

# Bronze Weights from Olbia

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Weights from the northern Black Sea region became the subject of studies as early as the second half of the 19th century. Later, publication of weights was continued both in works devoted entirely to these objects and, in other publications, together with other finds from excavations. Nevertheless, the study of weights is still far from completion, as new finds constantly necessitate corrections of the prevailing assumptions.

The weights from Olbia are mostly rectangular, square, and occasionally oval or rounded, metal plates, some of which have a small vertical ridge round their edges. Some weights are of conical, trapezoid or spheroid shape with a flattened base. Some examples are carefully executed, while others are of rather careless workmanship.<sup>1</sup>

All of the previously published bronze weights from Olbia served as control weights. Noteworthy is the presence of a relief representation and an inscription on some of them (the names of the city and the *agoranomos*).<sup>2</sup> During recent years, new material has accumulated, which enables us to expand and refine our knowledge of the subject. First, I will describe all the bronze weights from Olbia known to me, both those previously published and the ones recently discovered.

## Catalogue

1. Collection of the Institute of Archaeology of the National Academy of Sciences of Ukraine (IA NASU), Kiev.

Found on the shore of the *liman* (the river delta) in the northern part of Olbia, below the area NGS (the Lower City). Not cleaned; well preserved. The weight is rectangular, measuring 1.20 x 0.90-0.95 x 0.06 cm; weight 0.78 g. This specimen is of fairly careful workmanship, probably made from a bronze plate, and weighs roughly one obol.

2. Private collection (Fig. 1).

Cleaned; well preserved. Trapezoidal, measuring 0.7-0.8 x 0.8 x 0.05-0.15 cm; weight 0.85 g. On the obverse there is an image of a head in a helmet right – probably Athena; on the reverse a stylized representation of a dolphin. The head of Athena is fairly common as a countermark on the Olbian silver and copper coins from the 3rd-2nd century BC and typical on the coins of small-

er denominations with the abbreviation BΣE from the first quarter of the 2nd century BC.<sup>3</sup> The weight is close to 1/2 of the coins of small denomination mentioned above.

3. Former Collection of P.O. Buračkov, State Historical Museum, Moscow?

On the obverse is the head of Helios I., on the reverse two foreparts of horses joined back to back.<sup>4</sup> Countermarks bearing similar representations are typical on Olbian coins from the 3rd century BC.<sup>5</sup> The weight is 1.14 g being close to 1/4 of a drachm of the Euboic-Attic system.



Fig. 1. Weight no. 2. From a private collection.

4. Collection of IA NASU, Kiev, inv. no. O-59/98.

Found in area E-6 in a layer dating from the 5th-3rd century BC. Cleaned; well preserved. The shape is square, measuring 1.7 x 1.7 x 0.2 cm. It is made of an Olbian coin, a "*Borysthenes*". The weight is 4.99 g, corresponding to a drachm of the Euboic-Attic system; a lead weight from the Athenian Agora of similar weight bears a sign denoting a drachm.<sup>6</sup>

5. Private collection (Fig. 2).

Cleaned and mostly well preserved. It is almost square, measuring 1.8 x 1.7 x 0.2 cm; weight 5.64 g. On the obverse is a rather unclear representation of a human head *en face* (Demeter?); on the reverse is a dolphin l. and a low frame.

A photograph of a weight of similar shape and dimensions has been published among the plates of P.O. Karyškovskij,<sup>7</sup> but unfortunately its actual weight is not specified. On the obverse of the last-mentioned is a representation of the head of Demeter in profile, l.<sup>8</sup> The image on the reverse is similar to that on our example: dolphin l. and a low frame. Karyškovskij linked this weight to the local silver coins bearing a representation of Demeter from the second half of the 4th century BC.<sup>9</sup>

The weight of no. 5 corresponds to 1/2 of the silver coins with Demeter of Subgroups 1-3 and to the weight of some individual coins of Subgroup 3.<sup>10</sup> In contrast, this weight corresponds to 10 obols of the Chian-Rhodian system (cf. no. 6 below).

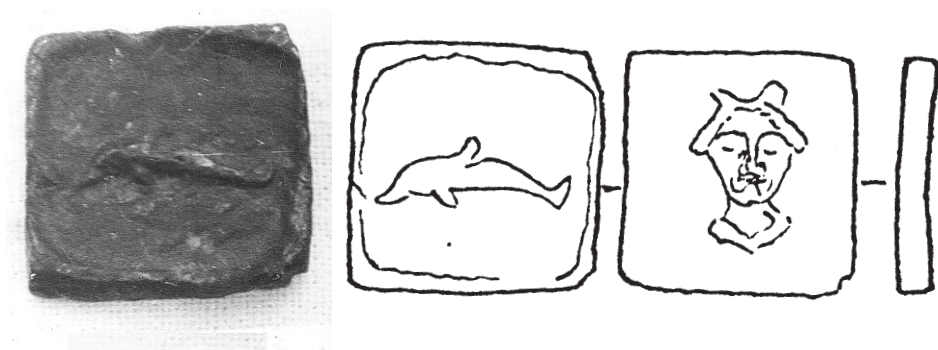


Fig. 2. Weight no. 5. From a private collection.

6. Collection of IA NASU, Kiev.

Found in the *liman* part of the Lower City of Olbia. Cleaned; well preserved. The shape is quadrangular, measuring  $1.20 \times 1.20 \times 0.45$  cm; weight 5.641 g. On the obverse there is a carved inscription consisting of two lines:  $\Delta EK \mid OBO$  – i.e. ten obols; on the basis of the palaeography of the inscription, the weight is dated to the 4th or 3rd century BC. The weight seemingly corresponds to the Euboic-Attic system of standard 129.<sup>11</sup>

In my opinion, however, the identification of the weight system presented by V.I. Nazarčuk is erroneous. In contrast to the standard of 126, the weight standard of 129 was not recorded in the Athenian Agora.<sup>12</sup> If we proceed from the weight of a drachm being equal to 3.36 g, as has been deduced from the weight of no. 6, then it should be consistent with the Chian-Rhodian system according to which silver coins were struck in Olbia in the 3rd century BC.<sup>13</sup>

7. Collection of IA NASU, Kiev.

Stray find (Fig. 3). Not cleaned except for its obverse surface; well preserved. The item is of almost rectangular shape with slightly elongated lateral sides; dimensions:  $1.40 \times 1.10$ - $1.20 \times 0.45$ - $0.55$  cm; weight 8 g. On the obverse is an unclear representation of a rosette (?). The weight corresponds to two drachms of the Euboic-Attic system of standard 100.



Fig. 3. Weight no. 7.

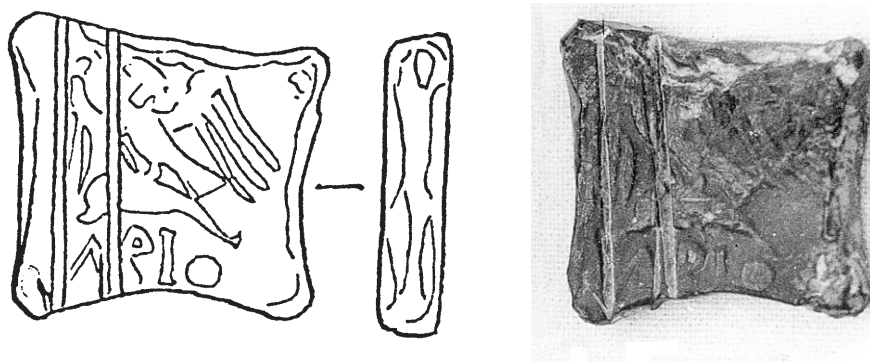


Fig. 4. Weight no. 11. From a private collection.

8. Former Collection of P.O. Buračkov, State Historical Museum, Moscow? Poor state of preservation. Weight 12.65 g. On the obverse there is the image of the head of Demeter in profile l. similar to the representations on the local silver coins; the reverse has a dolphin l. with the inscription  $\text{APIΣTO}$  above it and  $\text{OABIO}$  beneath.<sup>14</sup> The weight of the object, taking into account wear and tear, corresponds to  $1/32$  of the Euboic-Attic mina of standard 100.<sup>15</sup>

9. Originally collection of P. Mavrogordato,<sup>16</sup> now in the British Museum, inv. no. 1905, 1215.2.

Not cleaned; well preserved. Of rectangular shape, measuring  $2.4 \times 2.2 \times 0.4$  cm. Weight 16.91 g. The edges of the object are uneven, and probably for that reason it has not been cleaned, as this might cause loss in weight. On the obverse there is a rather small frame on three sides and a dolphin l. with the inscription  $\text{OABIO}$  above it and a three-line inscription beneath. The inscription is poorly imprinted; below and to the right of it, some burrs of metal are discernible; the scarcely legible text has been roughly reconstructed as  $\text{OEYKAI(?) | OYΣKAE | [...]ANA[...]}$  possibly representing three names. The weight corresponds to four drachms of the Euboic-Attic system of standard 100. Parallels have been recorded in the Athenian Agora<sup>17</sup> and at Olynthos.<sup>18</sup>

A photograph of an example of similar shape and dimensions has been published among the plates of P.O. Karyškovskij,<sup>19</sup> but unfortunately with its weight unspecified. On the obverse of this specimen is a representation of a bearded head in profile, l.; on the reverse is a representation similar to that on no. 9: a dolphin l. and a low frame, but without inscription. Karyškovskij thought this weight to be closely linked to the silver coins of the 4th century BC bearing the representation of Demeter.<sup>20</sup>

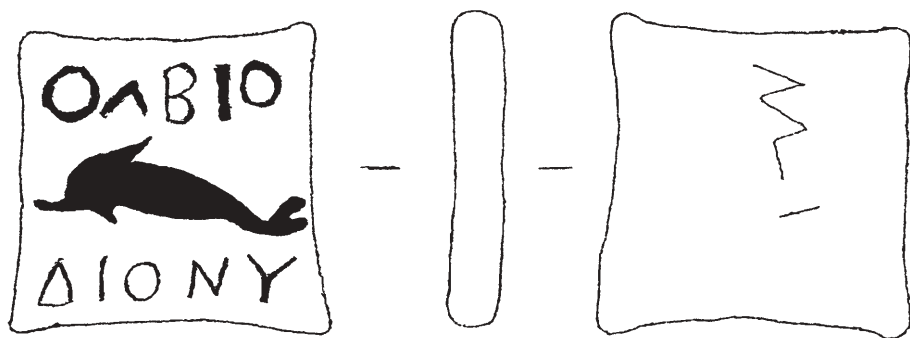


Fig. 5. Weight no. 13. Collection of the Institute of the History of Material Culture, Russian Academy of Sciences, St Petersburg.

10. Collection of IA NASU, Kiev, inv. no. O-59/124f.

Cleaned; well preserved. Rather careless workmanship. The item is almost circular, measuring 2.2-2.3 cm in diameter and 0.5 cm thick; weight 18.6 g. On the obverse, a circular depression 0.4 cm in diameter and up to 0.2 cm deep has been made. Marked at a distance of 0.20-0.25 cm from the edge of the weight is a circle 1.6-1.7 cm in diameter its line being 0.1 cm thick and up to 0.1 cm deep. The weight corresponds to four drachms of the Euboic-Attic system of standard 126.

11. Private collection (Fig. 4).

The weight has been cleaned; the state of preservation is rather poor. The shape is rectangular with slightly pronounced corners; dimensions: 2.5-2.8 x 2.1-2.6 x 0.5 cm; weight 31.04 g. On the right side of the obverse are two parallel incisions cut through a representation of an eagle on a dolphin – the emblem of Olbia. Below this the inscription OABIO is discernible; this image is similar to that on the reverse of silver coins with Demeter from the 4th century BC.<sup>21</sup> The weight of our specimen corresponds to eight drachms of the Euboic-Attic system of standard 100.

12. Archaeological Museum NASU, Odessa.

Not cleaned; excellent state of preservation. The shape is rectangular, measuring 3.8 x 3.6 x 0.4 cm; weight 45.17 g. On the obverse is a dolphin facing right with the inscription OABIO | KPITOBOY under it. The weight corresponds to 10 drachms of the Euboic-Attic system of standard 105.

In its dimensions and iconography it resembles a weight from the collection of the Kherson collector E.F. Mamaenko, which differs in its inscription OABIO | XAPINAY.<sup>22</sup> The weight of this specimen is unknown.

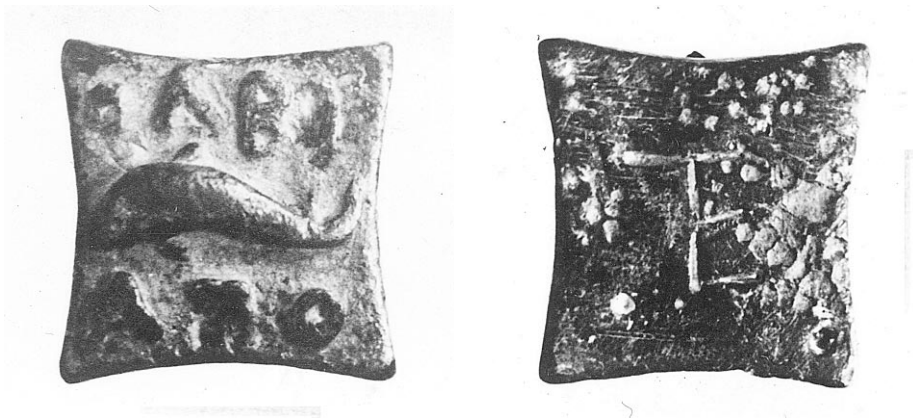


Fig. 6. Weight no. 14. Museum of Archaeology IA NASU, Kiev.

13. Collection of the Institute of the History of Material Culture, Russian Academy of Sciences, St Petersburg, inv. no. O-61/3634 (Fig. 5).

Cleaned; excellent state of preservation. The shape is rectangular with slightly pronounced corners, measuring 3.3-3.6 x 3.2-3.4 x 0.5 cm; weight 48.691 g. On the obverse is a dolphin, facing left; the inscriptions OABIO above it and ΔΙΟΝΥ beneath it are visible. On the reverse illegible signs have been incised. The weight was found in a room in area E-2; and it can be dated to the 3rd century BC.<sup>23</sup> The weight corresponds to 1/8 of the Euboic-Attic mina of standard 100.<sup>24</sup>

14. Museum of Archaeology IA NASU, Kiev (Fig. 6).

Not cleaned; excellent state of preservation. It is square with slightly pronounced corners; dimensions: 2.7-3.0 x 2.7-3.0 x 0.5 cm; weight 49.393 g. On the obverse is a dolphin l., represented in high relief with the inscriptions OABIO above it and ΑΠΙΟ beneath it. Drawn on the obverse is a monogram, which may read: TE. The weight corresponds to 1/8 of the Euboic-Attic mina of standard 100.<sup>25</sup>

15. Private collection (Fig. 7).

Cleaned; well preserved. The weight is rectangular, measuring 3.6 x 3.4 x 0.4 cm; weight 51.3 g. On the obverse a dolphin r. is schematically represented. Beneath it the inscription OABIO | ΦΙΑΩ is legible. Below the tail of the dolphin is a circular countermark 0.8-0.9 cm in diameter with a representation of a woman – possibly Demeter – *en face*. The weight corresponds to 1/8 of the Euboic-Attic mina of standard 100.

16. State Historical Museum, Moscow.

Weight 51.75 g. On the obverse is a dolphin r. with the inscription OABIO | KPITOBOY beneath it; on the reverse there is the incision “φ”.<sup>26</sup> As noted by



P.O. Karyškovskij, L.I. Čuistova erroneously identified the material of the object as lead.<sup>27</sup> The weight corresponds to 1/8 of the Euboic-Attic mina of standard 100.

17. Museum of Archaeology IA NASU, Kiev (Fig. 8).

Cleaned; well preserved. The weight is rectangular, measuring: 3.4 x 2.9-3.0 x 0.4-0.5 cm; weight 52.52 g. On the obverse, represented in low relief, is a male head in profile l.; in front of it an arrowhead pointing downwards. Possibly Apollon is intended. Beneath his image is the inscription OABIO. Above the arrowhead is a circular countermark 1.0 cm in diameter, 0.05 cm deep, representing a flying butterfly. On the reverse, an incision: +I can be seen. The weight corresponds to 1/8 of the Euboic-Attic mina of standard 100.<sup>28</sup>

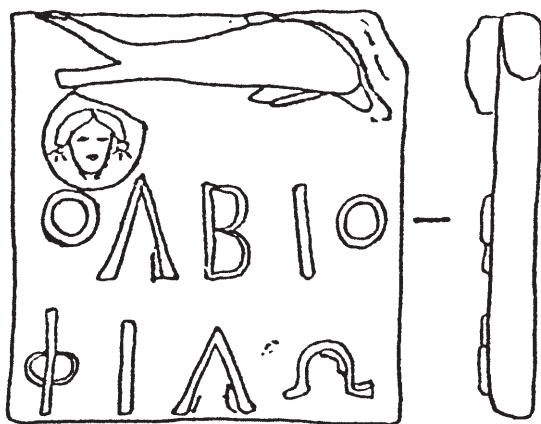


Fig. 7. Weight no. 15. From a private collection.

18. Originally in P. Mavrogordato's collection, now in the British Museum, inv. no. 1905, 1215.1.

Not cleaned; well preserved. Rectangular weight, measuring 3.4 x 2.9-3.0 x 0.4-0.5 cm; weight 52.65 g. On the obverse is a slightly blurred representation



Fig. 8. Weight no. 17. Museum of Archaeology IA NASU, Kiev.



Fig. 9-10. 9) Weight no. 19. Museum of Archaeology IA NASU, Kiev. 10) Weight no. 20. Museum of Archaeology IA NASU, Kiev.

of a male head l., probably Apollon,<sup>29</sup> and beneath it the inscription OABIO with the "Λ" almost indiscernible. In the upper part of the lateral surface are small depressions. This weight is quite similar to no. 17, with regard to dimensions and weight. The two weights were probably cast in the same mould.

19. Museum of Archaeology IA NASU, Kiev, inv. no. O-96/P-25/553 (Fig. 9). Cleaned; well preserved. Made of an Olbian "aes" with a Gorgoneion. Such "aes" are dated to the third quarter of the 5th century BC.<sup>30</sup> Dimensions: 3.60 x 0.19-0.35 cm; weight 58 g. However, "aes" of this type weigh an average of 113 g.<sup>31</sup> The weight is roughly equivalent to 1/8 of the Euboic-Attic mina of standard 105. Some examples of similar weights are reported from the Athenian Agora.<sup>32</sup>

20. Museum of Archaeology IA NASU, Kiev (Fig. 10).

Not cleaned; excellent state of preservation. The weight is rectangular with slightly pronounced corners, measuring 3.9-4.0 x 3.6-3.8 x 0.8 cm.; weight 101.895 g. On the obverse there is a fairly realistic representation of a dolphin facing l. with the inscriptions OABIO above and APICTO beneath it. Placed above the dolphin's tail is a circular countermark with a diameter of 0.9 cm and a depth of 0.10-0.25 cm, bearing the letters ΠΟ ("O" written inside "Π"). The weight corresponds to 1/4 of the Euboic-Attic mina of standard 100.<sup>33</sup>

21. Museum of Archaeology IA NASU, Kiev (Fig. 11).

Not cleaned; excellent state of preservation. Almost square weight, measuring 4.2-4.3 x 4.2 x 0.6 cm; weight 103.584 g. Represented on the obverse is a male head in profile with laurel wreath l. and an arrowhead pointing down-





Fig. 11-12. 11) Weight no. 21. Museum of Archaeology IA NASU, Kiev.

12) Weight no. 22. Museum of Archaeology IA NASU, Kiev.

wards in front of it. The head is evidently that of Apollon(?). Beneath it is the inscription OABIO. On the lateral side of the weight: ΓΗ. The weight corresponds to 1/4 of the Euboic-Attic mina of standard 100.<sup>34</sup>

In terms of its shape and dimensions this item is identical to that published in Karyškovskij's book,<sup>35</sup> but the weight of the latter is not specified. This piece has the inscription OABIO under a representation of the head of a deity (probably Demeter) in three quarters view. The iconography of Demeter is the closest counterpart to the facing goddess on an extremely rare Olbian silver coin dated by Karyškovskij to the third quarter of the 4th century BC<sup>36</sup> and by V.A. Anochin to 330-300 BC.<sup>37</sup>

#### 22. Museum of Archaeology IA NASU, Kiev (Fig. 12).

Not cleaned; well preserved. The weight is rectangular with slightly pronounced corners, measuring 4.6-5.2 x 4.3-5.0 x 0.7 cm; weight 107.694 g. On the obverse, a dolphin r. is schematically represented, beneath it the inscription OABIO | KPITOBIOY. The weight corresponds to 1/4 of the Euboic-Attic mina of standard 100.<sup>38</sup>

#### 23. Museum of Archaeology IA NASU, Kiev, inv. no. O-57/017 (Fig. 13).

Cleaned; well preserved. The weight is rectangular, measuring 4.0-4.1 x 3.5-3.6 x 0.8 cm; weight 113.63 g. On the obverse, there is a dolphin facing right and beneath it the inscription OABIO | APICTO. Incised on the reverse: EY. This item was found in a room of the Western Trade Row in the Agora and is dated to the 3rd century BC.<sup>39</sup> The weight corresponds to 1/4 of the Euboic-Attic mina of standard 105.<sup>40</sup>

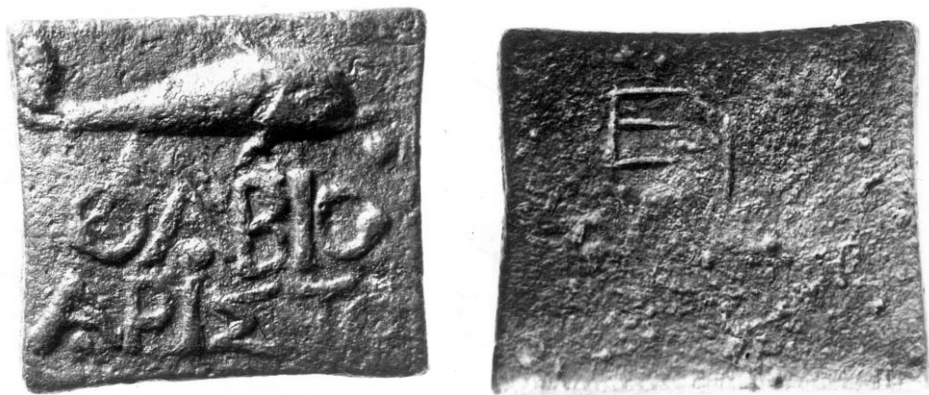


Fig. 13. Weight no. 23. Museum of Archaeology IA NASU, Kiev.

### Conclusion

Out of the twenty-three Olbian bronze weights from the third quarter of the 4th to the first quarter of the 2nd century BC, two items are common weights (nos. 1 and 10), seven were intended for control weighing, but were not related to any *agoranomoi* (nos. 2-7 and 19), and 14 are control weights belonging to the *agoranomoi* (nos. 8, 9, 11-18, 20-23). The weight of the various examples varies from 0.78 g to 113.163 g, but the majority of them correspond in weight to either 1/4 or 1/8 of the Euboic-Attic mina of standard 100. Practically all of them have parallels in Athens or Olynthos. Moreover, the weight standard in Olbia was subject to the same changes as in Attica. This can be seen from the fact that from the 6th to the 2nd century BC the Euboic-Attic weight system was in use in Olbia.<sup>41</sup>

The control weights are represented mainly by small bronze specimens (nos. 2-7), which may have been parts of sets of weights used for weighing coins in the course of exchange. The iconography of the majority of these is connected closely with that of the local coins. They mostly correspond to the Euboic-Attic weight system. However, as early as 1911 A.L. Bertier-Delagard warned that small weights should not be considered since they may equally well have been part of a different weight system.<sup>42</sup> It is worth noting that the weight made from an "aes" (no. 19) appears to weigh half as much as the weight bearing the inscription OABIO | APIETO (no. 23), and corresponding to the Euboic-Attic weight system of standard 105.

The control weights of the board of *agoranomoi* are the most numerous and the most important for the history of Olbia.<sup>43</sup> These can be dated to a shorter time-span than the other bronze weights, possibly to the period between 350 and 200 BC. Their appearance must have been connected with

the final stage of the transition from cast coins to struck ones. Therefore, in my opinion, the earliest is the weight with the inscription OABIO and a representation of Demeter in three quarter view.<sup>44</sup> This iconography continued the tradition of representing Demeter on cast “*aeses*” and they closely resemble the images of Demeter on the local silver coins. Logically the next in the line of development should be the one of the same size (no. 21) bearing the representation of Apollon, the protector of the *polis*, as well as its smaller fractions (nos. 17-18) also with Apollon. The object in front of the god’s face is probably, an arrowhead – the attribute of Apollon, the archer – rather than a spearhead, as had been previously assumed.

The small weights with a representation of a deity’s head on the obverse and a dolphin facing left on the reverse can be dated to within a short period,<sup>45</sup> as they are probably contemporary with the silver coins showing Demeter. The weight with an eagle on a dolphin and the inscription OABIO (no. 11) should also be dated to the same period.

The weight with a representation of Demeter on the obverse, and a dolphin on the reverse with the inscription APIΣTO above and OABIO beneath it (no. 8) exemplifies the transition between the type described above and the type with a representation of a dolphin, the city’s name and the name of the *agoranomos*.

The representations of a dolphin are associated with Apollon Delphinios worshipped in Olbia, and these in fact continue the tradition of representing a deity on control weights. The earliest among these are, in my opinion, the carefully executed weights with a realistic representation of a dolphin facing left with the city’s name above and the name of the *agoranomos* beneath it. These include, in particular, the examples with the names ΔΙΟΝΥ and ΑΠΙCΤΟ (nos. 13 and 20), which have practically identical iconography. Also, they are multiples of the same unit – 1/8 and 1/4 of mina, respectively (48.691 g and 101.895 g). The weight with ΑΠΙΟ (no. 14; weight 49.393 g) is of inferior craftsmanship, but the positions of the inscription and the dolphin are practically identical to those on the previously mentioned examples.

The latter examples are followed chronologically by the weights with a schematic representation of a dolphin facing right and an inscription beneath it containing two lines giving the name of the city and the name of the *agoranomos* (nos. 12, 15-16, 22-23). These weights bear the following names: ΚΡΙΤΟΒΟΥ (45.170 g, 51.75 g, and 107.694 g), ΑΠΙΣΤΟ (113.163 g), and ΧΑΡΙΝΑΥ. The weight with the name ΦΙΛΩ closely resembles the style of these, although its shape is more regular and without any pronounced corners. The latest is probably the weight bearing three names (no. 9). V.V. Ruban, having analysed the stamps on measuring vessels from Olbia from the 4th-1st century BC, came to the convincing conclusion that originally they contained only a single name of the *agoranomos*. Three names appeared in stamps not earlier than the last third of the 3rd century BC.<sup>46</sup>

Various countermarks and scratched symbols are found only on control weights of the *agoranomoi*. These are probably connected with verification of weights under other *agoranomoi*. The countermark ΠΟ on a weight may be connected with the *agoranomos* Posideios, and the scratched ΕΥ is possibly related to the *agoranomos* Eumenos known from some stamps on Olbian measuring *oinochoai*.<sup>47</sup>

## Notes

1. Buračkov 1884; Bertier-Delagard 1907; 1911; Čuistova 1962; Jarovaja 1962; Krapivina 1980; 1988; 1997.
2. Krapivina 1980, 84; 1997, 63.
3. Karyškovskij 2003, 62, 92.
4. Buračkov 1884, 59; Bertier-Delagard 1907, 4.
5. Karyškovskij 1988, 90-91.
6. Lang 1964, LW 60.
7. Karyškovskij 2003, pl. XI = C, CXV.
8. Similar to the representation on the weight described below under no. 8.
9. Karyškovskij 2003, 166, pl. XI = C; 1988, 60, 68.
10. Anochin 1989, 106.
11. Nazarčuk 2002, 78-79, fig. 1.
12. For details on the weight standards, Lang 1964, 3-20; Krapivina 1980, 85-89.
13. Karyškovskij 1988, 78.
14. Buračkov 1884, 65; Bertier-Delagard 1907, 6.
15. Krapivina 1980, 86.
16. I am extremely grateful to Dr. Susan Walker for her kind permission to examine the collection of finds from Olbia in the British Museum.
17. Lang 1964, BW 7. This weight bears a sign denoting its equivalence to four drachms.
18. Robinson 1941, 467.
19. Karyškovskij 2003, pl. XI = C, CXV.
20. Karyškovskij 2003, 166, pl. XI = C.
21. Karyškovskij 2003, 166, pl. XI = C.
22. Karyškovskij 2003, fig. 4.2.
23. Karasev & Levi 1965, 85, 87.
24. Krapivina 1980, 86.
25. Krapivina 1980, 86, 90.
26. Buračkov 1884, 41; Bertier-Delagard 1907, 1; Čuistova 1962, 65-66.
27. Karyškovskij 2003, 39, n. 91.
28. Krapivina 1980, 86, 90.
29. The mould, in which the weight was probably cast, had already been used before.
30. Karyškovskij 2003, 160.
31. Karyškovskij 2003, 58.
32. Lang 1964, 4-5.
33. Krapivina 1980, 86, 89-90.
34. Krapivina 1980, 86, 90.
35. Karyškovskij 2003, pl. CXV.
36. Karyškovskij 1988, 60.
37. Anochin 1989, 106, pl. X, 96.
38. Krapivina 1980, 86, 89.

39. Čuistova 1962.
40. Krapivina 1980, 86, 89.
41. Krapivina 1980, 85-89.
42. Bertier-Delagard 1911, 79-80.
43. Karyškovskij 1973, 98-101.
44. Karyškovskij 2003, pl. CXV.
45. Karyškovskij 2003, pl. XI = C, CXV.
46. Ruban 1982, 36.
47. Ruban 1982, 39; Diatropov & Rusjaeva 1993, 107.

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