo's thighs. These are always present on O19/PP32, hence the order of these two obverse dies.

14/PP36 (1)	22/aJ	33	16.76	C. Burgan 34 (25/6/1993) 92 = Bourgey (4/6/1991) 124 = SNG von Aulock 7922.
14/PP36 (2)	22/aJ	34	16.86	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> CNG EA 159 (28/2/2007) 92 = ANS Photo File (Bank Leu).
14/PP36 (3)	22/aJ	34	16.91	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> CNG 60 (22/5/2002) 738 = Glendining (4/12/1985) 101 = ANS Photo File (MM Basel).
14/PP36 (4)	22/a		16.78	Stack's (12/1/2017) 5084 (Dr. Michael Popoff) = C. A. Whitford 3 (30/11/1992) 97 (NBD Bank Money Museum).
14/PP36 (5)	22/a	32	16.92	Aucones Basel 26 (16/9/1996) 222 = Bourgey (25/3/1977) 67.
14/PP36 (6)	22/a	33	16.56	Triton 3 (30/11/1999) 515.
14/PP36 (7)	22/a	31	16.95	Künker 341 (1/10/2020) 5569 (Slg. Phoibos) = Aucones Basel 10 (12/6/1979) 189.
18/PP36 (1)	24/-	32	16.71	Hess Divo 307 (7/6/2007) 1240 = MM Basel FPL 425 (March 1980) 12 = 404 (Sep. 1978) 9 = 400 (May 1978) 22.
18/PP36 (2)	24/-	32	16.89	<b>CH 10.308.C1094 (Gaziantep; Aug-Oct. 143).</b> Peus 396 (5/11/2008) 363 = GM 102 (24/5/2000) 256 [16.92g] = 71 (3/5/1995) 316.
18/PP36 (3)	24/-	35x32	16.86	Künker 270 (2/10/2015) 8319 (*Erworben am 20 Februar 2011 bei der Pater Münzen und Medaillen GmbH, Ense*) = Elsen 106 (11/9/2010) 147 = Tradart (17/11/1994) 82.
18/PP36 (4)	24/-		16.72	Coin Galleries (25/2/2004) 108.
18/PP37 (1)	24/-	31	16.50	SKA Bern 8 (27/10/1987) 818 = SKA Bern FPL 48 (Apr. 1986) 46 = SKA Bern 3 (19/4/1985) 230 = SKA Bern FPL 40 (May 1983) 95 = Lanz 26 (5/12/1983) 245 = Bonhams and Vecchi 7 (29/3/1982) 170 [16.49g] = Superior 18 (15/6/1976) 489.
18/PP37 (2)	24/-	30.5	16.86	Noble 75 (31/3/2004) 1820 = Aucones Basel 29 (12/6/2003) 679 = SBC 43 (15/9/1997) 145.
18/PP37 (3)	24/-	33	-	Empire Coins FPL 74 (Apr. 1995) 46.
18/PP37 (4)	24/-	30	16.37	Leu Numismatik Web Auction 15 (27/2/21) 429 (from an old Swiss collection formed in the 1980s) = Asta del Titano 5 (4/7/1980) 29.
18/PP37 (5)	24/-	34	16.44	MDC Monaco 6 (29/10/2020) 70.
18/PP38 (1)	24/-	33	16.75	Peus 303 (20/10/1981) 158 = 301 (25/5/1981) 405 = Kricheldorf 28 (18/6/1974) 109.
18/PP38 (2)	24/-	33.5	16.66	Gemini 1 (11/1/2005) 163 (Commander David R. Hinkle).
18/PP39 (1)	24/-		16.90	Sternberg 11 (20/11/1981) 131 = Scheiner FPL D-26 (c. 1975-1983) 5439 = D-25 (c. 1975-1983) 4595 = D-22 (c. 1975-1983) 4580 = D-21 (c. 1975-1983) 4830.
18/PP39 (2)	24/-	33	16.74	Barthold 2 (11/10/1981) 106.
24/PP34 (1)	-/-	30	16.80	Christie's NY (13/9/1990) 11.
24/PP34 (2)	-/-	30	16.70	Parsy (7/3/2003) 58 = C. Burgan 19 (15/6/1989) 347 = Vinchon (11/4/1988) 500.
24/PP40	-/-	31	16.86	UBS 78 (9/9/2008) 1051 = Künker 25 (29/9/1993) 132 = MM Basel 77 (18/9/1992) 113.
22/PP34 (1) <sup>140</sup>	16/-	31	17.07	Morton & Eden 100 (2/5/2019) 285 = Aucones Basel 8 (27/6/1978) 260 (Winterthur cast).

<sup>140</sup> O22/PP34 is an earlier die state than O22/PP41 and all of O22EP since it lacks the die fault above the *stephane* (see n. 120).

22/PP34 (2)	16/-		16.74	Tkalec (16/11/1987) 112.
22/PP41 (1)	16/aJ	33	16.81	MM Basel 52 (19/6/1975) 184.
22/PP41 (2)	16/a	30	16.23	Brussels, Du Chastel (1899) 259 ('Pièce vendue 1250 fr. à la vente Montagu') = Sotheby's (7/12/1896) 187 (H. Montagu).
22/PP41 (3)	16/a	30	16.83	Künker 333 (16/3/2020) 811 = CNG 111 (29/5/2019) 237 = Elsen FPL 242 (Oct/Dec. 2007) 102 = Künker 124 (16/3/2007) 7999 = CNG 35 (20/9/1995) 287.
22/PP41 (4)	16/a	32	17.05	Monetarium 50 (Autumn 1988) 61 = Superior 64 (7/6/1987) 4135 = SKA Bern 4 (3/12/1985) 130 = 2 (27/4/1984) 226.
22/PP41 (5)	16/a	31	16.86	CNG EA 436 (23/1/2019) 218 = Nomos 16 (10/5/2018) 122 [16.92g] ('From a European collection') = MDC Monaco 3 (1/12/2017) 130.
22/PP41 (6)	16/a	34	16.77	NAC N (26/6/2003) 1312.
22/PP41 (7)	16/a	32	16.70	Heritage Auctions 3024 (18/4/2013) 24678.
23/PP21 (1)	17/-	31	16.87	Nomos 5 (25/10/2011) 186 (PGB Collection).
23/PP21 (2)	17/-	29	16.58	Ira & Larry Goldberg 55 (29/10/2009) 60 = Sotheby's NY (19/6/1991) 349 (Bunker Hunt IV) = NFA 10 (17/9/1981) 175 [16.62g].
23/PP41 (1)	17/aJ	28	16.65	Schulten 24 (19/4/1989) 111 = Klenau 83 (27/10/1973) 2236.
23/PP41 (2)	17/aJ		16.98	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Poindessault (18/6/1980) 141 = Private Collection, Geneva.
23/PP41 (3)	17/aJ		16.70	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Joseph Sternberg Collection.
23/PP41 (4)	17/a	30	16.75	Nomisma 55 (4/4/2017) 13 = GM 257 (15/10/2018) 455 = Roma Numismatics 14 (21/9/2017) 148 = Vinchon (3/6/2016) 41 [16.81g] (B. Douvillé) = Argenor 4 (27/4/2001) 45.
23/PP41 (5)	17/a	32	16.83	<b>CH 10.308.C1091 (Gaziantep, 1994; Aug-Oct. 143).</b>
23/PP41 (6)	17/a	30	16.64	CNG 36 (5/12/1995) 2009 – Rev. double struck.
23/PP41 (7)	17/a	28	16.84	SBC 21 (24/1/1989) 74.
23/PP41 (8)	17/a	32	16.75	Sotheby's NY (21/6/1990) 495 (Bunker Hunt II).
23/PP1 (1)	17/bJ	35	16.92	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Peus 396 (5/11/2008) 364 = MM DE 17 (4/10/2005) 1217 = Bank Leu 79 (31/10/2000) 654 = ANS Photo File (Bank Leu).
23/PP1 (2)	17/b	32	16.9	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Antakya 6525 (Ellis-Evans and Erol-Özdizbay 2020: no. 71).
23/PP1 (3)	17/b	33	16.41	NumisCorner (VCoins, SKU 513763 – seen 11/4/2019) = C. Burgan (24/5/1986) 350.
23/PP1 (4)	17/b		16.82	Auction World 11 (20/1/2018) 4080.
23/PP40 (1)	17/-	33.5	16.66	Gemini 1 (11/1/2005) 164 = Spink America (7/12/1995) 2099 [16.7g] – Reverse double struck.
23/PP40 (2)	17/-	32	17.11	CNA 9 (7/12/1989) 94.
23/PP42 (1) <sup>141</sup>	17/-	31	16.92	CNG 114 (13/5/2020) 293 = CNG Web Shop 515559 (seen 14/8/2019) = CNG 111 (29/5/2019) 238 = Meister & Sonntag 4 (11/10/2006) 19 [17.00g] = J. Schulman FPL 205 (Jun. 1975) 67.
23/PP42 (2)	17/-		16.69	Stack's (5/8/2014) 317.
26/PP43	25/-	34	16.84	Pecunem 23 (5/10/2014) 377 = Italo Vecchi 14 (5/2/1999) 585 [16.79g].
<i>Unidentified Tetradrachms</i>				

<sup>141</sup> O23/PP42 placed last since die fault begins to develop under chin: difficult to see on (1), clear on (2).

-	-		16.66	Seyrig, <i>Trésors</i> 18.67 (Akkar, 1956; c. 143/2).
-	-		16.75	Seyrig, <i>Trésors</i> 24.43 (Ras Baalbek, 1957; c. 143/2).
-	-		16.28	Seyrig, <i>Trésors</i> 25.15 (Aleppo, 1930; c. 143/2).

#### Antigenes son of Anaxikrates (AnAn)

Dies	Jones	mm	g	References / Notes
27/AnAn1 <sup>142</sup>	34/-	30	16.06	PK = NFA 19 (18/12/1987) 326. <sup>143</sup>

#### Aristokritos son of Aristokritos (ArAr)

Dies	Jones	mm	g	References / Notes
27/ArAr1	34/-	30.5	17.00	PK = Astarte 22 (12/6/2010) 52.

#### Herognetos son of Zopyrion (HZ)

Dies	Jones	mm	g	References / Notes
27/HZ1 (1)	34/bJ	34	16.30	Vienna Gr 31381 = Brüder Egger 17 (28/11/1904) 1319 (T. Prowe)
27/HZ1 (2)	34/b	32	16.30	Nomos 21 (21/11/2020) 194 (from a European collection) = 11 (9/10/2015) 113 (from a Swiss collection).
27/HZ1 (3)	34/b		16.31	Tkalec (7/5/2009) 45.
27/HZ2 <sup>144</sup>	34/-		16.69	Tkalec (22/4/2007) 79.
27/HZ3 (1)	34/aJ	30.5	16.39	Lucien de Hirsch 1510.
27/HZ3 (2)	34/a	30	16.84	Aucliones Basel 17 (7/6/1988) 234.
27/HZ3 (3)	34/a	30	16.84	Elsen 59 (18/9/1999) 128.
27/HZ3 (4)	34/a	33	-	Hesperia Art Bulletin 45-46 (undated) 254 = 40-41 (undated) 95 – Early 1960s.
27/HZ3 (5)	34/a	33	16.59	Rauch 96 (10/12/2014) 81.
27/HZ4 <sup>145</sup>	34/-	32	16.89	Roma Numismatics E-Sale 23 (9/1/2016) 146 = Roma Numismatics 10 (27/9/2015) 394 = Roma Numismatics E-Sale 10 (26/7/2014) 331.
29/HZ2 (1)	27/cJ		-	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Private Collection (Munich Cast).
29/HZ2 (2)	27/cJ	30	16.50	<b>CH 10.310 (Kırkhan, 1972; c. 142).</b> Kurpfälzische 32 (1/6/1987) 104 = Peus 284 (9/12/1974) 399 = ANS Photo File (Bank Leu).
29/HZ2 (3)	27/c	29	16.71	St. James's Auctions 36 (19/4/2016) 7 = Bertolami Fine Arts 15 (27/4/2015) 189 = Nomisma 49 (13/5/2014) 36 = Asta del Titano 62 (24/9/1995) 62.
29/HZ2 (4)	27/c	31	16.77	Spink 124 (18/11/1997) 1523.
29/HZ2 (5)	27/c	33	16.92	Roma Numismatics E-Sale 69 (16/4/2020) 434 = Künker 326 (7/10/2019) 848 (Slg. Phoibos) [16.85g].
29/HZ5 (1)	27/aJ	30	16.72	Boston MFA 61.189 (Brett, <i>Greek Coins 1950-1963</i> , no. 172) = Glendining (21/2/1961) 2307 = SNG Lockett

<sup>142</sup> Our single examples of O27/AnAn1 and ArAr1 have the die fault on the neck, whereas O27/HZ1-3 and O27/EA1-2 lack it. This suggests that AnAn and ArAr were produced in parallel with rather than prior to the first examples of HZ and EA.

<sup>143</sup> The wear and patination of this coin are sufficient to demonstrate that it does not derive from the Kırkhan hoard. In conversation with Philip Kinns in New York on 14/12/1987, Simon Bendall (then with NFA) informed him that it had been in an old collection formed on the US West Coast.

<sup>144</sup> The reverse die link between O27/HZ2 and O29/HZ2 parallels the link between O27/EA5 and O29/EA5, thus establishing that O27 (= Jones O34) belongs at the beginning not the end of the sequence as in Jones. This in turn indicates that AnAn and ArAr, which both used O27, were minted in parallel with the start of HZ and EA, not as a separate pair afterwards. Compare n. 129 on O8-O9PE being produced in parallel with the start of EP and PP.

<sup>145</sup> The die fault on the neck on O27 appears at this point for HZ.

				2829 = Naville 1 (4/4/1921) 2463 (S. Pozzi) = Sotheby's (5/6/1905) 250 (Harlan P. Smith).
29/HZ5 (2)	27/aJ	33	16.65	Spink 125 (3/3/1998) 49 = 121 (7/10/1997) 70 = Bourgey (6/12/1978) 76 = (9/11/1976) 86.
29/HZ5 (3)	27/aJ		16.82	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> ANS Cast (in trade 1974).
29/HZ5 (4)	27/aJ	32	16.87	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Chaponnière & Hess Divo 1 (18/5/2010) 138 = Künker 136 (10/3/2008) 645 [16.70g] = Hess Divo 307 (7/6/2007) 1241 ('ARTNUMISMATIQUE, Genève 1976') [16.63g] = Private Collection, Geneva.
29/HZ5 (5)	27/aJ	30.5	16.71	Winterthur Cast (F. Imhoof-Blumer).
29/HZ5 (6)	27/aJ	29	16.90	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Parsy (31/10/2012) 87 = Private Collection (Munich Cast).
29/HZ5 (7)	27/aJ	31	16.92	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Gemini 12 (11/1/2015) 157 = Heritage Auctions 3032 (10/4/2014) 23242 (Andre Constantine Dimitriadis) = Sotheby's NY (21/6/1990) 496 (Bunker Hunt II) = ANS Photo File (Bank Leu).
29/HZ5 (8)	27/aJ		16.63	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
29/HZ5 (9)	27/aJ		16.81	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Glendining (3/10/1988) 756 = GM 28 (2/2/1984) 3311 = ANS Photo File (MM Basel) [16.91g].
29/HZ5 (10)	27/a	29	16.65	Hess Divo 310 (22/10/2008) 115 = MM Basel FPL 521 (May 1989) 3 = 485 (Feb. 1986) 12 = 480 (Aug. 1985) 15 = Lanz 28 (7/5/1984) 266.
29/HZ5 (11)	27/a	29	16.99	Stack's (12/8/2015) 30057 = GM 228 (9/3/2015) 146 = Bruun Rasmussen 852 (4/11/2014) 5325 [17.01g] = The New York Sale 32 (8/1/2014) 165 [17.00g] = Baldwin's 83 (24/9/2013) 4073.
29/HZ5 (12)	27/a	29.5	16.89	Vinchon (13/4/1991) 18.
29/HZ5 (13)	27/a	31	16.79	<b>Kirkhan? Barthold 1 (13/10/1980) 365.</b>
29/HZ5 (14)	27/a	30	17.03	Rauch 88 (17/5/2011) 159 = GM 190 (11/10/2010) 260 = Lanz 36 (21/4/1986) 380.
29/HZ5 (15)	27/a	31	16.58	Stack's (9/1/2015) 104 = Heritage Auctions 3032 (10/4/2014) 23241 (Andre Constantine Dimitriadis) = Stack's Coin Galleries (10/9/1992) 122.
29/HZ5 (16)	27/a	32	17.27	Peus 386 (26/4/2006) 222 = MM Basel FPL 467 (Jun. 1984) 7.
29/HZ5 (17)	27/a		15.75	NAAC 2 (15/5/1982) 68.
29/HZ5 (18)	27/a	31	17.12	Parsy (7/12/2000) 38.
29/HZ5 (19)	27/a	30	17.04	Peus 313 (13/5/1985) 103 = Superior 32 (30/5/1980) 2197.
29/HZ5 (20)	27/a		-	Sotheby's (3/5/1984) 115.
29/HZ5 (21)	27/a	32	16.82	Superior 108 (11/12/1992) 2127.
29/HZ5 (22)	27/a		17.20	Tkalec (25/10/1996) 50 = (26/3/1991) 144 [17.19g]
29/HZ5 (23)	27/a		16.56	Künker 341 (1/10/2020) 5570 (Slg. Phoibos).
29/HZ6 (1)	27/bJ	30.5	16.50	BnF Fonds Général 1420.
29/HZ6 (2)	27/b		16.72	Parsy (4/12/1995) 11.
29/HZ6 (3)	27/bJ		16.95	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
29/HZ6 (4)	27/bJ	29	16.5	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Antakya 6535 (Ellis-Evans and Erol-Özdizbay 2020: no. 76).
29/HZ6 (5)	27/b	29x33	16.95	Triton 15 (3/1/2012) 1219 = CNG 84 (5/5/2010) 627 = GM 159 (8/10/2007) 201 = Lanz 132 (27/11/2006) 197 = MM Basel FPL 530 (Mar. 1990) 6.
29/HZ6 (6)	27/b	29.5	16.76	Bank Leu 71 (24/10/1997) 203.

29/HZ6 (7)	27/b	30	16.93	CNG 69 (8/6/2005) 403 = Ira & Larry Goldberg 20 (26/5/2003) 10 = 17 (24/2/2003) 1195 [16.55g].
29/HZ6 (8)	27/b	31	16.90	CNG EA 134 (1/3/2006) 69 = Triton 6 (14/1/2003) 356 [16.88g] = Argenor 3 (14/4/2000) 50.
29/HZ6 (9)	27/b	29	17.10	GM 269 (9/3/2020) 401 (Slg. Dr. G. W.) = Lanz 64 (7/6/1993) 235.
29/HZ6 (10)	27/b		-	Sotheby's (28/5/1987) 32.
29/HZ6 (11)	27/b		16.75	Vinchon (14/6/2018) 16.
29/HZ6 (12)	27/b		16.45	Gerhard Hirsch 79 (27/6/1972) 112.
<b>30/HZ7 (1)<sup>146</sup></b>				
30/HZ7 (1) <sup>146</sup>	28/-	31	16.8	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Antakya 6536 (Ellis-Evans and Erol-Özdizbay 2020: no. 77).
30/HZ7 (2)	28/-	31	17.01	CNG Web Shop 504228 = Leu Web 3 (27/10/2018) 95 (Argyros Collection) = Künker 115 (25/9/2006) 196 [16.97g].
30/HZ7 (3)	28/-	31	17.00	Schulman b.v. 366 (4/3/2021) 23 (Coll. Renes) = Elsen 117 (15/6/2013) 37 = Poinsignon 36 (Nov. 1993) 379.
30/HZ8	28/-	32	16.73	Hess Divo 325 (23/10/2013) 219 ('Aus altem Schweizer Privatbesitz') = Sincona 6 (23/5/2012) 126.
30/HZ9	28/-	30	16.71	Künker 94 (27/9/2004) 1093.
30/HZ10 (1)	28/aJ	34	15.90	Gulbenkian 991 = Naville 7 (23/6/1924) 1460 (C. S. Bement) = Jacob Hirsch 30 (11/5/1911) 570 (W. T. Barron).
30/HZ10 (2)	28/aJ		16.67	R. J. Myers 12 (4/12/1975) 192.
30/HZ10 (3)	28/a	32	16.73	Roma Numismatics 8 (28/9/2014) 524 – Die axis 6h.
30/HZ10 (4)	28/a	32	16.30	Sergey Nechayev Ancient Coins (VCoins, SKU 6004 – seen 26/3/2018).
<b>31/HZ11 (1)</b>				
31/HZ11 (1)	29/aJ	34	17.06	Christie's (3/10/1988) 1016 = Superior 12 (17/6/1974) 255 (Charles L. Ruby).
31/HZ11 (2)	29/aJ	33	16.93	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> CNG Web Shop 503351 (M. Gasvoda) = Ira & Larry Goldberg 106 (3/9/2018) 1081 (misattributed to Teos) = 72 (3/2/2013) 4077 (Wolfen Family Foundation, bought from Bank Leu early 1970s) = ANS Photo File (Bank Leu).
31/HZ11 (3)	29/aJ		16.93	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
31/HZ11 (4)	29/a		16.90	UBS 83 (8/9/2009) 25.
31/HZ12 (1)	29/bJ	36.5	16.12	BM 1889,1106.44 (= <i>BMC Ionia</i> 162,38).
31/HZ12 (2)	29/bJ	33	16.85	Elsen 143 (7/12/2019) 136 = GM 17 (4/11/1980) 70 = Bayerische Vereinsbank 2 (6/12/1979) 168 (not illustrated – probably this coin) = Bayerische Vereinsbank Münzschatze 14 (Apr. 1977) 38 = 6 (Apr. 1974) 78.
31/HZ13 (1)	29/cJ	33	16.10	BnF 1966.453.2642 (J. Delepierre, bought retail from Bourgey, 30/12/1949) = Bourgey (5/12/1932) 230 (H. Gallice) = Brüder Egger 46 (11/5/1914) 954 (T. Prowe) [16.08g].
31/HZ13 (2)	29/cJ	32	16.66	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Peus 304 (16/3/1982) 120 = Private Collection, Geneva.
31/HZ13 (3)	29/c	31	16.74	Andrew Daneman collection (illustrated in NC 163 [2003] Pl. 16.9) = NFA 33 (3/5/1994) 225 = 20 (9/3/1988) 727 [16.67g].
31/HZ13 (4)	29/c	35	17.09	CGB.fr e-Monnaies (28/6/2016) 394641 (from Alain Weil stock and Collection D. C.) = Bourgey (4/5/1987) 62.

<sup>146</sup> Die break behind head first appears on O30/HZ7 and develops thereafter whereas it is always present on O30EA, thus indicating that EA used O30 later than HZ.

31/HZ13 (5)	29/c	34	16.83	Sotheby's NY (19/6/1991) 350 (Bunker Hunt IV).
31/HZ13 (6)	29/c	31	16.74	GM 44 (3/4/1989) 374.
31/HZ14 (1)	29/-	31	16.91	<b>Kirikhan?</b> Hess Divo 314 (4/5/2009) 1162 ('Erworben 12/1988 von ANTIKA, Lyon') = Barthold (17/10/1985) 48 – Possibly the same as 29/d in Jones (Geneva, Private Collection, ex Kirikhan).
31/HZ14 (2)	29/-		16.87	Emporium Hamburg 73 (23/4/2015) 56.
31/HZ15 (1)	29/e	32	16.87	Heritage Auctions (8/1/2007) 50080 = Argenor FPL 3 (Oct. 2002) 337 [16.91g].
31/HZ15 (2)	29/eJ	32	16.40	NAC 114 (7/5/2019) 1199 = Peus 401 (3/11/2010) 369 = 380 (3/11/2004) 505 = Kurpfälzische 42 (2/6/1992) 244 = SNG von Aulock 7921. <sup>147</sup>
32/HZ16	30/aJ	32.5	-	<b>Seyrig, Trésors 20.38 (N. Syria, 'Caiffa', c. 1905; c. 145-143).</b> Dupriez 90 (12/12/1906) 35.
32/HZ17 (1)	30/bJ	32	16.83	<b>CH 10.310 (Kirikhan, 1972; c. 142).</b> Private Collection (Saarbrücken Cast) = Gitta Kastner 8 (25/11/1975) 65.
32/HZ17 (2)	30/bJ		16.83	<b>CH 10.310 (Kirikhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
32/HZ17 (3)	30/b	33	16.86	<b>Kirikhan?</b> Elsen 101 (13/6/2009) 98 = 97 (13/9/2008) 111 = 96 (14/6/2008) 141 = 87 (11/3/2006) 1209 = 9 (6/2/1988) 54 = 4 (15/10/1985) 34 = 2 (14/11/1984) 40 = Barthold 1 (13/10/1980) 364.
32/HZ17 (4)	30/b	31	16.80	NAC 59 (4/4/2011) 619.
32/HZ18 (1)	30/cJ		16.83	<b>CH 10.310 (Kirikhan, 1972; c. 142).</b> Birkler & Waddell 4 (9/12/1982) 97 = ANS Photo File (Bank Leu) [16.94g].
32/HZ18 (2)	30/c	33	16.47	Kurpfälzische 63 (12/12/2002) 133 = Kress 173 (7/11/1978) 488.
32/HZ19	30/c	32	16.90	Künker 35 (11/3/1997) 189 = MM Basel FPL 547 (Sep. 1991) 15 = Auctiones Basel 11 (30/9/1980) 156.
33/HZ20 (1) <sup>148</sup>	31/aJ	29	16.56	Maison Palombo 7 (13/6/2009) 112 = CNA 24 (9/12/1992) 282 [16.61g] = CNR 17.3 (1992) 103 = Sotheby's (10/4/1992) 107 = Hess-Leu 7 (16/4/1957) 267.
33/HZ20 (2)	31a		16.7	Superior 53 (3/6/1985) 2160.
33/HZ21	31/-		16.81	<b>CH 10.310 (Kirikhan, 1972; c. 142).</b> Ira & Larry Goldberg 96 (14/2/2017) 1721 (Hanbery Collection, purchased privately from F. Kovacs in 1982, ex 'Cyme Hoard, 1970' = Kirikhan).
34/HZ22 (1)	32/aJ	31	15.90	Maison Platt (3/4/1933) 163 = Maison Platt, Collection C (undated – c. 1930-1933) 22 = Naville 15 (2/7/1930) 956 = Adolph Hess 194 (25/3/1929) 340 (Coll. Vogel XI) = Brüder Egger 39 (15/1/1912) 315 [15.88g] (Vienna duplicates).
34/HZ22 (2)	32/aJ		16.19	Glendining (4/10/1957) 154.
34/HZ22 (3)	32/aJ	32	16.90	<b>CH 10.310 (Kirikhan, 1972; c. 142).</b> Private Collection (Saarbrücken Cast) = Auctiones Basel 7 (7/6/1977) 253.
34/HZ22 (4)	32/a	32	16.73	Heritage Auctions (16/8/2010) 20065 = (21/9/2008) 20039.
34/HZ22 (5)	32/a	32	16.79	<b>Kirikhan?</b> Superior 70 (31/5/1988) 1525 = NFA 19 (18/12/1987) 325 = JNFA 3.2-4 (Autumn 1974) H203b.

<sup>147</sup> There is an apparent die fault over the eye visible on *SNG von Aulock* 7921 which is not seen in subsequent sales and not otherwise visible on O31HZ and EA. As Philip Kinns suggests to me, this may simply be the result of a poorly made cast for the plates of *SNG von Aulock*.

<sup>148</sup> Die fault over eye on O33EA not visible on O33HZ thus indicating HZ is the earlier die state.

34/HZ22 (6)	32/a	32	16.73	Bertolami Fine Arts 37 (19/9/2017) 147.
34/HZ22 (7)	32/a	33	16.74	CNG 99 (13/5/2015) 219 = Argenor 8 (3/5/2006) 122 [16.80g].
34/HZ22 (8)	32/a	29	16.81	Crédit de la Bourse (12/6/1997) 67.
34/HZ22 (9)	32/a		16.37	Gerhard Hirsch 357 (18/6/2020) 222 = 352 (25/9/2019) 2366 (Slg. A. W. before 2013) = 185 (15/2/1995) 292.
34/HZ22 (10)	32/a	31	17.01	Argenor 9 (9/5/2007) 27 = Künker 97 (7/3/2005) 742 [16.90g].
34/HZ22 (11)	32/a	29	16.70	Künker 273 (14/3/2016) 354 = Sternberg 6 (25/11/1976) 102 [17.14g].
34/HZ22 (12)	32/a	29	16.87	Rauch 57 (11/4/1996) 73.
34/HZ22 (13)	32/a	33	16.56	Crédit de la Bourse (19/4/1995) 1254.
34/HZ22 (14)	32/a	33	16.47	CGB.fr Live (4/6/2019) 54.
34/HZ23 (1)	32/-	34.5	16.83	CGB.fr e-Monnaies (3/12/2014) 341019.
34/HZ23 (2)	32/-	31	16.70	Heritage Auctions 3061 (7/1/2018) 29182 (Northern California Collection; bought from Palladium Numismatics, 1995).
34/HZ23 (3)	32/-	35	16.41	GM 236 (7/2/2016) 247.
34/HZ23 (4)	32/-		-	Poinsignon 44 (Oct. 1999) 676.
34/HZ23 (5)	32/-	32	16.54	<b>Kirikhan?</b> CGB.fr e-Monnaies (13/12/2016) 31 ('Provient certainement du trésor de Kirikhan'; acq. Sep. 1994 from Conseils et Placements).
34/HZ24 (1)	32/-	32	16.76	CNG EA 185 (2/4/2008) 80 = Cummings (undated – late 1990s) G68 = (Feb. 1998) G94 = Albuquerque 76 (4/5/1997) 3 = Kricheldorf 45 (15/7/1996) 72.
34/HZ24 (2)	32/-		-	Cummings (May 1995) G63.
34/HZ24 (3)	32/-	32	16.84	GM 52 (6/11/1990) 297.
34/HZ24 (4)	32/-	31	16.44	GM 159 (8/10/2007) 202 = 114 (4/3/2002) 117.
34/HZ24 (5)	32/-	32	16.72	CNG 69 (8/6/2005) 402 = GM 133 (11/10/2004) 217 = Alain Weil (18/6/2004) 91.
34/HZ24 (6)	32/-	31	16.45	<b>Kirikhan?</b> Nomos 16 (10/5/2018) 123 ('From a European collection') = Parsy (28/10/2017) 89 = CGB.fr 19 (29/1/2004) 97 ('Provient certainement du trésor de Kirikhan').
34/HZ24 (7)	32/-	35	16.75	Lanz 165 (8/12/2017) 107 = 163 (7/12/2016) 109 = 159 (8/12/2014) 234.
34/HZ24 (8)	32/-	31	16.70	GM 224 (13/10/2014) 238 = Lanz 34 (25/11/1985) 260.
34/HZ24 (9)	32/-	33	16.57	<b>Kirikhan?</b> CGB.fr 36 (23/10/2008) 173 ('Provient certainement du trésor de Kirikhan').
34/HZ24 (10)	32/-		16.49	Italo Vecchi 10 (24/3/1998) 372.
34/HZ24 (11)	32/-	33	16.90	Münzzentrum 94 (13/5/1998) 84.
34/HZ24 (12)	32/-	33	16.61	Ponterio & Associates 80 (29/3/1996) 218.
34/HZ24 (13)	32/-	31.5	16.63	Ponterio & Associates 76 (1/8/1995) 282.
34/HZ25	32/-	34	16.30	Lanz 40 (25/5/1987) 272.
<i>Unidentified Tetradrachms</i>				
36/HZ26 (1)	33/aJ	31	15.55	Hess-Leu 31 (6/12/1966) 437 = Nanteuil 599.
36/HZ26 (2)	33/a	30	16.71	Davissons 13 (2/5/2000) 69 = NAC E (4/4/1995) 2364 [16.82g].
36/HZ21 (1)	33/-	31	16.89	Roma Numismatics 20 (29/10/2020) 178 = Heritage Auctions 3081 (13/1/2020) 30089 [16.90g] = Triton 6 (14/1/2003) 357.
36/HZ21 (2)	33/-	31	16.52	Lanz 24 (25/4/1983) 329.
36/HZ27 (1)	33/bJ	30	-	Ader-Vinchon (15/11/1965) 286.
36/HZ27 (2)	33/bJ	31.5	16.24	Lucien de Hirsch 1509.
29/HZ6 (X)	27/bJ		-	<b>CH 10.310 (Kirikhan, 1972; c. 142).</b> Private Collection (Paris Cast).

-	-		16.43	Seyrig, <i>Trésors</i> 18.64 (Akkar, 1956; c. 143/2).
-	-		16.57	Seyrig, <i>Trésors</i> 18.65 (Akkar, 1956; c. 143/2).

Erasippos son of Aristetas (EA)

Dies	Jones	mm	g	References / Notes
27/EA1 (1)	34/aJ	30.5	16.70	BM 1890,1105.03 (= <i>BMC Ionia</i> 162,37).
27/EA1 (2)	34/a	32	16.18	GM 87 (2/3/1998) 213.
27/EA1 (3)	34/a	32	16.22	Gerhard Hirsch 242 (22/9/2005) 2126.
27/EA2	34/bJ	32	16.15	Stack's 120 (27/6/1952) 1154 (acq. for 155 marks from Schlessinger, 1931) = Jacob Hirsch 25 (29/11/1909) 2157 (G. Philippsen).
27/EA3 (1) <sup>149</sup>	34/dJ		16.75	<b>CH 10.310 (Kırkhan, 1972; c. 142)</b> . ANS Photo File (MM Basel).
27/EA3 (2)	34/d		16.54	Pegasi Numismatics Buy or Bid 152 (22/8/2017) 114 = Pegasi Numismatics 34 (24/5/2016) 163.
27/EA3 (3)	34/d	31	16.91	CNG 103 (14/9/2016) 254.
27/EA3 (4)	34/d	29	16.78	Gemini 9 (8/1/2012) 129.
27/EA3 (5)	34/d		16.80	Astarte 20 (30/10/2009) 34.
27/EA4	34/-		16.95	NFA 24 (18/10/1990) 316.
27/EA5	34/cJ		-	<b>CH 10.310 (Kırkhan, 1972; c. 142)</b> . Private Collection, Geneva.
28/EA6 (1) <sup>150</sup>	26a/J	31	15.94	SNG Hunterian 428.
28/EA6 (2)	26/aJ		16.85	<b>CH 10.310 (Kırkhan, 1972; c. 142)</b> . ANS Photo File (MM Basel).
28/EA6 (3)	26/a	32	16.82	Künker 111 (18/3/2006) 6248 = Lanz 125 (28/11/2005) 369.
28/EA6 (4)	26/a	32	16.72	Spink 78 (10/10/1990) 29 = NFA 18.1 (31/3/1987) 190 [16.66g] = NAAC 1 (6/6/1980) 101 [16.85g].
28/EA6 (5)	26/a	30	16.69	Triton 19 (5/1/2016) 208 = Numismatica Genevensis 5 (2/12/2008) 117 [16.70g] = NAC B (25/2/1992) 1430.
28/EA6 (6)	26/a	30	16.38	Parsy (28/10/2017) 91 = Vinchon (12/12/2008) 60 = (14/4/1984) 176 (Comtesse de Béhague).
28/EA6 (7)	26/a	30	16.92	CNG 111 (29/5/2019) 239 (CNG inventory 876128 [Jul. 2010]; 20mm diameter in catalogue – error) = Numismatica Genevensis 5 (2/12/2008) 116.
28/EA6 (8)	26/a	32	16.87	C. Burgan (7/2/1987) 120.
28/EA6 (9)	26/a	31	-	<b>CH 10.310 (Kırkhan, 1972; c. 142)</b> . Christie's NY (17/10/1984) 4 ( <i>CH</i> 8.460).
28/EA6 (10)	26/a	30	17.26	Yale Art Gallery 2004.6.2717 (Prof. Dr. P. R. Franke and L. Franke, Munich, 2004) = Galerie des Monnaies FPL 40 (Summer 1982) 472.
28/EA6 (11)	26/a		16.82	Alain Weil (22/6/1982) 38.
28/EA7 (1)	26/bJ	30	16.34	Ratto (4/4/1927) 1956.
28/EA7 (2)	26/b		16.30	M. G. Lee (10/5/1954) 352.
28/EA8	26/-	30	16.64	Künker 174 (27/9/2010) 344 = The New York Sale 20 (7/1/2009) 200 = Maison Palombo 5 (7/6/2008) 39.
29/EA3	27/dJ		-	<b>CH 10.310 (Kırkhan, 1972; c. 142)</b> . Private Collection, Geneva. <sup>151</sup>
29/EA5 (1)	27/eJ	32	17.26	Spink Taisei & NAC 52 (26/10/1994) 1923 = Numismatica Vienna 5 (10/10/1974) 20.

<sup>149</sup> Die fault on neck appears at this point for O27EA. See n. 145.

<sup>150</sup> O28 is only attested for EA.

<sup>151</sup> Jones incorrectly identified this as being the same reverse die as O29/EA11 (1).

29/EA5 (2)	27/eJ	32	16.99	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> CGB.fr 51 (17/11/2011) 198 ('Provient certainement du trésor de Kirkhan') = GM 42 (11/10/1988) 318 [16.93g] = MM Basel FPL 345 (May 1973) 9 [17.04g].
29/EA5 (3)	27/eJ		-	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
29/EA5 (4)	27/eJ	28	16.95	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> NAC 23 (19/3/2002) 1255 = ANS Photo File (Bank Leu).
29/EA5 (5)	27/eJ	32	17.12	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Bank Leu 77 (11/5/2000) 299 = ANS Photo File (Bank Leu).
29/EA5 (6)	27/eJ	28	16.72	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> NFA 16 (2/12/1985) 206 = ANS Photo File (Bank Leu).
29/EA5 (7)	27/eJ		17.06	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> ANS Photo File (MM Basel).
29/EA5 (8)	27/e	30	16.7	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Antakya 6512 (Ellis-Evans and Erol-Özdizbay 2020: no. 79).
29/EA5 (9)	27/e	30	16.7	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Antakya 6556 (Ellis-Evans and Erol-Özdizbay 2020: no. 78).
29/EA5 (10)	27/e	32	16.70	Künker 168 (12/3/2010) 7354 = Rauch 84 (13/5/2009) 145 = Hess Divo 311 (22/10/2008) 416 = MM DE 16 (19/5/2005) 930 = MM Basel 95 (4/10/2004) 53.
29/EA5 (11)	27/e	29	16.57	Ira & Larry Goldberg 87 (15/9/2015) 2048 = GM 220 (11/3/2014) 1374 = Roma Numismatics 6 (29/9/2013) 620 [16.60g].
29/EA5 (12)	27/eJ		16.80	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Superior 83A (9/12/1989) 2678 = NFA 2 (25/3/1976) 213 = Private Collection (Saarbrücken Cast).
29/EA5 (13)	27/e	29	-	Alain Weil (6/2/2007) 14.
29/EA5 (14)	27/e		16.97	MM DE 5 (21/10/1999) 214 = Auctiones Basel 20 (8/11/1990) 1361.
29/EA5 (15)	27/e	32	16.56	<b>Kirkhan?</b> Bourgey (17/5/1984) 102 = Barthold 1 (13/10/1980) 368.
29/EA5 (16)	27/e	32	16.46	Bertolami Fine Arts 19 (11/11/2015) 188 = Triton 18 (6/1/2015) 611 (Patrick H. James) = CNG 78 (14/5/2008) 787 (Collection C. P. A.) = Künker 77 (30/9/2002) 172 [16.39g] = Brandt & Sonntag FPL 6 (undated – 1990s) 151.
29/EA5 (17)	27/e		-	Bourgey (7/11/1987) 34.
29/EA5 (18)	27/e	31	16.56	Bourgey (21/6/1979) 91.
29/EA5 (19)	27/e	29	16.96	<b>Kirkhan?</b> CGB.fr 47 (19/3/2011) 110 = 38 (30/4/2009) 215 ('Provient du stock Bourgey, novembre 1973').
29/EA5 (20)	27/e	31	17.02	CNG 54 (14/6/2000) 668 = Italo Vecchi 17 (15/12/1999) 295 [16.99g].
29/EA5 (21)	27/e	30	16.87	Bourgey (29/1/1991) 84.
29/EA5 (22)	27/e	30	16.80	Noble 113 (22/11/2016) = CNG 88 (14/9/2011) 342 = Artemide Aste 31 (18/12/2010) 22.
29/EA5 (23)	27/e	31	17.13	Elsen 24 (14/3/1992) 126.
29/EA5 (24)	27/e		16.95	Elsen 135 (9/12/2017) 26.
29/EA5 (25)	27/e	31	16.68	GM 50 (24/9/1990) 342 = Lanz 20 (13/4/1981) 240.
29/EA5 (26)	27/e		16.93	Hess Divo 320 (26/10/2011) 198 = Poindessault & Védrines (8/1/1986) 81.
29/EA5 (27)	27/e	29	16.82	Künker 318 (11/3/2019) 707 (bought before 2002 from BW-Bank Stuttgart, Nr. 299100133) = Künker 20 (30/9/1991) 157.
29/EA5 (28)	27/e	33	17.06	Parsy (10/5/2007) 36 = Lanz 28 (7/5/1984) 265.
29/EA5 (29)	27/e	28	16.62	Nomos 17 (26/10/2018) 173 = Parsy (28/10/2017) 90.
29/EA5 (30)	27/e	30	16.61	Alde (19/10/2016) 99 = Parsy (25/3/2009) 97 [16.58g].
29/EA5 (31)	27/e		16.89	Poindessault & Védrines (23/6/1993) 54.
29/EA5 (32)	27/e	28	17.08	SBC 23 (20/9/1989) 117.

29/EA5 (33)	27/e		16.70	HJBerk Buy or Bid 177 (15/11/2011) 107 = Stack's Coin Galleries (18/12/2007) 176.
29/EA5 (34)	27/e	31	16.80	Vinchon (30/3/1981) 44.
29/EA5 (35)	27/e		16.77	NCirc 116.6 (Dec. 2008) GK2613.
29/EA5 (36)	27/eJ		-	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Baldwin's (S. Bendall).
29/EA5 (37)	27/eJ		17.07	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Künker 341 (1/10/2020) 5571 (Slg. Phoibos) = Private Collection (Munich Cast).
29/EA5 (38)	27/eJ		-	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Private Collection (Munich Cast).
29/EA5 (39)	27/e		16.94	Stack's Coin Galleries (18/8/2009) 4141 = (22/4/2009) 1124.
29/EA5 (40)	27/e		-	Alain Weil (18/6/2004) 90.
29/EA5 (41)	27/e		16.9	Heritage Auctions (11/1/2003) 14238.
29/EA5 (42)	27/e		16.68	Künker EA 59 (25/3/2020) 8091.
29/EA5 (43)	27/e		17.00	Tradart (18/12/2014) 153 (Albert Hofer).
29/EA7 (1)	27/bJ		16.91	Harmer-Rooke (28/5/1974) 1244.
29/EA7 (2)	27/bJ	29	17.13	Gitta Kastner 8 (25/11/1975) 64.
29/EA7 (3)	27/b	30	16.86	Lanz 125 (28/11/2005) 370 = Schulten 21 (20/10/1987) 197 = Kunst und Münzen FPL 60 (May 1987) 189 = Gerhard Hirsch 151 (24/9/1986) 135.
29/EA7 (4)	27/b	29.5	17.24	CGB.fr 41 (26/11/2009) 213 = V. C. Vecchi 10 (10/10/1983) 162 = Superior 24 (12/6/1978) 2252.
29/EA7 (5)	27/b		17.02	Banque Populaire du Nord & Nomisma FPL 32 (Jun. 1984) 125.
29/EA7 (6)	27/b	31	16.95	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Empire Coins 10 (6/5/1989) 55 = Christie's NY (17/10/1984) 3 (CH 8.460).
29/EA7 (7)	27/b		17.03	Editions V. Gadoury (14/11/2015) 5.
29/EA7 (8)	27/b		-	SKA Bern FPL 37 (Dec. 1981) 48.
29/EA7 (9)	27/b	29	16.59	Auction World 21 (18/7/2020) 1555 = CNG 112 (11/9/2019) 256 [16.60g].
29/EA9 (1)	27/aJ	29	16.52	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Peus 298 (23/10/1979) 99 = 83 (14/5/1974) 126 = ANS Photo File (Bank Leu) [16.75g].
29/EA9 (2)	27/aJ	30	16.78	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Aretusa 4 (22/3/1996) 295 = Bank Leu FPL (Winter 1992/3) 70 = FPL 20 (Oct. 1985) 15 = ANS Photo File (Bank Leu) [16.75g].
29/EA9 (3)	27/a	30	16.83	Pars Coins 1 (8/4/2019) 30 = Heritage Auctions 3071 (6/1/2019) 33165.
29/EA10 (1)	27/eJ	33	15.80	Schlessinger 13 (4/2/1935) 1271 (Hermitage).
29/EA10 (2)	27/c	30	17.33	Rauch 97 (14/4/2015) 177 = Galata (Feb. 1979) 26 = Banque Populaire du Nord FPL 6 (Dec. 1978) 193.
29/EA10 (3)	27/c	30	17.01	Parsy (24/6/2004) 17 = C. Burgan (6/12/1986) 329 [16.99g].
29/EA11 (1)	27/dJ	30	16.54	ANS 1976.247.28 = SNG Berry 1067.
29/EA11 (2)	27/d	35	16.51	Lanz 158 (5/6/2014) 260.
29/EA11 (3)	27/d		16.82	Tkalec (29/2/2008) 418.
29/EA12 (1)	27/-	30	17.06	H. G. Oldenburg 25 (7/12/1990) 27 = GM 46 (30/10/1989) 256 = 36 (8/4/1987) 209.
29/EA12 (2)	27/-	32	16.66	Roma Numismatics E-Sale 11 (23/8/2014) 46.
29/EA13	27/-	28	17.01	Künker 97 (7/3/2005) 739.
30/EA6 (1) <sup>152</sup>	28/-	30	16.26	NAC B (25/2/1992) 1431.
30/EA6 (2)	28/-		-	SKA Bern FPL 18 (Dec. 1975) 61.

<sup>152</sup> For the die break behind the head on O30EA see n. 146.

30/EA7 (1)	28/c	32	16.85	C. Burgan 14 (20/1/1983) 198 = Bourgey (7/11/1983) 76 [16.75g].
30/EA7 (2)	28/cJ	29.5	16.87	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Kurpfälzische 32 (1/6/1987) 105 = Peus 290 (5/10/1976) 126 [16.51g] = ANS Photo File (Bank Leu).
30/EA7 (3)	28/cJ	29	16.92	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Bank Leu 61 (17/5/1995) 141 = ANS Photo File (Bank Leu).
30/EA7 (4)	28/cJ		16.74	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> ANS Photo File (MM Basel).
30/EA7 (5)	28/c		16.79	C. Burgan 14 (20/1/1983) 198bis.
30/EA7 (6)	28/c		-	Cederlind FPL 95 (Spring 1992) 66.
30/EA7 (7)	28/c		16.50	UBS 56 (28/1/2003) 133.
30/EA7 (8)	28/c		16.81	Alain Weil (7/12/1977) 26.
30/EA8 (1)	28/-	36	16.5	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Antakya 6501 (Ellis-Evans and Erol-Özdizbay 2020: no. 80).
30/EA8 (2)	28/-		16.62	Künker EA 28 (7/5/2014) 89
30/EA8 (3)	28/-		16.68	Rauch 111 (3/12/2020) 530.
30/EA10 (1)	28/aJ	29	16.39	Aucones Basel 3 (4/12/1973) 177 = Hess-Leu 45 (12/5/1970) 268.
30/EA10 (2)	28/a	30.5	17.12	Vinchon (27/10/2000) 182 = Bourgey (21/6/1979) 89.
30/EA10 (3)	28/a	30	16.9	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Antakya 6513 (Ellis-Evans and Erol-Özdizbay 2020: no. 81).
30/EA10 (4)	28/a		16.53	Tkalec (8/9/2008) 40.
30/EA10 (5)	28/a	30	16.72	Heritage Auctions 3082 (21/1/2020) 33119.
30/EA10 (6)	28/a		16.87	Künker 333 (16/3/2020) 812.
30/EA14 (1)	28/bJ	32	16.69	Poindessault & Védrières (7/7/1984) 50 = MM Basel FPL 366 (Apr. 1975) 7 [16.78g].
30/EA14 (2)	28/bJ		17.02	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
30/EA14 (3)	28/bJ		16.95	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> GM Stuttgarter 1 (22/11/2010) 252 = Hess Divo 310 (22/10/2008) 114 = ANS Photo File (MM Basel).
30/EA14 (4)	28/bJ	32	16.90	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Vinchon (23/4/1990) 34 = MM Basel FPL 403 (Aug. 1978) 6 = ANS Photo File (MM Basel).
30/EA14 (5)	28/b	30.5	16.83	Boston MFA 1993.64 (Dennis P. Devine).
30/EA14 (6)	28/b	32	16.58	SBC 33 (20/9/1993) 302 = Gerhard Hirsch 177 (10/2/1993) 305 = Tkalec (23/10/1992) 118.
30/EA14 (7)	28/b	31	17.09	Parsy (25/3/2009) 96.
30/EA14 (8)	28/b	31	16.73	Leu Numismatik 6 (23/10/2020) 192 (Kleinkunst Collection) = Sotheby's (3/5/1984) 117.
30/EA14 (9)	28/b		16.86	Stack's (7/3/2006) 613.
31/EA15 (1) <sup>153</sup>	29/bJ	35	15.4	Kress 146 (10/2/1969) 225 = Dorotheum 253 (23/10/1962) 541 = Brüder Egger 45 (12/11/1913) 580.
31/EA15 (2)	29/b		-	Glendining (20/3/1991) 61.
31/EA15 (3)	29/b		16.54	Peus 361 (3/11/1999) 177.
31/EA16 (1)	29/aJ	31	15.06	NAC E (4/4/1995) 2365 = Rosenberg 72 (11/7/1932) 613 [15.20g] = A. E. Cahn 80 (27/2/1933) 342 = 71 (14/10/1931) 448.
31/EA16 (2)	29/aJ	33.5	16.01	Ashmolean HCR12002 (acq. J. G. Milne, 1924) = Naville 1 (4/4/1921) 2461 [15.99g] (S. Pozzi).
31/EA16 (3)	29/aJ	32	16.07	BnF Luynes 2619.
31/EA17	29/-	31	16.81	Empire Coins 10 (6/5/1989) 54.

<sup>153</sup> For forgeries of this die combination see Appendix 1, F5. The authenticity of the Glendining and Peus coins is relatively secure but not absolutely certain.

32/EA15 (1)	30/aJ	39x34	16.43	Seyrig, <i>Trésors</i> 20.37 (N. Syria, 'Caiffa', c. 1905; c. 145-143). Vienna GR 35823 = Dupriez 90 (12/12/1906) 34.
32/EA15 (2)	30/a	31	-	Kirkkhan? JNFA 3.2-4 (Autumn 1974) H203a.
32/EA15 (3)	30/a		16.78	Stack's (15/1/2007) 4118 (Leon Gehorsam Collection of Ancient Greek Coins) = Superior 18 (15/6/1976) 490.
32/EA18 (1)	30/bJ	37	16.97	CNG EA 440 (20/3/2019) 133 = Triton 22 (7/1/2019) 248 (M. Gasvoda) = Rauch 97 (14/4/2015) 176 = 26 (23/6/1980) 32 = Numismatica Vienna 21 (20/11/1978) 92 = 13 (9/11/1976) 265 = 7 (13/2/1975) 119 = Kölner Münzkabinett 14 (9/4/1974) 44.
32/EA18 (2)	30/b	35.5	16.77	Seyrig, <i>Trésors</i> 24.37 (Ras Baalbek, 1957; c. 143/2). BnF 1973.1.418 (H. Seyrig).
32/EA18 (3)	30/b		16.10	Bourgey (2/4/2001) 226.
32/EA18 (4)	30/b		16.24	HJBerk Buy or Bid 181 (7/11/2012) 338 (Lewis Egnew) = Superior 124 (30/5/1995) 7546 = Coin Galleries (12/2/1992) 214 [16.32g].
32/EA19 (1)	30/cJ	36.5	16.55	Seyrig, <i>Trésors</i> 22.78 (El-Aweiniye, 1941; c. 143/2). Elsen 98 (13/12/2008) 79 = Elsen FPL 200 (Aug/Oct. 1998) 42 = 193 (Sep. 1997) 47 = NAC 10 (9/4/1997) 240 = SNG von Aulock 2042.
32/EA19 (2)	30/cJ	29	16.87	CH 10.310 (Kirkkhan, 1972; c. 142). MM Basel FPL 420 (Feb. 1980) 13 = ANS Photo File (MM Basel).
32/EA19 (3)	30/c	35.5	16.96	Triton 18 (6/1/2015) 612 (Money Museum, Zurich) = LHS Numismatik 102 (29/4/2008) 277 (Star Collection) = Sotheby's (24/3/1988) 37.
32/EA19 (4)	30/c		16.94	GM 240 (10/10/2016) 233 = Stack's Coin Galleries (9/12/2009) 75 = Hauck & Aufhäuser 19 (21/3/2006) 123 = Aufhäuser 2 (21/10/1985) 93.
32/EA19 (5)	30/c		16.4	Jesús Vico 144 (3/3/2016) 3065 = Jesús Vico Online 2 (15/9/2015) 55 – Obv. double struck.
32/EA20 (1)	30/dJ	31.5	16.70	McClean 8181 (Pl. 283.8).
32/EA20 (2)	30/d	31	16.79	Künker 133 (11/10/2007) 8165.
32/EA21	30/-	32	16.82	iNumis 20 (12/3/2013) 48.
33/EA22	31/-		16.67	Künker EA 57 (3/12/2019) 45 (Slg. Phoibos).
33/EA23 <sup>154</sup>	31/-	31	16.86	Roma Numismatics 19 (26/3/2020) 431 = Künker 326 (7/10/2019) 849 (Slg. Phoibos).
33/EA24 (1)	31/-	31	17.06	Heritage Auctions 3054 (7/4/2017) 30088 = CNG 102 (18/5/2016) 454 = Künker 270 (2/10/2015) 8320 = Triton 18 (5/1/2015) 613.
33/EA24 (2)	31/-	32	16.84	Kirkkhan? CGB.fr e-Monnaies (5/6/2018) 27 (*'Provient certainement du trésor de Kirkkhan').
33/EA24 (3)	31/-		17.15	UBS 52 (11/9/2001) 95.
33/EA14 (1)	31/-	29	16.83	MDC Monaco 4 (15/11/2018) 40 = Bourgey (21/6/1979) 90.
33/EA14 (2)	31/-	30	17.10	MM Basel FPL 393 (Sep. 1977) 14.
33/EA14 (3)	31/-	29	17.05	The New York Sale 3 (7/12/2000) 151.
33/EA25 (1)	31/aJ		16.67	CH 10.310 (Kirkkhan, 1972; c. 142). ANS Photo File (Bank Leu).
33/EA25 (2)	31/aJ	30x34	16.89	Auctiones Basel 17 (7/6/1988) 232.
33/EA25 (3)	31/aJ	29	16.73	CH 10.310 (Kirkkhan, 1972; c. 142). CNG 102 (18/5/2016) 455 (estate of Thomas Bentley Cederlind) = Cederlind 168 (26/2/2013) 120 = 164 (16/5/2012) 81 = Gerhard Hirsch 275 (22/9/2011) 3806 = GM 25 (14/6/1983) 80 = ANS Photo File (MM Basel) [16.90g].

<sup>154</sup> Die fault over eye on obverse first appears on O33/EA23 and develops thereafter thus organizing the reverse dies. Never present on O33HZ, thus indicating that EA used this die later.

33/EA25 (4)	31/a	30	16.50	Berlin 18204006 (A. Löbbecke, 1906).
33/EA25 (5)	31/aJ	28.5	16.94	GM 160 (9/10/2007) 1521 = Bruun Rasmussen 774 (13/6/2007) 5673 = Alain Weil (30/3/2004) 217 = Poindessault & Védrières (15/11/1991) 250 = HJBerk FPL 1 (Apr. 1974) 122.
34/EA26 (1)	32/-	29	16.87	Gerhard Hirsch 170 (22/5/1991) 513 = 167 (26/9/1990) 429 = 164 (28/11/1989) 300 = 162 (8/5/1989) 255 = 159 (21/9/1988) 338.
34/EA26 (2)	32/-	31.5	16.70	Bourgey (10/3/1980) 119.
34/EA26 (3)	32/-	30	16.15	Lanz 62 (26/11/1992) 333 = 38 (24/11/1986) 326.
34/EA26 (4)	32/-		16.38	Cederlind FPL 101 (Summer 1995) 755 = Stack's 477 (4/5/1995) 2078.
34/EA27 (1)	32/-	31	16.48	Künker 34 (8/10/1996) 114 = Lanz 76 (18/5/1996) 232.
34/EA27 (2)	32/-	31	16.74	Rauch 59 (24/2/1997) 89.
34/EA28 (1)	32/aJ	31	16.68	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Pegasi Numismatics 30 (21/5/2014) 164 = 26 (15/5/2012) 165 = Dix Noonan Webb (22/6/2011) 1077 (A. Harrison) = Baldwin's (S. Bendall).
34/EA28 (2)	32/aJ		16.90	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> ANS Photo File (Bank Leu).
34/EA28 (3)	32/a	32.5	16.38	<b>Kirkhan?</b> CGB.fr 34 (30/4/2008) 200 ('Provient certainement du trésor de Kirkhan') = Crédit de la Bourse (23/5/1996) 75 [16.42g].
34/EA28 (4)	32/a	32	16.52	CNG 67 (22/9/2004) 687 (Garth R. Drewry) = Freeman & Sear 1 (10/3/1995) 161.
34/EA28 (5)	32/a		16.76	Coin Galleries (17/7/1996) 1415.
34/EA29 (1)	32/bJ	33.5	16.00	Norman Davis 211.
34/EA29 (2)	32/b	32	16.72	CNG 115 (16/9/2020) 221 (James Barry) = Pegasi Numismatics 31 (28/10/2014) 164.
34/EA29 (3)	32/b		16.81	HJBerk Buy or Bid 211 (7/7/2020) 100 (ex Baldwin's, May 1995).
34/EA30 (1)	32/cJ	33	16.58	Athens 1905/6 NS 17 (J. B. Svoronos, <i>JIAN</i> 9 [1906] 325, Πίναξ XIV.4) <sup>155</sup> = Jacob Hirsch 14 (27/11/1905) 527 [16.62g] = 11 (4/5/1904) 360.
34/EA30 (2)	32/c	32.5	16.22	Crédit de la Bourse (21/4/1994) 52.
34/EA30 (3)	32/c		-	Alain Weil (22/10/1996) 768.
34/EA30 (4)	32/c		16.65	Rauch 95 (30/9/2014) 131.
34/EA31 (1)	32/-	32	16.54	Elsen FPL 232 (Apr./Jun. 2005) 49 = Elsen 81 (11/9/2004) 132 = Künker 89 (8/3/2004) 1365 [16.49g].
34/EA31 (2)	32/-	31	16.57	CNG 61 (25/9/2002) 693.
34/EA31 (3)	32/-	33	16.92	Rauch 56 (5/2/1996) 155.
34/EA31 (4)	32/-	34	16.57	Triton 5 (15/1/2002) 1426.
34/EA31 (5)	32/-	31	16.96	Nomisma 48 (26/10/2013) 59 = Triton 16 (8/1/2013) 458.
34/EA31 (6)	32/-		16.62	Maison Palombo 19 (12/12/2020) 50.
34/EA32	32/-	31	17.17	Baldwin's 90 (24/9/2014) 1060 = Aureo & Calicó 258 (20/3/2014) 1031.
34/EA33	32/-	30	16.50	CNG EA 459 (8/1/2020) 240 (Asher D. Atchick Collection) = 362 (28/10/2015) 143 = Roma Numismatics E-Sale 18 (27/6/2015) 292 [16.49g] = Savoca Online 1 (19/4/2015) 191.
34/EA34 (1)	32/-	29.5	16.84	Helios 1 (17/4/2008) 145 = HJBerk Buy or Bid 119 (15/3/2001) 224.
34/EA34 (2)	32/-	33	16.98	Kovacs 16 (29/9/2004) 109 (Gomez Family) = MM Basel FPL 449 (Oct. 1982) 14 [17.01g].
34/EA34 (3)	32/-	33	16.51	Künker 97 (7/3/2005) 740 = Alain Weil (18/6/2004) 89.

<sup>155</sup> This and several other tetradrachms of Asia Minor appear to have been acquired from Dr Jacob Hirsch in exchange for an Amphictionic stater from the museum's collection: Kinns (1983), p. 9 n. 5.

34/EA34 (4)	32/-	31	16.94	Albuquerque 45 (25/6/1994) 38.
35/EA33 <sup>156</sup>	-/-	31	16.81	CNG EA 484 (27/1/2021) 301 (Lampasas Collection) = 382 (7/9/2016) 93 (Dr. Lawrence D. Sporty) = CNG 90 (23/5/2012) 590 (Deyo Collection).
36/EA35 (1)	33/bj	38x34	16.90	<b>CH 10.310 (Kirkhan, 1972; c. 142).</b> Auciones Basel 17 (7/6/1988) 233 = MM Basel FPL 454 (Apr. 1983) 26 = ANS Photo File (Bank Leu) [16.89g] – Obv. double struck.
36/EA35 (2)	33/b	32	16.76	Hess Divo 327 (22/10/2014) 52 = SBC 28 (17/9/1991) 204.
36/EA35 (3)	33/b	33	16.10	A. E. Cahn 27 (5/4/1911) 193.
36/EA35 (4)	33/b	31	-	Empire Coins FPL 76 (Sep. 1995) 78.
36/EA35 (5)	33/b		16.79	SNG Munich 601 (acc. 98189).
36/EA23 (1)	33/aJ	31	16.05	Adolph Hess 253 (8/3/1983) 228 = Naville 12 (18/10/1926) 1797 = Adolph Hess 153 (18/3/1918) 681 [16.15g] = Jacob Hirsch 30 (11/5/1911) 569 [16.10g] (W. T. Barron).
36/EA23 (2)	33/a	35	16.62	Roma Numismatics 10 (27/9/2015) 393 = Roma Numismatics E-Sale 10 (26/7/2014) 330.
36/EA23 (3)	33/a	29	16.82	GM 138 (7/3/2005) 112.
36/EA36 (1)	33/-	32	16.90	Ira & Larry Goldberg 112 (3/9/2019) 1530 = GM 224 (13/10/2014) 239 [16.64g] – Rev. double struck.
36/EA36 (2)	33/-	30	16.58	GM 224 (13/10/2014) 240.
<i>Unidentified Tetradrachms</i>				
-	-		16.55	<b>Sevrig, Trésors 22.77 (El-Aweiniye, 1941; c. 143/2).</b>
-	-		16.60	NAAC 7 (11/4/1991) 560 – <i>Non vidi</i> .

#### Aristokrates son of Andron (ArAn)

Dies	Jones	mm	g	References / Notes
37/ArAn1	35/aJ	32	16.15	Jacob Hirsch 25 (29/11/1909) 2158 (G. Philipsen).
38/ArAn2	-/-	34.5	16.54	PK = CNG 111 (29/5/2019) 240 = 109 (12/9/2018) 151.
39/ArAn3	-/-	31	16.32	Emporium Hamburg 67 (10/5/2012) 102.

#### Pythodoros son of Demokrates (PD)

Dies	Jones	mm	g	References / Notes
38/PD1	-/-	31	16.40	Rhode Island School of Design 40.015.149 (Holloway 1998: 80, no. 386).
40/PD2	36/aJ	31	15.91	SNG Copenhagen 845 (E. J. Seltman, 1913).

<sup>156</sup> O35 is only attested for EA.

## Appendix 1: Forgeries of the Wreathed Tetradrachms

### F1 – Euphemos son of Pausanias

Hill (1924-1925), vol. 1, no. 96 (Becker forgery); Jones 23a.

- (a) Yale Art Gallery 2001.87.29744 [27.5mm, 6h, 17.3g] (Gift of G. Gozan).
- (b) SNG Newcastle 473 [29mm, 6h, 16.46g].
- (c) Ratto (4/4/1927) 1955 [30mm, 15.89g].
- (d) Peus 316 (5/11/1986) 187 [28mm, 15.05g].
- (e) CNA 14 (20/3/1991) 153 [26mm, 18.84g – identified as counterfeit].
- (f) Vinchon (26/4/1999) 193 [28mm, 14.52g].
- (g) SNG Berry 1068 [12h, 16.36g].
- (h) Felzmann 152 (30/6/2015) 60 [16.53g] (Forgery Network #358 – Toronto Group).
- (i) CNG EA 419 (25/4/2018) 624 [29mm, 6h, 12.95g].
- (j) Numismatik Lanz (eBay) [26mm, 13.79g] (seen 13/8/19).

### F2 – Pausanias son of Pausanias

Copied from Jones 17a = 23/PP41.

- (a) Peus 296 (31/10/1978) 126 [36mm, 15.53g].
- (b) Compagnie des Monnaies Anciennes (29/6/1985) 110 = Münzzentrum 65 (9/11/1988) 192 [30mm, 16.90g].

### F3 – Herognetos son of Zopyrion

Copied Jones 27a = 29/HZ5.

- (a) R. J. Myers 1 (18/11/1971) 209.
- (b) Bourgey (17/5/1984) 103 [16.56g].
- (c) GM 251 (15/10/2017) 4452 [15.18g] (\*Ex Sammlung G. S., Nürnberg. Erworben auf der Münzbörse Nürnberg am 1/11/1998 bei R. Kaiser, Frankfurt\*).

### F4 – Erasippos son of Aristetas

Obverse copied from Jones 29, reverse a new die.

- (a) BnF AA.GR.523 [13.71g].

### F5 – Erasippos son of Aristetas

Copied from Jones 29b = 31/EA15.

- (a) Alain Weil (9/12/2003) 61 = MM Basel FPL 609 (Mar. 2004) 26 = Künker 97 (7/3/2005) 738 [17.01g] = Elsen 84 (18/6/2005) 252 = Elsen FPL 236 (Apr/Jun. 2006) 57 = Elsen FPL 238 (Oct/Dec. 2006) 47 = The Bru Sale Live Auction 1 (21/11/2012) 69 (Henri Frelinx) [31mm, 16.93g].
- (b) Coin Galleries 141 (21/4/2004) 108 = 142 (21/7/2004) 89 [31.5mm, 16.54g].
- (c) Alain Weil (18/6/2004) 92 = Bruun Rasmussen 878 (8/5/2018) 334 [16.52g; patina cleaned off].
- (d) Youssef Fakhoury (eBay, Beirut, 13/3/2005) [30.5mm, 12h, 17.25g] – Significant fake hoard deposits.
- (e) M. Vosper (12/8/2005).
- (f) Pavlos S. Pavlou (VCoins, seen 16/9/2006) [16.79g].
- (g) Forum Ancient Coins (VCoins, seen 31/1/2007) [17.00g].
- (h) Baldwin's 50 (24/4/2007) 41 = Lanz 141 (26/5/2008) 193 [31mm, 12h, 17.07g; patina cleaned off].
- (i) Lanz 138 (26/11/2007) 379 = 135 (21/5/2007) 311 [34mm, 12h, 17.05g].
- (j) Ancient Imports (VCoins, seen 25/5/2007) [17.1g].
- (k) Ancient Imports (VCoins, seen 25/5/2007) [17.1g] – Different to previous coin.
- (l) Forum Ancient Coins (VCoins, seen 22/6/2007) [17.11g].
- (m) Ponterio & Associates 146 (25/4/2008) 1273 [17.05g].
- (n) Glenn Woods (VCoins, seen 16/5/2008) [16.94g].
- (o) Ponterio & Associates 148 (9/1/2009) 350 [16.61g].
- (p) West Coast Numismatics and Collectibles (VCoins, seen 22/2/2009) [17.07g].
- (q) Ponterio & Associates 150 (8/8/2009) 8381 [17.12g].
- (r) Ponterio & Associates 152 (8/1/2010) 5868 = 154 (18/6/2010) 8042 [33mm, 16.91g].
- (s) CNG EA 233 (26/5/2010) 217 [33mm, 12h, 16.97g].

- (t) Heritage Auctions (16/8/2010) 20066 [33mm, 12h, 17.05g].
- (u) Victoram (eBay, seen 19/8/2010) [17.09g].
- (v) Eukratides (VCoins, seen 30/8/2010) [17.07g].
- (w) D. F. Grotjohann (VCoins, seen 16/12/2010) [16.8g].
- (x) Ancient Delights (VCoins, Spain, seen 24/8/2011).
- (y) Sanrode (eBay, Spain, seen 23/10/2011) [17g].
- (z) Persis (VCoins, seen 4/6/2012) [16.90g].
- (aa) Spink 12025 (27/6/2012) 5 [17.05g].
- (bb) Victoram (eBay, seen 16/9/2012) [17.03g].
- (cc) Spink 13013 (26/6/2013) 13 [17.09g].
- (dd) Cayón Numismática (30/11/2013) 327 [16.65g].
- (ee) Heritage Auctions 3040 (9/4/2015) 29097 = Stack's (8/1/2016) 30099 [35mm, 12h, 16.83g].
- (ff) Suffren Numismatique (VCoins, seen 17/7/2015) [17.15g].
- (gg) Heritage Auctions 3042 (17/9/2015) 29092 [33mm, 12h, 17.01g].
- (hh) Moruzzi (VCoins, seen 3/12/2016) [17.05g].
- (ii) Martí Hervera & Soler y Llach 1092 (7/12/2016) 18 [17.08g].
- (jj) London Ancient Coins (22/10/2017) [16.19g].
- (kk) Martí Hervera & Soler y Llach 1100 (19/12/2017) 24 [16.99g].
- (ll) Roma Numismatics E-Sale 59 (11/7/2019) 241 [31mm, 1h, 16.63g] (Javier Paris Collection) – Withdrawn.
- (mm) Antikpat (eBay – seen 27/10/2020) [17.02g].

*Notes* – It is clear that the majority of these coins must be forgeries struck from mechanically produced dies, but it is difficult to say with absolute confidence whether they are *all* forgeries, or whether only some are.<sup>157</sup> Several factors first identified by Philip Kinns indicate that some proportion of these coins are forgeries:

- 1) None of these coins shows the chiton clasp at the neck truncation nor anything more than the upper outline of the bow case. It is implausible that these same details should be missing from 39 die duplicates. Where we have large numbers of die duplicates elsewhere in the series we never encounter a similar phenomenon. Clearly, these details were missing from the model and thus from all the forgeries based on that model. The exaggerated hammering of the edges and the smoothing of the neck truncation seen on many examples may be an attempt to obscure this tell-tale sign.
- 2) In a coinage consisting of 258 die combinations, it is highly suspicious for so many die duplicates to appear in such a comparatively short space of time (all 39 between 2003 and 2020, with two on the same day from the same seller in the case of **j**–**k**). The discovery of the Kırkhan hoard of course produced high numbers of duplicates for certain die combinations. However, this happened to several different die combinations and over half a century, rather than to a single die duplicate over just a decade and a half.
- 3) There is remarkable variety in the fabric and patina of the coins. If these die duplicates had all come from the same hoard we would expect them to be uniform in these respects, just as is the case for the die duplicates originating in the Kırkhan hoard.
- 4) When Philip Kinns alerted Roma to the doubts about **ll** they immediately withdrew it from the sale and were also kind enough to examine this example under a microscope for us. Based on this, Richard Beale reported two further indications of falsity: **i** there is a lack of clarity in the detail on the coin, which one would expect to be sharp and yet

<sup>157</sup> The list of coins given here is largely that of Philip Kinns (especially those from VCoins and eBay sales). I am very grateful to Philip for extensive discussion of this dangerous forgery which informs all that I say here.

is fuzzy; **ii**) there is a distinct lack of metal movement, which you would expect as a product of the hand striking process.

One possibility is that all these forgeries are based on one of 31/EA15 (2-3) which, on balance, seem more likely than not to be authentic. However, it could equally be that these forgeries are based on a yet earlier model which is unknown to me (compare the case of F6 below).

#### **F6 – Erasippos son of Aristetas**

Copied from Jones 30c = 32/EA19.

(a) Yale Art Gallery 2001.87.11759 [34mm, 12h, 14.54g] (acq. from Rev. Andrew Tully Pratt, 1872).

*Notes* – The earliest genuine example of this die combination in the catalogue is the coin in the El-Aweiniye hoard discovered in 1941. This is long after the Rev. Andrew Tully Pratt acquired this forgery in the mid-19<sup>th</sup> century, suggesting that its model is a genuine example of this die combination which is as yet unknown to me.

### **Appendix 2: The New Gold Staters of Magnesia on the Maeander**

In August 2017, an example of a previously unattested issue of gold staters from Magnesia on the Maeander appeared in trade (**Figure 2**).<sup>158</sup> The obverse type is a draped portrait bust of Artemis. She faces right, wears a *stephane*, has her hair tied up in a chignon, and has a bow and quiver over her shoulder. The reverse type depicts a winged Nike driving a biga, holding the reins in her left hand and a *kentron* in her right. Above and below the galloping horses we have the ethnic ΜΑΓΝΗΤΩΝ and the signer's name and patronymic ΕΥΦΗΜΟΣ ΠΑΥΣΑΝΙΟΥ. Since a Euphemos Pausaniou also signs the wreathed tetradrachms which are the subject of this contribution, the date of this new issue and the identity of the signer need to be established. To do so, we must first set out the context in which these coins appeared.

#### **The 2017 Stater Hoard**

Heritage World Coin Auctions' ANA Signature Sale in August 2017 featured two very rare gold coins as lots 30064 and 30066: a stater of Ephesos with a torch as control mark in inner right field and the first Magnesia stater (**Figure 1: A**).<sup>159</sup> The Ephesian stater was only the third example of this issue to appear since 1896 and a die duplicate of the previous two examples.<sup>160</sup> While one might expect the first appearance of examples of two such rare issues in a single sale to be a once in a century coincidence, it has in fact happened 19 more times in the three years since the Heritage sale.<sup>161</sup> At the time of writing in February 2021, 40 new Magnesia staters and 34 new Ephesos staters have appeared.<sup>162</sup> All are die duplicates, all are in the same fresh condition, and many display dark brown deposits or, if cleaned, bright patches of metal where such deposits have been removed.

<sup>158</sup> A1 = Heritage Auctions 3056 (3/8/2017) 30066.

<sup>159</sup> Jenkins (1987), p. 184 considered the control mark on these Ephesian staters to be a thymiaterion, and this has been followed in sales catalogues. However, the object has a flame coming out of the top so cannot be an incense burner. Instead, it is likely to be either a crudely executed torch (contrast the example in **Figure 1: C**) or, less probably, a candelabrum. For a candelabrum as control mark on the year 40 = 95/4 BC cistophori of Ephesos see Kleiner (1972), p. 26, no. 43 (example: CNG 63 [21/5/2003] 479). My thanks to Philip Kinns for drawing this point to my attention.

<sup>160</sup> BM 1896,0601.67 = Sotheby's (23/3/1896) 567 (H. Montagu); MM Basel 41 (18/6/1970) 191.

<sup>161</sup> A1-6, 8, 11-14, 25, 27-9, 31, 36-7, B8, B20.

<sup>162</sup> I am here only counting the Magnesia 'A' staters for reasons which will become clear below.



**Figure 1.** Ephesian staters certainly (A) or probably (B-C) deriving from the 2017 hoard. A: GM 261 (4/3/2019) 321 (Eph18). B: Roma Numismatics E-Sale 56 (9/5/2019) 343 (21mm, 8.42g). C: Roma Numismatics 16 (26/9/2018) 253 (21mm, 8.43g).

These facts lead to the inescapable conclusion that all the new Magnesia staters and Ephesos torch staters which have appeared since August 2017 derive from a single hoard context. It is difficult to say what else this hoard may have contained. I am unaware of any related series becoming similarly over-represented in sales since late 2017, so it seems unlikely that the hoard contained comparably large numbers of other series. However, it may be significant that new examples of two very rare issues of Ephesian staters which are obverse die-linked to the torch issue have recently appeared in Roma Numismatics sales from 2018 and 2019. These are an issue with caduceus in inner right field and the name C.ATIN.C.F. in the exergue dating to 122/1 and an issue with a torch in inner right field dating to 121/0 (**Figure 1: B-C**).<sup>163</sup> This latter issue with a torch control mark is from a different and more finely executed reverse die than the examples which have proliferated in recent sales. To avoid confusion in what follows, the examples with the more crudely executed torch will be referred to as torch issue (1), whereas those with the more finely executed torch will be torch issue (2).

There are good reasons to think that both these rare coins from Roma sales derive from the hoard. In the case of the caduceus/C.ATIN.C.F. issue, it appeared alongside a new example of the torch issue (1) which will have derived from the hoard.<sup>164</sup> In the case of the torch issue (2) coin, the catalogue gives it the same provenance (the A. F. Collection, Germany) as a Magnesia stater in the same sale which again must derive from the hoard. Given the rarity of these issues, their die link to the torch issue (1) coins, the appearance of these examples in parallel with hoard coins, and the fact that so many of the hoard coins have made their first appearance in Roma sales (about a third of the Ephesos staters and a quarter of the Magnesia staters), it is more likely than not that these two coins likewise derive from the hoard.

### Possible Forgeries

While I referred above to there being 40 new Magnesia staters, 65 have in fact been offered for sale between August 2017 and February 2021.<sup>165</sup> At first sight, they all appear to be struck from the same die combination, and indeed many catalogue entries have stated as much.

<sup>163</sup> Caduceus/C.ATIN.C.F. (122/1): Roma Numismatics E-Sale 56 (9/5/2019) 343 (incorrectly catalogued as a torch issue (1)). Torch issue (2) (121/0): Roma Numismatics 16 (26/9/2018) 253 (incorrectly catalogued as torch issue (1)). The dates are based on shared controls with the Ephesos cistophori: Jenkins (1987), p. 184; cf. Kleiner (1972), p. 25, nos. 19-20 and Metcalf (2017), p. 61 for the cistophori. These two issues are die-linked to a further issue with the control mark bee left in outer right field (Bank Leu 13 [29/4/1975] 229) of which no new examples have turned up. C.ATIN.C.F. is the C. Atinius C. f. Hor. Labeo Macerio who was tribuns plebis in 131 or 130 and praetorian governor of Asia 122/1: Stumpf (1985).

<sup>164</sup> Roma Numismatics E-Sale 56 (9/5/2019) 342.

<sup>165</sup> I am grateful to Wolfgang Fischer-Bossert for sharing his records of these coins with me which alerted me to several examples I had missed.

However, on closer inspection it becomes clear that we have two distinct groups (**Figure 2: 'A' and 'B'**). The four main diagnostic differences are the following:

- 1) The termination of Artemis' bow is different. On 'A' it is an approximation of the rudimentary stag's head termination which we see on other 2<sup>nd</sup> century Magnesian coins and indeed on the Ephesos staters, whereas on 'B' it cannot be construed as such.<sup>166</sup>
- 2) A second line is present on the *stephane* of 'B'.
- 3) There are diagonal die flaws to the upper right of the *phi* of ΕΥΦΗΜΟΣ and the *pi* of ΠΑΥΣΑΝΙΟΥ on 'A' which are absent from 'B'. Related to this, the right-hand end of the horizontal hasta of the *pi* is often missing altogether on 'B'.
- 4) The left ear of the rear horse pokes up between the *nu* and *eta* of the ethnic on 'A' but is missing on 'B'.



**Figure 2.** Reference examples of the Magnesia staters. A: Roma Numismatics E-Sale 62 (17/10/2019) 297 (A27). B: Nomos 19 (17/11/2019) 142 (B8). 2:1 scale.

With the coins split into these two groups based on differences in the dies, some further points of divergence then become apparent:

- 5) The examples of 'A' are sharp in their details and in uncirculated condition. By contrast, examples of 'B' are more worn, often weakly struck, and sometimes show evidence of die shift.<sup>167</sup> These differences manifest most clearly in low-relief detail. For example, the reins and *kentron* are often faint to the point of invisibility, the horse ears are stubby rather than pointed (hence the 'missing' ear between the *nu* and *eta* noted above), and the pastern joint connecting the horses' hooves to their forelegs is gone, giving the impression that the hooves are floating free.

<sup>166</sup> For this feature of depictions of Artemis on Magnesian coins see Kinns (2006), pp. 46-7 with n. 35.

<sup>167</sup> B9 = Timeline Auctions (3/12/2019) 4116 displays all these problems.

- 6) The rust pattern on the obverse die is consistent across 'A', but on 'B' is much more varied and, when present, globular in form.
- 7) The dark brown deposits on 'A' adhere to crevices as we would expect and, where they have been cleaned off, leave visibly brighter patches of metal.<sup>168</sup> By contrast, while the deposits sometimes adhere to the crevices on 'B', they also often manifest as a general discoloration and are inconsistent in colour, ranging from red through to black.<sup>169</sup>
- 8) The whole feel of 'B' is less refined than 'A', with areas of fine detail on 'B' such as the hair, the chignon, Nike's wing, and the horses' legs all lacking the delicacy of 'A'.

There are four possible explanations for these differences:

- 1) **'A' and 'B' are two different dies.** This seems very unlikely given the high degree of similarity between 'A' and 'B' which has resulted in many experienced cataloguers considering them to be identical. While, as noted, there are a small number of die differences between the two groups, the overwhelming impression is instead of how similar they are to one another point for point. The same die cutter producing two dies in succession would rarely produce a carbon copy like this because they would have no particular reason to do so.
- 2) **'A' is a recut version of 'B'.** This is not a realistic possibility given that the die rust on 'A' does not look like it could be a later stage of what we see on 'B', and recut dies tend to be less refined not more so than their predecessors.
- 3) **'B' is a recut version of 'A'.** This possibility is worth entertaining but is nevertheless problematic. (a) Recutting does not explain the different form of the termination on Artemis' bow. If this detail had been recut to cover up a die flaw, we would expect this detail on 'A' and 'B' to overlap. However, when we overlay images of 'A' and 'B' it becomes apparent that the bow termination on 'A' lies mostly below that on 'B' on the die. (b) Recutting does not account for why the rust pattern on the obverse of 'A' is so different to 'B'. (c) Many of the smaller differences between 'A' and 'B' (e.g. the horses' ears and hooves, the *pi* of ΠΑΥΣΑΝΙΟΥ) involve details going missing and infelicities being introduced rather than details being clarified or corrected as we would expect from recutting. Such carelessness is particularly unexpected on gold coinage. (d) Any version of the recutting hypothesis requires us to posit a transitional phase between 'A' and 'B' where faults emerged which needed correcting. However, such a stage is unattested in our evidence despite having 40 examples of 'A' and 25 examples of 'B'.
- 4) **'B' is a modern copy of 'A'.** This may be the correct explanation. If a modern forger were responsible for 'B', this would account for why it mimics 'A' so closely, why a number of small details are nevertheless off, why the rust patterns and hoard deposits are inconsistent between 'A' and 'B', why there is no transitional phase between 'A' and 'B' such as the recutting hypothesis requires, and perhaps also why 'B' is more worn and often weakly struck.

<sup>168</sup> For an example maintaining much of the original patina see A26 = GM 265 (14/10/2019) 390. For an example of before and after cleaning see A29 = Ares Numismatics 4 (23/11/2019) 920 and Leu Numismatik Web Auction 11 (22/2/2020) 925.

<sup>169</sup> Adhering to crevices: B2, 9, 11, 15, 17-18, 20-21, 23, 25. General discoloration: B1, 5, 7-8, 19, 22.

The timeline of when ‘A’ and ‘B’ appeared on the market may add support to the view that the examples of ‘B’ are forgeries salted into the dispersal of a genuine group of hoard coins. The appearance of ‘A’ can be split into two periods. A1-12 trickled out between August 2017 and March 2019, appearing on nine out of twelve occasions in parallel with Ephesos torch (1) staters from the hoard.<sup>170</sup> A13-40 then appeared at a rate of between one and three a month between April 2019 and November 2020. By contrast, examples of ‘B’ only start to appear in the latter period, with B1-25 all appearing since April 2019, on several occasions in the hands of eBay sellers with a less than spotless record when it comes to forgeries.

We can interpret this delayed appearance of ‘B’ in two ways. The first possibility is that ‘A’ and ‘B’ both derive from the hoard, but examples of ‘B’ only appeared later because the best pieces were offered first, and since almost every example of ‘A’ is superior to ‘B’, all the early examples were of ‘A’ and not ‘B’. The difficulty here is that, as noted above, the deposits on ‘A’ match those on the Ephesos torch (1) staters but do not match those on the ‘B’ staters. The second possibility is that examples of ‘B’ did not appear in the initial dispersal of the hoard because they are not from the hoard, but rather were forged using the genuine hoard coins as their model.

### Dating

Two different dates have been proposed for these staters: *c.* 155-145 and *c.* 125-120. The arguments for each were first proposed in the earliest sales of these coins and have not substantially changed since. Those who favour *c.* 155-145 argue that the Euphemos Pausaniou named on these staters is identical with the individual who signed issues of Magnesia’s wreathed tetradrachms, value-marked silver, and bronze coinage in the 150s/140s.<sup>171</sup> While this identification is possible, it is open to two criticisms. First, it is clear that the names Euphemos and Pausanias ran in a prominent Magnesian family of the 2<sup>nd</sup> and 1<sup>st</sup> century and therefore that the Euphemos Pausaniou of the staters could be a different individual. Documents from the beginning and end of the 2<sup>nd</sup> century, if correctly restored, attest other individuals named Euphemos Pausaniou holding the position of *neokoros* of Artemis Leukophryene.<sup>172</sup> In addition, a Pausanias Euphemou (possibly the father) and a Pausanias Pausaniou (possibly a brother) signed issues in tandem with Euphemos Pausaniou in the 150s/140s.<sup>173</sup> We therefore cannot be certain that the Euphemos Pausaniou on the staters is identical with the one active in the mid-2<sup>nd</sup> century. Secondly, even if the identification is correct, it hardly follows that Euphemos could only have signed the staters at the same time as he signed the issues of silver and bronze coinage in the 150s/140s. In a career potentially spanning thirty or forty years, he could have signed the staters either several decades earlier or several decades later than this.

The argument for *c.* 125-120 is presented as follows in the catalogues.<sup>174</sup> First, it is noted that the Euphemos Pausaniou who is attested as a *neokoros* of Artemis Leukophryene in 112/11

<sup>170</sup> See n. 161.

<sup>171</sup> Heritage Auctions 3056 (3/8/2017) 30066, Roma Numismatics 14 (21/9/2017) 147. For the coin issues Euphemos Pausaniou signed in the 150s/140s see above n. 67.

<sup>172</sup> *I. Magnesia* 94.1 (early 2<sup>nd</sup> century?): [Εὐφήμου] Πάυσανίου; 5: [Εὐφήμου]ν. IC III iv 9.2-3 (112/11): Εὐφήμου τοῦ [Πάυσανίου]. For the dating of these documents and the uncertainty of the restorations see Jones (1979), pp. 79-80.

<sup>173</sup> For the other evidence for these individuals see above nn. 65 and 72.

<sup>174</sup> CNG 106 (13/9/2017) 376, Leu Numismatik 1 (25/10/2017) 82, Nomos 15 (22/10/2017) 151.

could be the grandson of the homonymous individual from the 150s/140s rather than identical with him as Jones proposed.<sup>175</sup> The implication is that the 150s/140s date is not as certain as initially thought, and that a later date closer to 112/11 might be preferable. Secondly, a comparison is drawn with the Hellenistic staters of Ephesos, Miletos, Smyrna, and Tralles. It is noted that Jenkins argued that these do not all date to the period of the First Mithridatic War as had sometimes been argued, but rather to a variety of points in the 2<sup>nd</sup> and 1<sup>st</sup> centuries.<sup>176</sup>

While a date-range of *c.*150-100 would more naturally follow from these two arguments, the rather more specific date of *c.*125-120 is instead given. The explanation for this discrepancy is of course that these cataloguers were aware that the many Ephesian staters which appeared on the market at the same time as the Magnesian staters most likely derived from the same hoard context. As noted above, torch issue (1) is obverse die-linked to three other issues of Ephesian staters, two of which Jenkins showed can be dated to 122/1 and 121/0.<sup>177</sup> Moreover, as I argued above, it may even be the case that examples of these two dateable issues can in fact be tied to the hoard. Since the Magnesia ‘A’ staters appear to derive from the same hoard as the Ephesos staters and are in similar condition, it follows that they also date to the 120s. Dates a little earlier or later than *c.* 125-120 can be entertained, but a date in the 150s/140s is ruled out.<sup>178</sup>

In conclusion, the Euphemos Pausaniou on the staters could be identical with the individual who signed Magnesian coinage in the 150s/140s or equally with the individual who was *neokoros* of Artemis Leukophryene in 112/11. However, if he is identical with the signer of Magnesian coinage in the 150s/140s, then the staters belong to a later phase of his career and the rather different historical context of the first years of the Roman province of Asia.

Magnesia Staters from the 2017 Hoard			
Coin	mm	g	References / Notes
A1	19	8.46	CNG EA 460 (29/1/2020) 245 (Jonathan P. Rosen) = Heritage Auctions 3056 (3/8/2017) 30066.
A2	19	8.46	Heritage Auctions 3057 (7/9/2017) 30133.
A3	18.5	8.47	CNG 106 (13/9/2017) 376.
A4	19	8.43	Triton 23 (14/1/2020) 361 (Jonathan P. Rosen) = Roma Numismatics 14 (21/9/2017) 147.
A5	17	8.46	Leu Numismatik 1 (25/10/2017) 82.
A6	18	8.42	Heritage Auctions 3066 (17/8/2018) 30052 = Nomos 15 (22/10/2017) 151 (from an English collection).
A7		8.47	51 Gallery (Apr. 2018) 88 (former Belgian private collection) – Hoard deposits.
A8	19	8.43	Roma Numismatics 16 (26/9/2018) 259 (from the A. F. Collection, Germany).
A9	19	8.37	Heritage 3071 (6/1/2019) 34044.

<sup>175</sup> Jones (1979), p. 79.

<sup>176</sup> Jenkins (1987), pp. 183-4, 186. For discussion of the correct dates of these gold issues see Kinns (1987), pp. 108-9, Callataÿ (1997), pp. 289-90 (esp. 289 n. 63 for the origins of the Mithridatic hypothesis), and Kinns (1998), pp. 182-3.

<sup>177</sup> See n. 163.

<sup>178</sup> Cataloguers for Roma Numismatics (starting with 14 (21/9/2017) 147) have instead argued that it is the Magnesia staters which date the Ephesos staters and not vice versa. Consequently, on the unsafe assumption that a 150s/140s date is guaranteed for the Magnesia staters, they have argued that the Ephesos torch (1) staters need to be updated to this period. This is quite impossible given the obverse die link between torch issue (1) and the issues dateable to 122/1 and 121/0, the former of which bears the name of a Roman magistrate – hardly something that would appear at Ephesos in the 150s/140s.

A10	18	8.38	Roma Numismatics E-Sale 69 (16/4/2020) 433 = 54 (28/2/2019) 197 (from a private European collection).
A11		8.45	GM 261 (4/3/2019) 325 – Hoard deposits.
A12	18	8.46	Roma Numismatics 17 (28/3/2019) 444.
A13	19	8.44	Heritage Auctions 3073 (29/4/2019) 30129.
A14	20	8.46	Heritage Auctions 3073 (29/4/2019) 30128.
A15	18	8.38	CNG 111 (29/5/2019) 243.
A16	21	8.39	Roma Numismatics E-Sale 57 (30/5/2019) 403 (from the inventory of a UK dealer).
A17	19	8.45	CNG EA 445 (5/6/2019) 145.
A18	20	8.33	Heritage Hong Kong 3074 (27/6/2019) 30019.
A19	19	8.39	Leu Numismatik Web Auction 8 (29/6/2019) 365.
A20	19	8.48	Leu Numismatik Web Auction 15 (27/2/2021) 430 = Heritage Auctions 231927 (4/7/2019) 61049.
A21	18	8.46	Roma Numismatics E-Sale 76 (5/11/2020) 261 (from the inventory of a UK dealer) = 59 (11/7/2019) 240 – Hoard deposits.
A22	19	8.50	Den of Antiquity (VCoins – seen 2/1/2021; eBay – seen 13/8/2019) – Hoard deposits.
A23	19	8.33	Heritage Auctions 3075 (15/8/2019) 32024.
A24	18	8.46	Roma Numismatics E-Sale 61 (22/8/2019) 237.
A25	19	8.44	Roma Numismatics 18 (29/9/2019) 601.
A26		8.41	GM 265 (14/10/2019) 390 – Hoard deposits.
A27	18	8.45	Roma Numismatics E-Sale 62 (17/10/2019) 297 (from the inventory of a UK dealer).
A28		8.49	Rauch 109 (11/11/2019) 155.
A29	18	8.44	Leu Numismatik Web Auction 11 (22/2/2020) 925 – Hoard deposits cleaned off = Ares Numismatics 4 (23/11/2019) 920 – Hoard deposits.
A30		8.4	London Coins Ltd 167 (1/12/2019) 329.
A31	18	8.44	Auction World 20 (18/4/2020) 3043 = Heritage Auctions 3081 (13/1/2020) 30087.
A32	20	8.41	Heritage Auctions 3081 (13/1/2020) 30088.
A33		8.45	Baldwin's of St. James's 41 (19/1/2020) 1.
A34	18	8.51	Heritage Auctions 232008 (20/2/2020) 63066.
A35	19	8.43	Naville Numismatics 56 (22/3/2020) 121 – Hoard deposits.
A36	19	8.44	Auction World 22 (17/10/2020) 1550 = Heritage Auctions 3083 (24/4/2020) 30061.
A37	18.5	8.40	CNG 114 (13/5/2020) 294.
A38	18.5	8.40	Agora Numismatiek (VCoins SKU 1271 – seen 2/1/2021) = Nomos 20 (10/7/2020) 213 [8.49g] – Hoard deposits.
A39		8.45	Nomisma 62 (15/9/2020) 16.
A40	18	8.42	GM 273 (19/11/2020) 192 – Hoard deposits.
<b>Possible Magnesia Stater Forgeries</b>			
B1	18	8.42	Timeline Auctions (3/12/2019) 4117 = lifepik77 (eBay 153635275039 – seen 8/9/19) = Roma Numismatics E-Sale 55 (18/4/2019) 325 (from the inventory of a European dealer) – Dark discoloration on neck and face.
B2		8.44	Peus 424 (15/5/2019) 140.
B3	18	8.46	Heritage Auctions 231925 (20/6/2019) 63059.
B4	17	8.44	Heritage Auctions Dallas 3089 (21/1/2021) 32101 = Heritage Auctions 231930 (25/7/2019) 64045.
B5		-	Demetrius 7107 (eBay 324139571800 – seen 20/4/20; ex London collector) = Timeline Auctions (3/9/2019) 3601 <sup>179</sup> – Red discoloration on obv.
B6	19	8.47	Heritage Auctions 232038 (16/9/2020) 63102 = Triskeles 29 (13/9/2019) 63.

<sup>179</sup> Lot 3600 in this sale was also a Magnesia stater. However, I have been unable to identify this example as Timeline Auctions did not respond to a request for a photograph by time of publication.

B7		8.48	Stack's Bowers & Ponterio (26/2/2020) 70034 = Baldwin's of St. James 37 (25/9/2019) 8 [6.64g – error].
B8	19	8.51	Nomos 19 (17/11/2019) 142 – Dark discoloration around edge of rev.
B9		8.46	Heritage Auctions Europe 66 (17/11/2020) 4003 = Timeline Auctions (3/12/2019) 4116 – Significant die shift on reverse, dark deposits around figure of Nike.
B10	19	8.46	Heritage Auctions 3077 (6/12/2019) 38021.
B11	18.5	8.46	Leu Numismatik Web Auction 13 (15/8/2020) 338 = Catawiki (Proximo, Italy) (11/5/2020) 36663309 = (9/4/2020) 35818213 = (10/3/2020) 33046271 = (4/3/2020) 33046271 = Naville Numismatics 54 (15/12/2019) 108 – Some dark deposits on rev.
B12	18	8.44	Eternity Coin (eBay 143551627217 – seen 18/5/20) = (eBay 174183873766 – seen 12/2/20) = Heritage Auctions 232005 (30/1/2020) 65069.
B13	19	8.31	Heritage Auctions 232006 (6/2/2020) 61085.
B14	18	8.45	Heritage Auctions Dallas 3089 (21/1/2021) 32102 = Heritage Auctions 232007 (13/2/2020) 62087.
B15		8.47	Kölner Münzkabinett 113 (4/4/2020) 76 – Dark deposits in crevices of both obv. and rev.
B16		8.58	Emporium Hamburg 89 (22/4/2020) 140.
B17		8.37	Emporium Hamburg 89 (22/4/2020) 141 – Some dark deposits on obv. and rev.
B18		8.41	Peus 426 (23/4/2020) 104 – Dark deposits on obv. and rev.
B19	19	8.49	Auction World 21 (18/7/2020) 1556 = Heritage Auctions 3083 (24/4/2020) 30062 – Dark discoloration across obv. and rev.
B20	19	8.44	Auction World 23 (16/1/2021) 1548 = Heritage Auctions 3083 (24/4/2020) 30063 – Some dark deposits on obv. and rev.
B21	17	8.45	Demetrius 7107 (eBay 324166963897 – seen 18/5/20) – Some dark deposits on obv. and rev.
B22	18	8.4	C. J. Martin Coins (VCoins SKU EC1695 – seen 2/1/2021) = Antikpat (eBay 193637712612 – seen 22/6/2020) [8.38g] = Timeline Auctions (2/6/2020) 3522 (property of a London gentleman) [8.45g] – Dark discoloration at 11-h on obv. <sup>180</sup>
B23	19	8.43	Naville Numismatics 58 (14/6/2020) 178 – Some dark deposits on obv. and rev.
B24		8.43	Degussa Münzkabinett (MA-Shops, seen 24/9/2020) MA-ID 108632 – Dark discoloration across obv. and rev.
B25	18.5	8.29	Obolos 17 (20/12/2020) 295 – Dark deposits on obv. and rev.
<b>Ephesos Torch (1) Staters (All Except Eph1-2 from the 2017 Hoard)</b>			
Eph1		8.42	BM 1896,0601.67 = Sotheby's (23/3/1896) 567 [130 grains] (H. Montagu).
Eph2		8.48	MM Basel 41 (18/6/1970) 191.
Eph3	19	8.47	CNG EA 460 (29/1/2020) 242 (Jonathan P. Rosen) = Heritage Auctions 3056 (3/8/2017) 30064.
Eph4	20	8.43	Heritage Auctions 3057 (7/9/2017) 30132.
Eph5	20	8.32	CNG 106 (13/9/2017) 367.
Eph6	20	8.39	Roma Numismatics 14 (21/9/2017) 144.
Eph7	18	8.46	Leu Numismatik 3 (27/10/2018) 93 = Roma Numismatics E-Sale 45 (5/5/2018) 252 = 42 (6/1/2018) 137 = Savoca 2 <sup>nd</sup> Premium Auction (15/10/2017) 56.
Eph8	21	8.41	Auction World 20 (18/4/2020) 3042 = Heritage Auctions 3077 (6/12/2019) 38020 = 3066 (17/8/2018) 30051 = Nomos 15 (22/10/2017) 148.
Eph9	19	8.42	Leu Numismatik 1 (25/10/2017) 81.
Eph10	19	8.41	Roma Numismatics E-Sale 61 (22/8/2019) 235 = 41 (2/12/2017) 227.
Eph11	20	8.39	Roma Numismatics E-Sale 58 (20/6/2019) 250 = 42 (6/1/2018) 136.
Eph12	20.5	8.48	CNG EA 413 (31/1/2018) 92.
Eph13	20	8.50	Roma Numismatics E-Sale 43 (3/2/2018) 132.

<sup>180</sup> For another Magnesia forgery marketed by Antikpat in 2020 see Appendix 1, F5.mm.

Eph14	19	8.47	Heritage Auctions 3081 (12/1/2020) 30084 = CNG EA 415 (28/2/2018) 233.
Eph15	20	8.50	Roma Numismatics E-Sale 44 (3/3/2018) 191.
Eph16	18	8.44	CNG EA 418 (11/4/2018) 271.
Eph17		8.46	Dix Noonan Webb (16/1/2019) 527.
Eph18		8.43	GM 261 (4/3/2019) 321 – hoard deposits.
Eph19	20	8.47	Roma Numismatics 17 (28/3/2019) 442.
Eph20	20	8.51	Heritage Auctions 3073 (29/4/2019) 30125.
Eph21	21	8.50	Heritage Auctions 3073 (29/4/2019) 30126.
Eph22	19	8.45	Roma Numismatics E-Sale 56 (9/5/2019) 342.
Eph23	20	8.36	Roma Numismatics E-Sale 60 (1/8/2019) 230 – hoard deposits.
Eph24	21	8.46	Auction World 21 (18/7/2020) 1554 = Roma Numismatics 18 (29/9/2019) 600.
Eph25	20	8.37	Roma Numismatics E-Sale 62 (17/10/2019) 290 (from the inventory of a UK dealer).
Eph26		8.34	Rauch 109 (11/11/2019) 154.
Eph27	22	8.49	Nomos 19 (17/11/2019) 140.
Eph28	19	8.54	Leu Numismatik 11 (22/2/2020) 918 – hoard deposits cleaned off = Ares Numismatics 4 (23/11/2019) 921 – hoard deposits
Eph29	19	8.39	Heritage Auctions 3081 (12/1/2020) 30085.
Eph30	19	8.43	Heritage Auctions Dallas 3085 (5/8/2020) 31077.
Eph31	19.5	8.42	CNG 114 (13/5/2020) 292.
Eph32		8.39	Gerhard Hirsch 357 (18/6/2020) 216.
Eph33	20	8.49	Heritage Auctions Hong Kong 3084 (12/7/2020) 30022.
Eph34	19	8.41	Heritage Auctions Dallas 3085 (5/8/2020) 31077.
Eph35	19	8.51	Heritage Auctions Dallas 3085 (5/8/2020) 31078.
Eph36		-	Harmers 1 (25/9/2020) 8.
Eph37	19	8.52	Heritage Auctions Hong Kong 3087 (18/12/2020) 30028.
Eph38	20	8.40	Obolos 17 (20/12/2020) 289 – hoard deposits.

Commented [AEE1]: I think same as Eph29?

### Plates

Where it has not been possible to establish the diameter of a coin being illustrated, I have used the average diameter (32mm) across the whole series. This is the case for nos. 8, 17, 50-1, 58, 77-8, 81, 115, 129, 142, 153, 165, 179, 199, 210-11, 215, 231, 236, 245, 262-3.

#### 1. Pausanias Euphemou

1. 1/PE1 – Berlin 18275869.
2. 1/PE2 – ANS 1951.24.1.
3. 1/PE3 – Heritage Auctions 3082 (21/1/2020) 33120.
4. 1/PE4 – Elsen 30 (12/6/1993) 91.
5. 1/PE5 – Bourgey FPL (Mar. 1998) 9.
6. 2/PE1 – ANS 1961.179.38.
7. 2/PE5 – Elsen 93 (15/9/2007) 697.
8. 2/PE6 – ANS Photo File (Kırkhan Hoard).
9. 2/PE7 – CNG 100 (7/10/2015) 1455.
10. 2/PE8 – Roma Numismatics E-Sale 40 (28/10/2017) 174.
11. 2/PE9 – CNG 34 (6/5/1995) 137.
12. 2/PE10 – Gerhard Hirsch 352 (25/9/2019) 2367.
13. 3/PE6 – Künker 333 (16/3/2020) 809.
14. 3/PE8 – CNG EA 457 (14/11/2019) 83.
15. 4/PE11 – C. Burgan (2/7/1988) 271.
16. 4/PE12 – Künker 20 (30/9/1991) 158.
17. 4/PE13 – ANS Photo File (Kırkhan Hoard).
18. 4/PE14 – JNFA 3.2-4 (Autumn 1974) H203d.
19. 4/PE15 – Antakya 6522.
20. 5/PE16 – GM 249 (11/10/2017) 290.
21. 6/PE17 – BnF 1973.1.158.

22. 8/PE18 – Hess Divo 329 (17/11/2015) 95.
23. 8/PE19 – MM DE 43 (26/2/2016) 86.
24. 9/PE19 – Gitta Kastner 4 (27/11/1973) 120.

#### 2. Apollodoros Kallikratou

25. 1/AK1 – Künker 216 (8/10/2012) 410.
26. 2/AK1 – JNFA 3.2-4 (Autumn 1974) H203c.
27. 2/AK2 – ANS Photo File (Kırkhan Hoard).
28. 2/AK3 – Elsen 138 (8/9/2018) 113.
29. 2/AK4 – CNG 96 (14/5/2014) 437.
30. 2/AK5 – CGB.fr Live (5/3/2019) 515451.
31. 3/AK6 – Roma Numismatics 5 (23/3/2013) 329.
32. 3/AK7 – PK Collection.
33. 4/AK8 – BnF 1973.1.159.
34. 4/AK9 – Gerhard Hirsch 242 (22/9/2005) 2125.
35. 4/AK10 – Antakya 6489.
36. 4/AK11 – MM DE 46 (15/2/2018) 199.
37. 4/AK12 – Noble 119 (20/11/2018) 4652.
38. 5/AK9 – Heritage Auctions 3049 (8/9/2016) 30140.
39. 5/AK10 – Roma Numismatics 20 (29/10/2020) 177.
40. 5/AK13 – Alde (19/10/2016) 97.

41. 5/AK14 – MM Basel 95 (4/10/2004) 52.

### 3. Euphemos Pausaniou

42. 7/EP1 – GM 50 (24/9/1990) 341.  
43. 7/EP2 – Triton 7 (12/1/2004) 235.  
44. 8/EP1 – CNG EA 125 (26/10/2005) 70.  
45. 8/EP3 – ANS Photo File (Kirkkhan Hoard).  
46. 8/EP4 – CNG 32 (7/12/1994) 178.  
47. 8/EP5 – Noble 112 (25/7/2016) 3663.  
48. 9/EP6 – BnF Fonds Général 1419.  
49. 9/EP7 – GM 216 (15/10/2013) 2528.  
50. 9/EP8 – Künker 341 (1/10/2020) 5568.  
51. 9/EP9 – Geneva Private Collection (Kirkkhan Hoard).  
52. 9/EP10 – Argenor 5 (29/4/2002) 75.  
53. 9/EP11 – CNG EA 375 (1/6/2016) 394.  
54. 9/EP12 – Heritage Auctions 3076 (5/9/2019) 30136.  
55. 9/EP13 – Parsy (7/6/2000) 34.  
56. 9/EP14 – Elsen 141 (15/6/2019) 57.  
57. 9/EP15 – GM 265 (14/10/2019) 391.  
58. 10/EP16 – Künker 295 (25/9/2017) 312.  
59. 10/EP17 – Künker 333 (16/3/2020) 810.  
60. 10/EP18 – Hess Divo 314 (4/5/2009) 1161.  
61. 10/EP19 – Ponterio & Associates 89 (12/8/1997) 267.  
62. 10/EP20 – Antakya 6508.  
63. 11/EP15 – Gemini 8 (14/4/2011) 73.  
64. 11/EP19 – Antakya 6552.  
65. 11/EP21 – Pegasi Numismatics 25 (8/11/2011) 153.  
66. 11/EP22 – Heritage Auctions 3020 (6/9/2012) 24994.  
67. 11/EP23 – Vienna Gr 17392.  
68. 11/EP24 – Wulfing 325.  
69. 11/EP25 – GM 142 (10/10/2005) 1542.  
70. 12/EP26 – ANS 1967.152.445.  
71. 12/EP27 – Dupriez 90 (12/12/1906) 33.  
72. 13/EP20 – Triton 10 (9/1/2007) 299.  
73. 13/EP27 – Stack's (11/1/2010) 155.  
74. 13/EP28 – Peus 368 (25/4/2001) 187.  
75. 14/EP24 – NAC 88 (8/10/2015) 418.  
76. 16/EP24 – Kricheldorf 43 (11/3/1992) 249.  
77. 17/EP29 – Peus EA 7 (16/6/2018) 22.  
78. 17/EP24 – ANS Photo File (Kirkkhan Hoard).  
79. 17/EP30 – NAC 54 (24/3/2010) 122.  
80. 17/EP31 – Berlin 18275865.  
81. 18/EP24 – Poindessault & Védrières (29/12/1983) 34.  
82. 18/EP31 – Tradart (18/12/2014) 152.  
83. 18/EP32 – Albuquerque 47 (11/12/1994) 3.  
84. 19/EP24 – Stack's (6/1/2012) 255.  
85. 19/EP30 – Künker 280 (26/9/2016) 230.  
86. 19/EP31 – Elsen FPL 45 (Jun. 1982) 13.  
87. 19/EP33 – ANS Photo File (Kirkkhan Hoard).  
88. 19/EP34 – Antakya 6500.  
89. 21/EP33 – BnF Armand Valton 433.  
90. 21/EP35 – CNG 35 (20/9/1995) 286.  
91. 21/EP36 – Poinsignon 38 (Nov. 1994) 629.  
92. 22/EP34 – GM 236 (7/3/2016) 248.  
93. 22/EP37 – Peus 404 (2/11/2011) 2282.  
94. 22/EP38 – H. Grün 60 (12/1/2012) 144.  
95. 23/EP37 – CNG EA 215 (29/7/2009) 197.  
96. 23/EP38 – MDC Monaco 6 (29/10/2020) 71.  
97. 23/EP39 – Leu Numismatik 6 (23/10/2020) 193.  
98. 23/EP40 – CNG 34 (6/5/1995) 139.

99. 23/EP11 – Triton 12 (6/1/2009) 291.  
100. 23/EP41 – Ashmolean.  
101. 24/EP11 – GM 38 (30/11/1987) 178.  
102. 24/EP42 – CNG EA 244 (10/11/2010) 167.  
103. 24/EP43 – CNG EA 343 (28/1/2015) 173.  
104. 24/EP44 – iNumis (10/12/2013) 6.  
105. 25/EP44 – Maison Palombo 11 (30/11/2012) 7.  
106. 25/EP45 – ANS 1950.112.1.  
107. 25/EP46 – Antakya 6510.  
108. 25/EP47 – Gerhard Hirsch 183 (20/9/1994) 445.  
109. 26/EP48 – Alain Weil (3/4/2003) 39.  
110. 26/EP49 – Gulbenkian 989.  
111. 26/EP50 – Münzzentrum 24 (12/5/1976) 151.  
112. 26/EP51 – CNG 69 (8/6/2005) 401.  
113. 26/EP52 – ANS Photo File (Kirkkhan Hoard – Bank Leu).

### 4. Pausanias Pausaniou

114. 25/PP1 – SKA Bern 7 (27/4/1987) 229.  
115. 25/PP2 – Parsy (24/6/2004) 18.  
116. 25/PP3 – Gulbenkian 990.  
117. 25/PP4 – SNG Kayhan 424.  
118. 25/PP5 – Antakya 6540.  
119. 25/PP6 – Elsen 64 (2/12/2000) 213.  
120. 8/PP6 – Monetarium 59 (Spring 1993) 72.  
121. 8/PP1 – Berlin 18275874.  
122. 8/PP7 – Maison Palombo 7 (13/6/2009) 113.  
123. 8/PP8 – HJBerk Buy or Bid 165 (28/7/2009) 194.  
124. 8/PP9 – SNG Copenhagen 844.  
125. 8/PP5 – Superior 32 (30/5/1980) 2198.  
126. 21/PP2 – Vinchon (7/11/1977) 95.  
127. 21/PP10 – Superior 75 (10/12/1988) 1951.  
128. 21/PP11 – Antakya 6537.  
129. 20/PP2 – Saarbrücken Private Collection (Kirkkhan Hoard).  
130. 20/PP12 – MM DE 14 (16/4/2004) 583.  
131. 20/PP13 – CNG EA 293 (19/12/2012) 100.  
132. 20/PP14 – Glendining (9/10/1989) 119.  
133. 9/PP15 – CNG 78 (14/5/2008) 786.  
134. 9/PP16 – CNG EA 460 (29/1/2020) 244.  
135. 9/PP17 – Vinchon (1/12/2015) 108.  
136. 9/PP18 – Berlin 18204005.  
137. 9/PP19 – Morton & Eden 104 (14/11/2019) 68.  
138. 9/PP20 – CNG 102 (18/5/2016) 453.  
139. 9/PP21 – CNG EA 362 (28/10/2015) 142.  
140. 11/PP19 – Antakya 6509.  
141. 11/PP18 – Antakya 6515.  
142. 11/PP20 – Rauch MB 9 (23/9/2005) 230.  
143. 11/PP22 – ANS Photo File (Kirkkhan Hoard).  
144. 11/PP23 – Künker 236 (7/10/2013) 92.  
145. 11/PP24 – Künker 326 (7/10/2019) 847.  
146. 11/PP25 – Soler y Llach 1108 (9/5/2019) 67.  
147. 11/PP26 – Noble 110 (17/11/2015) 2700.  
148. 10/PP26 – Antakya 6499.  
149. 10/PP27 – TNA 1 (13/12/1982) 110.  
150. 13/PP28 – Elsen 86 (10/12/2005) 116.  
151. 13/PP29 – Seyrig, *Trésors* 19.21.  
152. 12/PP30 – Antakya 6538.  
153. 15/PP31 – ANS Photo File (Kirkkhan Hoard).  
154. 16/PP31 – Antakya 6539.  
155. 17/PP31 – Peus 398 (28/4/2009) 266.  
156. 17/PP32 – Künker 236 (7/10/2013) 591.  
157. 19/PP32 – Ira & Larry Goldberg 96 (14/2/2017) 1720.  
158. 19/PP33 – Pecunem 31 (3/5/2015) 187.

159. 19/PP34 – Sotheby's (15/5/1974) 48.  
160. 19/PP35 – Roma Numismatics E-Sale 11 (23/8/2014) 47.  
161. 14/PP36 – CNG EA 159 (28/2/2007) 92.  
162. 18/PP36 – Künker 270 (2/10/2015) 8319.  
163. 18/PP37 – MDC Monaco 6 (29/10/2020) 70.  
164. 18/PP38 – Gemini 1 (11/1/2005) 163.  
165. 18/PP39 – Sternberg 11 (20/11/1981) 131.  
166. 24/PP34 – Parsy (7/3/2003) 58.  
167. 24/PP40 – UBS 78 (9/9/2008) 1051.  
168. 22/PP34 – Morton & Eden 100 (2/5/2019) 285.  
169. 22/PP41 – Heritage Auctions 3024 (18/4/2013) 24678.  
170. 23/PP21 – Nomos 5 (25/10/2011) 186.  
171. 23/PP41 – Nomisma 55 (4/4/2017) 13.  
172. 23/PP1 – Antakya 6525.  
173. 23/PP40 – CNA 9 (7/12/1989) 94.  
174. 23/PP42 – CNG 114 (13/5/2020) 293.  
175. 26/PP43 – Pecunem 23 (5/10/2014) 377.
- 5. Antigēnes Anaxikratou**  
176. 27/AnAn1 – NFA 19 (18/12/1987) 326.
- 6. Aristokritos Aristokritou**  
177. 27/ArAr1 – Astarte 22 (12/6/2010) 52.
- 7. Herognetos Zopyrionos**  
178. 27/HZ1 – Nomos 21 (21/11/2020) 194.  
179. 27/HZ2 – Tkalec (22/4/2007) 79.  
180. 27/HZ3 – Rauch 96 (10/12/2014) 81.  
181. 27/HZ4 – Roma Numismatics E-Sale 23 (9/1/2016) 146.  
182. 29/HZ2 – Nomisma 49 (13/5/2014) 36.  
183. 29/HZ5 – Boston MFA 61.189.  
184. 29/HZ6 – Antakya 6535.  
185. 30/HZ7 – Antakya 6536.  
186. 30/HZ8 – Hess Divo 325 (23/10/2013) 219.  
187. 30/HZ9 – Künker 94 (27/9/2004) 1093.  
188. 30/HZ10 – Roma Numismatics 8 (28/9/2014) 524.  
189. 31/HZ11 – Ira & Larry Goldberg 106 (3/9/2018) 1081.  
190. 31/HZ12 – Elsen 143 (7/12/2019) 136.  
191. 31/HZ13 – BnF 1966.453.2642.  
192. 31/HZ14 – Hess Divo 314 (4/5/2009) 1162.  
193. 31/HZ15 – NAC 114 (7/5/2019) 1199.  
194. 32/HZ16 – Dupriez 90 (12/12/1906) 35.  
195. 32/HZ17 – NAC 59 (4/4/2011) 619.  
196. 32/HZ18 – Kurpfälzische 63 (12/12/2002) 133.  
197. 32/HZ19 – Künker 35 (11/3/1997) 189.  
198. 33/HZ20 – Maison Palombo 7 (13/6/2009) 112.  
199. 33/HZ21 – Ira & Larry Goldberg 96 (14/2/2017) 1721.  
200. 34/HZ22 – CNG 99 (13/5/2015) 219.  
201. 34/HZ23 – Heritage Auctions 3061 (7/1/2018) 29182.  
202. 34/HZ24 – Lanz 165 (8/12/2017) 107.  
203. 34/HZ25 – Lanz 40 (25/5/1987) 272.  
204. 36/HZ26 – NAC E (4/4/1995) 2364.  
205. 36/HZ21 – Roma Numismatics 20 (29/10/2020) 178.  
206. 36/HZ27 – Lucien de Hirsch 1509.
- 8. Erasippos Aristēou**  
207. 27/EA1 – GM 87 (2/3/1998) 213.  
208. 27/EA2 – Jacob Hirsch 25 (29/11/1909) 2157.
209. 27/EA3 – CNG 103 (14/9/2016) 254.  
210. 27/EA4 – NFA 24 (18/10/1990) 316.  
211. 27/EA5 – Geneva Private Collection (Kirikhan Hoard).  
212. 28/EA6 – Yale Art Gallery 2004.6.2717.  
213. 28/EA7 – Ratto (4/4/1927) 1956.  
214. 28/EA8 – Künker 174 (27/9/2010) 344.  
215. 29/EA3 – Geneva Private Collection (Kirikhan Hoard).  
216. 29/EA5 – Antakya 6512.  
217. 29/EA7 – CNG 112 (11/9/2019) 256.  
218. 29/EA9 – Heritage Auctions 3071 (6/1/2019) 33165.  
219. 29/EA10 – Rauch 97 (14/4/2015) 177.  
220. 29/EA11 – ANS 1976.247.28.  
221. 29/EA12 – Roma Numismatics E-Sale 11 (23/8/2014) 46.  
222. 29/EA13 – Künker 97 (7/3/2005) 739.  
223. 30/EA6 – NAC B (25/2/1992) 1431.  
224. 30/EA7 – Bank Leu 61 (17/5/1995) 141.  
225. 30/EA8 – Antakya 6501.  
226. 30/EA10 – Antakya 6513.  
227. 30/EA14 – Boston MFA 1993.64.  
228. 31/EA15 – Kress 146 (10/2/1969) 225.  
229. 31/EA16 – Ashmolean.  
230. 31/EA17 – Empire Coins 10 (6/5/1989) 54.  
231. 32/EA15 – Stack's (15/1/2007) 4118.  
232. 32/EA18 – CNG EA 440 (20/3/2019) 133.  
233. 32/EA19 – Triton 18 (6/1/2015) 612.  
234. 32/EA20 – Künker 133 (11/10/2007) 8165.  
235. 32/EA21 – iNumis 20 (12/3/2013) 48.  
236. 33/EA22 – Künker EA 57 (3/12/2019) 45.  
237. 33/EA23 – Roma Numismatics 19 (26/3/2020) 431.  
238. 33/EA24 – CNG 102 (18/5/2016) 454.  
239. 33/EA14 – MDC Monaco 4 (15/11/2018) 40.  
240. 33/EA25 – Berlin 18204006.  
241. 34/EA26 – Gerhard Hirsch 170 (22/5/1991) 513.  
242. 34/EA27 – Rauch 59 (24/2/1997) 89.  
243. 34/EA28 – Dix Noonan Webb (22/6/2011) 1077.  
244. 34/EA29 – CNG 115 (16/9/2020) 221.  
245. 34/EA30 – Alain Weil (22/10/1996) 768.  
246. 34/EA31 – Nomisma 48 (26/10/2013) 59.  
247. 34/EA32 – Baldwin's 90 (24/9/2014) 1060.  
248. 34/EA33 – CNG EA 459 (8/1/2020) 240.  
249. 34/EA34 – Helios 1 (17/4/2008) 145.  
250. 35/EA33 – CNG EA 382 (7/9/2016) 93.  
251. 36/EA35 – Hess Divo 327 (22/10/2014) 52.  
252. 36/EA23 – Roma Numismatics 10 (27/9/2015) 393.  
253. 36/EA36 – Ira & Larry Goldberg 112 (3/9/2019) 1530.
- 9. Aristokrates Andronos**  
254. 37/ArAn1 – Jacob 2 25 (29/11/1909) 2158.  
255. 38/ArAn2 – CNG 111 (29/5/2019) 240.  
256. 39/ArAn3 – Emporium Hamburg 67 (10/5/2012) 102.
- 10. Pythodoros Demokratou**  
257. 38/PD1 – Rhode Island School of Design 40.015.149.  
258. 40/PD2 – SNG Copenhagen 845.
- Drachm**

- |                  |  |      |   |
|------------------|--|------|---|
| 259.             | a/EPa – Weber 3.6004.                                  | 262. | F3 – GM 251 (15/10/2017) 4452.              |
|                  |  | 263. | F4 – BnF AA.GR.523.                         |
| <b>Forgeries</b> |  | 264. | F5 – Roma Numismatics E-Sale 59 (11/7/2019) |
| 260.             | F1 – Yale Art Gallery 2001.87.29744.                   | 241. |   |
| 261.             | F2 – Compagnie des Monnaies Anciennes (29/6/1985) 110. | 265. | F6 – Yale Art Gallery 2001.87.11759.        |

### Bibliography

- Ager, S. L. 1996. *Interstate Arbitrations in the Greek World, 337–90 BC*. Berkeley.
- Amandry, M. 1989. ‘Les tétradrachmes à la couronne de feuillage frappés à Lébédos (Ionie).’ In *Kraay-Mørkholm Essays: Numismatic Studies in Memory of C. M. Kraay and O. Mørkholm*, edited by G. Le Rider *et al.*: 1–7. Louvain-la-Neuve.
- Blümel, W. and Merkelbach, R. 2014. *Die Inschriften von Priene*, 2 vols. Bonn.
- Boulay, T. 2017. ‘Cn. Manlius Vulso dans la vallée du Méandre en 189: à propos de Tite-Live, XXXVIII, 12, 8-13, 4.’ *Studi Ellenistici* 31: 261–82.
- Broughton, T. R. S. 1951–1960. *The Magistrates of the Roman Republic*, 3 vols. New York.
- Corey, T. C. 2000. *The Praetorship in the Roman Republic*, 2 vols. Oxford.
- Callataÿ, F. de. 1997. *L’Histoire des guerres mithridatiques vue par les monnaies*. Louvain-la-Neuve.
- . 2013. ‘The coinages of the Attalids and their neighbours: a quantified overview.’ In *Attalid Asia Minor: Money, International Relations, and the State*, edited by P. Thonemann: 207–44. Oxford.
- Camia F. 2009. *Roma e le poleis: l’intervento di Roma nelle controversie territoriali tra le comunità greche di Grecia e d’Asia Minore nel secondo secolo a.C.: le testimonianze epigrafiche*. Athens.
- Carroccio, B. 2011. ‘Parallel striking reconstruction and chronological numismatic interpretation.’ In *Quantifying Monetary Supplies in Greco-Roman Times*, edited by F. de Callataÿ: 81–103. Bari.
- Carter, G. F. 1983. ‘A simplified method for calculating the original number of dies from die link statistics.’ *ANSMN* 28: 195–206.
- Chandezon, C. 2003. *L’élevage en Grèce (fin Ve-fin Ier s. a.C.): l’apport des sources épigraphiques*. Bordeaux.
- Colin, G. 1905. *Rome et la Grèce de 200 à 146 avant Jésus-Christ*. Paris.
- Davesne, A. and Le Rider, G. 1989. *Gülнар II. Le trésor de Meydancikkale (Cilicie Trachée, 1980)*. Paris.
- Dumersan, T. M. 1829. *Description des médailles antiques du cabinet de feu m. Allier de Hauteroche*. Paris.

- Duyrat, F. 2016. *Wealth and Warfare: The Archaeology of Money in Ancient Syria*. New York.
- Edwards, R. W. 1983. 'Bağras and Armenian Cilicia: a reassessment.' *Revue des Études Arméniennes* 17: 415–55.
- Ellis-Evans, A. and Erol-Özdizbay, A. 2020. 'Coins from the Kırıkhan Hoard in Hatay Archaeological Museum.' *NC* 180: 39–58.
- Esty, W. W. 1990. 'The theory of linkage.' *NC* 150: 205–21.
- . 2011. 'The geometric model for estimating the number of dies.' In *Quantifying Monetary Supplies in Greco-Roman Times*, edited by F. de Callatay: 43–58. Bari.
- Glenn, S. 2020. *Money and Power in Hellenistic Bactria*, Numismatic Studies 43. New York.
- Gruen, E. S. 1984. *The Hellenistic World and the Coming of Rome*, 2 vols. Berkeley.
- Holleaux, M. 1924. 'Fragment de sénatus-consulte trouvé à Corfou.' *BCH* 48: 381–98 = *Études d'épigraphie et d'histoire grecques* 5: 433–48.
- Holloway, R. R. 1998. *Catalogue of the Classical Collection, Museum of Art, Rhode Island School of Design. Ancient Greek Coins*. Providence, RI.
- Hoover, O. D. and MacDonald, D. 1999–2000. 'Syrian imitations of New Style Athenian tetradrachms struck over Myrina.' *Berytus* 44: 109–17.
- Jenkins, G. K. 1987 (1978-1980). 'Hellenistic gold coins of Ephesos.' *Anadolu* 21: 183–8.
- Jenkins, G. K. and Hipólito, M. C. 1989. *A Catalogue of the Calouste Gulbenkian Collection of Greek Coins. Part II, Greece to East*. Lisbon.
- Jones, N. F. 1979. 'The autonomous wreathed tetradrachms of Magnesia on Maeander.' *ANSMN* 24: 63–108.
- Kinns, P. 1983. 'The Amphictionic coinage reconsidered.' *NC* 143: 1–22.
- . 1987. 'Asia Minor.' In *The Coinage of the Roman World in the Late Republic*, edited by A. M. Burnett and M. H. Crawford: 105–19. Oxford.
- . 1989. 'Two studies in the silver coinage of Magnesia on the Maeander.' In *Kraay-Mørholm Essays: Numismatic Studies in Memory of C. M. Kraay and O. Mørholm*, edited by G. Le Rider *et al.*: 137–48. Louvain-la-Neuve.
- . 'CH 8, 474: Milesian silver coinage in the second century BC.' In *Studies in Greek Numismatics in Memory of Martin Jessop Price*, edited by R. H. J. Ashton and S. Hurter: 175–95. London.
- . 2006. 'A new didrachm of Magnesia on the Maeander.' *NC* 166: 41–7.

- Kleiner, F. S. 1972. 'The dated cistophori of Ephesus.' *ANSMN* 18: 17–32.
- Kleiner, F. S. and Noe, S. P. 1977. *The Early Cistophoric Coinage*, Numismatic Studies 14. New York.
- Lavva, S. 1993. 'Zur Silberprägung von Herakleia am Latmos.' *Chiron* 23: 391–414.
- Lorber, C. C. 2010. 'Commerce ('Demetrius I' Hoard), 2003 (CH 10.301).' In *Coin Hoards X: Greek Hoards*, edited by O. Hoover, A. R. Meadows, and U. Wartenberg: 153–72. New York.
- Lorber, C. C. and Hoover, O. D. 2003. 'An unpublished tetradrachm issued by the Artists of Dionysos.' *NC* 163: 59–68.
- Magie, D. 1939. 'Rome and the city-states of western Asia Minor from 200 to 133 BC.' In *Anatolian Studies Presented to William Hepburn Buckler*, edited by W. M. Calder and J. Keil: 161–85. Manchester.
- . 1950. *Roman Rule in Asia Minor: To the End of the Third Century after Christ*, 2 vols. Princeton.
- Mattingly, H. B. 1969. 'Notes on some Roman Republican moneyers.' *NC*<sup>7</sup> 9: 95–105.
- Meadows, A. 2013. 'The closed currency system of the Attalid kingdom.' In *Attalid Asia Minor: Money, International Relations, and the State*, edited by P. Thonemann: 149–205. Oxford.
- Meadows, A. R. and Houghton, A. 2010. 'The Gaziantep Hoard, 1994 (CH 9.527; 10.308).' In *Coin Hoards. X, Greek Hoards*, edited by O. Hoover, A. R. Meadows, and U. Wartenberg: 173–223. New York.
- Metcalf, W. E. 2017. *The Later Republican Cistophori*, Numismatic Notes and Monographs 170. New York.
- Münzer, F. 1920. *Römische Adelsparteien und Adelsfamilien*. Stuttgart.
- Oakley, J. H. 1982. 'The autonomous wreathed tetradrachms of Kyme, Aeolis'. *ANSMN* 27: 1–38.
- Öztopbaş, S. 2009. 'İstanbul Arkeoloji Müzeleri koleksiyonundan *stephanephoroi* define parçası.' In *Ancient History, Numismatics and Epigraphy in the Mediterranean World: Studies in Memory of Clemens E. Bosch and Sabahat Atlan and in honour of Nezahat Baydur*, edited by O. Tekin: 291–7.
- Psoma, S. 2013. 'War or trade? Attic-weight tetradrachms from second-century BC Attalid Asia Minor in Seleukid Syria after the Peace of Apameia and their historical context.' In *Attalid Asia Minor: Money, International Relations, and the State*, edited by P. Thonemann: 265–300. Oxford.
- Robert, L. 1951. *Études de numismatique grecque*. Paris.

- . 1977a. 'Documents d'Asie Mineure. 2. Le dendrophore de Magnésie.' *BCH* 101.1: 77–88 = *Documents d'Asie Mineure* 35–46.
- . 1977b. 'Monnaies hellénistiques.' *RN*<sup>6</sup> 19: 7–47 = *Opera Minora Selecta* 6: 169–209.
- Romiopoulou, C. 1974. 'Un nouveau milliaire de la Via Egnatia.' *BCH* 98: 813–16.
- Sacks, K. S. 1985. 'The wreathed coins of Aeolian Myrina'. *ANSMN* 30: 1–43.
- Seyrig, H. 1973. *Trésors du Levant anciens et nouveaux*. Paris.
- Sherk, R. K. 1969. *Roman Documents from the Greek East: Senatus Consulta and Epistulae to the Age of Augustus*. Baltimore.
- Stumpf, G. 1985. 'C. Atinius C.F., praetor in Asia 122-121 v. Chr., auf einem Kistophor.' *ZPE* 61: 186–90.
- Sumner, G. V. 1973. *The Orators in Cicero's Brutus: Prosopography and Chronology*. Toronto.
- Thonemann, P. 2007. 'Magnesia and the Greeks of Asia (*I. Magnesia* 16.16).' *GRBS* 47: 151–60.
- . 2019. 'The silver coinage of Antioch on the Maeander.' *NC* 179: 49–80.
- Vădan, P. 2018. 'The posthumous Alexander tetradrachms of Magnesia-on-the-Maeander.' *AJN* 30: 45–106.
- Wartenberg, U. 2015. 'Collecting coins and the conflict in Syria.' *ANS Magazine* 4: 8-15.
- Yourukova, Y. 1978. 'Monetni nahodki, otkriti v Bălgarija prez 1973 i 1974 g.' *Arheologija* 2: 72–7.