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GREEK WEIGHTS

IN THE BRITISH MUSEUM.

COMMUNICATED TO

THE NUMISMATIC SOCIETY OF LONDON

BY A. S. MURRAY, ESQ.

LONDON:

1868.

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GREEK WEIGHTS IN THE BRITISH MUSEUM.

By A. S. Murray, Esq.

When Mr. Poole[1] published, in 1863, forty specimens of Greek weights acquired at Athens by Mr. Burgon, he almost exhausted the collection of the British Museum. Since then it has been augmented by the following items:—(I.) 8 specimens purchased from Mr. Merlin at Athens in 1866, of which several had already been published;[2] (II.) 50 added by the Blacas collection; (III.) 48 in the collection of the late Mr. Woodhouse, of Corfu, which has finally reached the Museum. The two latter collections are mostly inedited. In both cases, too, a difficulty sometimes arises as to where specimens were found, though usually it is presumed that those coming from Mr. Woodhouse were found in Corfu.

The state of preservation is such as might be expected from a material like lead; the loss is very unequal, and often difficult to estimate.

While making these preliminary remarks I may state the denominations and relative value of the unit, and of the several fractions employed by the Greek systems of coinage.

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[1] Smith's "Dict. of Bible," art. *Weights*.

[2] Schillbach, "Annali del. Instit. di Corresp. Archæol.," vol. xxxvii., 1865.

Talent = 60 minas.
Mina = 100 drachmas.
Drachma = 6 obols.

These are the simple divisions used in reckoning. For the convenience of ordinary exchange, multiples of drachmas and fractions of obols were employed, the drachma corresponding in this respect to our shilling. In Korinth it was otherwise, a stater equal in value and weight to an Attic didrachm being used as the nominal coin. That Athens also, in early times, employed the didrachm or stater in the same way, may be seen from the word δραχμή, which means a "handful,"—that is, half the unit of weight for the time; also from a passage in Pollux[3]—δίδραχμον· τὸ δὲ παλαιὸν τοῦτο ἦν Ἀθηναίοις νόμισμα, καὶ ἐκαλεῖτο βοῦς, ὅτι βοῦν εἶχεν ἐντετυπωμένον. The Korinthian stater differed from the Attic didrachm in this respect, that it was divided into three, while the latter had only two parts or drachmas.

Greek weights follow the same denominations and divisions as Greek coins; but in practice this variation is observed, that while coins never exceed the weight of a drachma, or a small multiple of a drachma—passing, however, downwards to the lowest convenient fraction,—weights, on the other hand, seldom fall under a drachma, and rise usually to minas and fractions of minas. When a new system of coinage was adopted by a state—as in the case of Solon at Athens—the system then superseded continued (in every case, for anything we are told to the contrary) in the weights, though requiring to be sharply looked after. A decree published by Böckh (C. I. Gr. 210),

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[3] ix. 60, quoted by Böckh for a different purpose, *M. U.* p. 121. *Cf.* Hultsch, "Metrologie," p. 105.

which is much later than the time of Solon, shows the system superseded in coins still prevailing in commerce, and at the same time a strong tendency on the part of traders to assimilate their weights to the coinage. Specimens of these Presolonic weights have been discovered, and it is satisfactory to find in them confirmation of the statement of Plutarch[4] as to the precise change or depreciation introduced by Solon, especially as no Presolonic coins have come down to us. In other cases the liability to loss of such material as lead, the inequality of the loss, and the notorious scarcity of specimens, combine to render it most difficult to evolve from the weights themselves anything like a complete arrangement into systems; and it is only by keeping the various Greek systems of coinage in view that we are enabled to calculate approximately the loss of particular pieces, and then to assign them to particular places.

The various Greek and Græco-Asiatic coinages of any importance may be represented in a tabular form, thus:—[5]

GOLD.

Gram.		
16·5.	Phokæa stater	The most usual fraction is $\frac{1}{6}$, of which, says Mommsen, nine-tenths of the Asiatic gold coins consist; also $\frac{1}{12}$, $\frac{1}{24}$, &c. $\frac{1}{3}$ is rare; $\frac{1}{4}$ never found.
16·5.	Kyzikos stater	
16·5.	Krœsos stater	
16·8.	Royal Persian stater	Here the fractions are formed by 2, 4, &c. The Persian stater, divided by 2, is called στατὴρ Δαρεικός, and is not further divided as such.
17·0.	Lampsakos stater .	
17·0.	Euboic (so called) .	

[4] Solon, c. 15.

[5] The French system of weights is used in this table.

Gram.

SILVER (*a*).

17·3. Attic tetradrachm; 8·69, didrachm; 4·346, drachma.

17·3. Korinthian distater; 8·69, stater; 2·89, drachma, or $\frac{1}{3}$ stater.

SILVER (*b*).

10·59. Miletus stater: fractions are, $\frac{5}{6} = 8·39$; $\frac{4}{6} = 6·61$; $\frac{3}{6} = 5·14$; $\frac{2}{6} = 3·63$; $\frac{1}{6} = 1·71$.

11·0. Coinage of certain Græco-Asiatic Towns . . .

11·14. Median siglos . . .

12·0. Æginetan stater . . .

12·0. Presolonic stater or didrachm

} The $\frac{1}{2}$ was the usual fraction.

SILVER (*c*).

14·22. Coins of Græco-Asiatic towns: Sardis, Klazomenæ, Chios, Lampsakos. The usual fractions are, $\frac{1}{3}$, $\frac{1}{6}$, $\frac{1}{12}$.

14·34. Tyrian tetradrachm; drachma = 3·59.

14·28. Ptolemaic tetradrachm; drachma = 3·57 – 3·46.

14·73. Rhodian tetradrachm; fractions, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$.

12·64—12·40. Cistophorus. Mommsen takes it to be a revival of the Æginetan didrachm, which had by the Roman time become obsolete.

It is agreed upon that the oldest Greek coins as yet discovered are to be found among those gold pieces of Phokæa with a stater of full 16, and a *hecta* or 1-6th weighing 2·7 gram. Other gold pieces, following the same standard and almost equally old, are traced to the neighbouring town of Kyzikos. Though this community of coinage included several other towns on the coast of Asia Minor, as may be seen from the types, yet the name "Phokaic" seems to have been generally applied to them, at least as far as their currency on the mainland of Greece is concerned. Nine-tenths of ancient Greek gold coins consist, says Mommsen, of the so-called Phokaic *hectæ*. As there is no reason to suppose that Phokæa so far surpassed its neighbours as to be able to force its coinage

upon them, we are compelled to assume the existence of a commercial league, such as was well known on that coast.[6] The importance which would attach to the coinage of such a league in those early times would be very great, and thus a currency may have been produced designed to compete with the royal coins of Lydia and Persia. Whether it fell out so or not, the stater of Krœsus and of the Persian kings is identical in weight with the Phokaic. In Persia, however, as in Athens, with the extension of her transactions through the vigour of Darius Hystaspes, the old stater of 16 gram. was found too large, and the hecta of 2·7 too small. That monarch therefore introduced a new stater, called after him Δαρεικός, half the weight of the old one, *i.e.*, 8·5 gram., without, however, abandoning the old system, as happened in Athens.

As to the mainland of Greece, it naturally confined its coinage to silver, as Italy to copper. But trade with those gold-coining Græco-Asiatic towns would introduce a foreign gold currency, which in course of time it would be found expedient to adopt. The name only of one gold coinage and its relative value has come down to us, —*i.e.*, the Euboic. From the statements of its relative value, it is now seen to have been identical in unit, but not in fractions, with the Phokaic, and to have perhaps formed the nearest prototype of the silver system introduced into Athens by Solon.

Along with this gold there existed among the Græco-Asiatic towns a silver currency. That it was of later origin, and founded in some way upon the gold system, may be supposed from the fact that Asia was as distinctly a gold-coining as Greece a silver-coining region. The

[6] Newton, Transactions of Royal Soc. of Lit., vol. viii. N.S. Herodotus, I. 192.

silver integer, called *siglos* or *stater*, weighs 11 or 11·14 gram. A silver piece of 11·14, or its half, 5·57, is (relatively to its weight) to the gold piece of 16·80, or its half, the Daric, 8·40, as 2 : 3; and so a gold piece of 16·80 or 8·40 would be equal *in value* to fifteen silver pieces of 11·14 or 5·57 gram., the usual ratio of gold to silver being presumably 10:1, though by the time of Herodotus it had reached in round numbers 13 : 1.

As to the mainland of Greece and the silver coinages existing there, we find (1) evidence of a drachma of about 5·7 gram., in Athens down to the time of Solon, and in Ægina until it succumbed to the importance of the Solonic Attic; (2), a drachma of 3·4 gram. circulating wherever the Solonic-Attic and Korinthian, which were in integer identical, had not found their way. The latter drachma (3·4 gram.) is obviously the third of the Asiatic siglos of 11·14 gram., and the fact of its existence in late times in out-of-the-way regions suggests that it was the first immigrant system from Asia Minor. As to the other drachma (5·7 gram.), we are reminded happily, says Mommsen, of the dismembering and reconstructing element of Hellenic civilisation, which, recognising its own wants, chose the half of a coin divisible, as far as they had known, only by 3, as their integer. This is the drachma of Ægina and Athens down to Solon's time. Still, so long as the importance of the Asiatic towns endured, it would be necessary to continue the use of a didrachm as an exact equivalent to the siglos, and it may be to this time that the passage of Pollux[7] refers. In Korinth, also, the didrachm or stater, identical with the Attic Solonic didrachm, remained to the last.

[7] ix. 60: *δίδραχμον· τὸ δὲ παλαιὸν τοῦτο ἦν Ἀθηναίοις νόμισμα*, κ.τ.λ.

Such changes must have happened very slowly, and when we reach the time when the didrachm was employed by Athens and Ægina only for the sake of exchange with the siglos, or for ordinary convenience, we must admit that of such didrachms there could only be fifty in a mina; that is, that the didrachm, or more properly stater, was a double integer. As far as coins go, we do not require such an admission; but weights go farther. Among others we have a class (No. 102—121), with the design of a tortoise, and usually inscribed TETAPT[ον] and HMI-TETAPT[ον]. In weight they are fourths and half-fourths of a double *Solonic* mina, and it is, I think, very probable that they usurped the place of fourths and half-fourths of a double *Presolonic* mina. We must, therefore, assume the existence, not of a large mina, but of a dimnoun which would contain 100 didrachms. The name HMI-TETAPT[ον] may show, since ὄγδοον was at their disposal, that they kept the double and single system strictly apart, and leave us to infer that the double was only employed for convenience of exchange. But we prefer to think that the piece existed long before the name "half-fourth," and that the evidence points to an early time, when what we call didrachm and dimnoun were respectively a stater and a mina, and the only known fractions of a talent.

Coming now to the Solonic Attic system, it is said[8] that Solon, to relieve public distress, created out of 100 old drachms 138 new ones; or rather, 100 new out of 73 old ones. The drachma introduced by him weighs 4·346 gram., and, accordingly, the superseded drachma would be about 6 gram. (138:100::6:4·346). A Solonic didrachm (silver) was equal in weight to a Daric of gold;

[8] Plutarch, Solon, c. 15.

and as the latter was a well-known coin in Athens (though not under that name), it is assumed with almost certainty that Solon supported his measure with the hope of convenience arising from the identity in weight of current gold and silver coins. As to the superseded system, with its drachma of about 6 gram., no Attic coins remain to confirm the statement of Plutarch. On the other hand, we have the Æginetan drachma of the same weight in sufficient numbers; and besides, the decree already cited [Böckh C. I. Gr. No. 210], stating the same ratio between the old and new systems, and ordering the old to be continued as a weight. This decree is believed to be much later than the time of Solon, and seems to have been directed against a tendency in the market to substitute weights on the same system as the coins. No. 122, inscribed MNA ΑΓΟΡ, and 123, MNA, are obviously minas of the old system, yielding drachmas of 6·45 and 6·32 gram. The same increase is found on the four specimens of Solonic mina yielding the following drachmas: 4·62; 4·56; 4·53; 4·50.

The Æginetan system has been identified with the Presolonic Attic. The only class of weights which appears to belong to it are those with design of tortoise and half-tortoise; and here the fact that they are all fourths and half-fourths of a double *Solonic* mina reminds us that the Æginetan, too, must have yielded to the pressure of the new Attic system of coins.

	Gram.	Tr. Grains.			
1.	0·65	(= 10, Blacas)	▭	incised	Ordinary Attic obol, tri-obol, pentobol, and drachma, the normal weights of which are 0·72, 2·17, 3·62, 4·346.
2.	2·07	(= 32 ,,)	⊔⊔	,,	
3.	3·95	(= 61 ,,)	⊓⊔	,,	
4.	4·48	(= 69 ,,)	⊢	,,	

	Gram. Tr. Grains.			
5.	1·17 (= 18, Martin Rey)	ı	incised	Sicilian-Italian litras.
6.	2·33 (= 36 ,,)	ıı	,,	
7.	4·40 (= 68 ,,)	ıı ıı	,,	
8.	5·70 (= 88 ,,)	ıı ı ıı	,,	
9.	6·67 (= 103 ,,)	ııı ııı	,,	
10.	7·77 (= 120 ,,)	ııı ı ııı	,,	
11.	8·41 (= 130 ,,)	ııı ıı ııı	,,	
12.	10·36 (= 160 ,,)	ııı ııı ııı	,,	
13.	11·20 (= 174 ,,)	ıııı ıı ıııı	,,	
14.	4·48 (= 69, Blacas)	. ⊢	incised.	Attic drachma; normal weight, 4·346.
15.	6·67 (= 103 ,,)	. ⊢̄	,,	Attic drachma, plus 3 obols.
16.	7·12 (= 110 ,,)	. T	,,	
17.	7·90 (= 122 ,,)	. ıııı	,,	Perhaps 4 triobols, in normal weight, 8·6.
18.	8·29 (= 128 ,,)	. ⊢⊢	,,	
19.	8·29 (= 128 ,,)	. H	,,	Attic didrachms = 8·692.
20.	8·87 (= 137 ,,)	. H	,,	
21.	9·32 (= 144, Woodhouse)	/	,,	
22.	10·86 (= 168, Blacas)	. ⊢⊢	,,	Reduced tridrachm of Roman period.
23.	12·30 (= 190 ,,)	. ııı	,,	Tridrachm; the loss intelligible.
24.	14·24 (= 220, Woodhouse)			Tetradrachms: 24, 25, 26, of a late, reduced period; 27, 28, 29, may be accounted for by loss.
25.	14·70 (= 227, Blacas)	. Δ		
26.	14·76 (= 228 ,,)	⊢⊢		
27.	15·54 (= 240 ,,)	⊢⊢		
28.	15·86 (= 245, Woodhouse)	K		
29.	16·32 (= 252, Burgon)	⊢⊢		

	Gram.	Tr. Grains.		
30.	17·36	(= 268, Burgon)	. HH III; *rev.* X.	Tetradrachm, plus 3 obols.
31.	20·20	(= 312 ,,)	. K	
32.	20·20	(= 312 ,,)		
33.	23·31	(= 360 ,,)		
34.	24·86	(= 384 ,,)		
35.	24·86	(= 384, Woodhouse)		
36.	26·42	(= 408, Burgon)	. IIII	
37.	26·87	(= 415, Woodhouse)		Small diota in relief.
38.	27·98	(= 432, Burgon)	. HH	Korinthian tristater = Attic hexadrachm.
39.	28·75	(= 444 ,,)	. T	Korinthian tristater = Attic hexadrachm.
40.	58·29	(= 890, Woodhouse)	T	On both sides. Double Korinthian tristater.
41.	55·95	(= 864 ,,)	III	Double Korinthian tristater.
42.	31·09	(= 480) Burgon .		Octodrachm (late).
43.	31·41	(= 485, Woodhouse)		
44.	32·38	(= 500 ,,)		
45.	33·03	(= 510, Blacas)	. Γ HH	Octodrachm (Solonic), *i.e.* Γ [εντὲ καὶ] τρεῖς.
46.	34·20	(= 528, Burgon)	. Γ HH	
47.	36·01	(= 556, Woodhouse)		Octodrachm (?)
48.	38·85	(= 600 ,,)		Small diota; octodrachm (?)
49.	40·41	(= 624 ,,)	E :	Enneadrachm.
50.	40·41	(= 624 ,,)		Half Pegasus.
51.	40·41	(= 624 ,,)		
52.	40·80	(= 630 ,,)		
53.	48·19	(= 744, Burgon) .	Δ	Dekadrachm (?)
54.	49·43	(= 686, Woodhouse)	KYΞI TPC :	tristater of Kyzikos.
55.	45·07	(= 696 ,,)	KYΞI ΔICTA (bronze) :	Distater of Kyzikos.

	Gram.	Tr. Grains.			
56.	56·73	(= 876, Burgon)	ΟΔ⅂Ο	⅛ Solonic mina.	
			⅄Δ		
57.	57·51	(= 888 ,,)	ΟΔ⅂Ο		
58.	57·51	(= 888 ,,)	Ⅎ ; Fourth diota, resembling the letter B inverted ; $\frac{1}{12}$ of Attic Presolonic mina.		
59.	73·83	(= 1140, Burgon) .	Γ⁵	$\frac{1}{6}$ Solonic mina ; Γ[εμπτη-μόριον] M[νᾶς.	
60.	80·05	(= 1236 ,,) .	⋚, *i.e.* ΔΕΜΟ		
61.	80·83	(= 1248, Blacas) .			
62.	85·49	(= 1320, Woodhouse)	Γ⁵		
63.	86·91	(= 1342, Burgon) .	⋀, *i.e.* Γ⁵M		
64.	104·14	(= 1608 ,,) .	Γ⁵M		
65.	80·95	(= 1250, Woodhouse)	IIII		
66.	90·15	(= 1392 ,,)			
67.	90·15	(1392 ,,)			
68.	91·70	(= 1416 ,,)	E Y / ΔH ; *rev.* H.		
69.	110·36	(= 1704, Burgon) .	Crescent.		
70.	105·70	(= 1632, Woodhouse)	,,		
71.	82·38	(= 1272, Merlin) .	,,		
72.	82·38	(= 1272, Blacas) .	,,		
73.	80·83	(= 1248 ,,) .	,,		
74.	76·16	(= 1176, Burgon) .	,,	ΔH[MO.	
75.	76·16	(= 1176 ,,) .	,,		
76.	73·05	(= 1128, Blacas) .	,,		
77.	73·05	(= 1128 ,,) .	,,		
78.	71·50	(= 1104, Woodhouse)	,,		
79.	67·61	(= 1044 ,,)	,,	ΔΕΜΟ.	
80.	63·21	(= 976 ,,)	,,	ΔΑΜΟ.	
81.	63·72	(= 984, Blacas)	Half crescent.		
82.	62·17	(= 960, Burgon)	,,		
83.	62·17	(= 960, Blacas)	,,		

	Gram. Tr. Grains.		
84.	59·10 (= 912, Burgon)	Half crescent.	
85.	59·10 (= 912 ,,)	,,	
86.	59·10 (= 912 ,,)	,,	
87.	54·40 (= 840 ,,)	,,	
88.	52·85 (= 816, Blacas)	,,	
89.	49·09 (= 768, Woodhouse)	,,	
90.	298·45 (= 4608, Burgon)	Diota ;	⅓ Attic dimnoun (Solonic).
91.	287·56 (= 4440, Blacas)	. ,, TPITH ;	⅓ Attic dimnoun (Solonic).
92.	285·49 (= 4416, Burgon)	. ,,	⅓ Attic dimnoun (Solonic).
93.	192·76 (= 2976, Woodhouse)	,, Δ.MO	
94.	191·19 (= 2952, Woodhouse)	Half diota	
95.	158·55 (= 2448, Blacas)	. ,, ΔEMO ;	⅙ Attic dimnoun (Solonic ?).
96.	143·13 (= 2210, Burgon)	. ,, ΔEMO	⅙ Attic dimnoun (Solonic).
97.	143·00 (= 2208, Woodhouse)	,, ΔEMO	
98.	105·82 (= 1634, Blacas)	Fourth diota ; ΔEMO ;	$\frac{1}{11\frac{1}{2}}$ Attic dimnoun (Presolonic).
99.	63·72 (= 984, Burgon)	Diota within wreath.	
100.	59·84 (= 924 ,,)	,,	
101.	55·18 (= 852 ,,)	,,	
102.	242·22 (= 3840, Burgon)	Tortoise	¼ Attic dimnoun (Solonic).
103.	225·88 (= 3480 ,,)	,, ΔEMO	
104.	223·83 (= 3456 ,,)	,, ΔEMO	
105.	219·80 (= 3396, Blacas)	,,	
106.	210·23 (= 3246, Burgon)	,, TETAPT	
107.	186·52 (= 2880 ,,)	,,]MO	

	Gram.	Tr. Grains.			
108.	124·35	(= 1920, Woodhouse)	Half tortoise		⅛ Attic dimnoun (Solonic).
109.	121·24	(= 1872, Burgon)	. ,,	ΔHMO	
110.	121·24	(= 1872 ,,)	. ,,		
111.	118·13	(= 1824 ,,)	. ,,		
112.	116·58	(= 1800, Woodhouse)	Circular;	ΔE TET	
113.	116·58	(= 1800, Merlin)	Half tortoise	EMIT	
114.	116·58	(= 1800, Blacas)	. ,,	EMITET	
115.	114·25	(= 1764, Burgon)	. ,,	EMITETAPT	
116.	110·36	(= 1704 ,,)	. ,,	ΔEMO	
117.	111·14	(= 1716, Blacas)	. ,,		
118.	108·80	(= 1680 ,,)	. ,,	ΔHMO	
119.	108·80	(= 1680 ,,)	. ,,		
120.	77·72	(= 1200, Burgon)	. ,,		
121.	69·30	(= 1080 ,,)	. ,,		

122.	645·08	(= 9980, Burgon)	Dolphin:	MNA AΓOP	Mina emporica.
123.	632·64	(= 9790 ,,)	,,	MNA	
124.	462·56	(= 7171 ,,)	,,	MNA	Mina demosia.
125.	456·93	(= 7056 ,,)	,,		
126.	453·37	(= 7000, Woodhouse)	,,	MNA	
127.	450·77	(= 6960, Blacas)	,,	MNA	

128.	255·57	(= 3936, Calvert)	HMIMN:	Astragalus rising from surface.
129.	223·82	(= 3456, Merlin)	HMIM:	Head of dolphin.
130.	110·36	(= 1704, Woodhouse)	Dolphin: ΓIT: $\bar{\bar{}}$ ΓAN $\bar{\bar{}}$ (?);	¼ Attic mina demosia.

131. 234·06 (= 3624, Woodhouse) AΓOPANOMΩN M.

132. 155·44 (= 2400, Blacas) $\overset{\text{T}}{\odot}$ ΔYA. (Bronze.)

133. 121·24 (= 1872, Woodhouse) Bull's head in relief (copper).

	Gram.	Tr. Grains.		
134.	144·56	(= 2232,	Woodhouse)	H (doubtful appearance).
135.	140·54	(= 2170	,,)	Δ
136.	139·90	(= 2160	,,)	Γ I I } both circular.
137.	136·78	(= 2112	,,)	} both circular.
138.	193·00	(= 2980	,,)	ΡDDΓ (Bronze.)
139.	608·80	(= 9400,	Woodhouse)	Mina emporica; remains of iron ring attached.
140.	510·03	(= 7875	,,)	
141.	468·39	(= 7232	,,)	} Mina demosia or Solonic.
142.	466·32	(= 7200	,,)	} Mina demosia or Solonic.
143.	390·15	(= 6024	,,)	Triangular shape.
144.	357·19	(= 5515	,,)	
145.	276·10	(= 4263	,,)	Diota (?); ⅓ Attic Solonic dimnoun (?).
146.	205·95	(= 3180	,,)	½ mina demosia; much injured. In form of cube, with iron ring attached.
147.	332·24	(= 5130,	Sambon)	In form of an astragalus; ½ mina emporica (?). (Bronze.)

5—13. This set of weights was acquired by the British Museum in 1850 from M. Martin Rey, of Lyons, and were found in a cemetery there. The third piece in the series is not in the collection.

Mommsen classes them along with the Italian-Sicilian silver (and in Sicily also gold) coins discussed at p. 93 *et seq.* of his "Geschichte d. Röm Münzwesens." In that series the various pieces fall in this order:—5·80, 5·65, 4·3, 3·28, 2·5, and 1·18 gram. At that time (1862) he traced the origin of those coins to the very old Syrakusan gold piece of 1·17 gram., explaining it as an equivalent in gold for the Attic tetradrachm of 17·46 gram. silver, with the ratio of gold to silver as 15·1. Then he called the pieces 5·80, 3·28, 2·5, and 1·18, respectively, drachma, triobol,

half-drachma, and fifth of drachma, or litra, treating the 4·3 piece as a depreciation of the drachma. From the more complete evidence of these weights (5-13) he now sees that this whole system of Italian-Sicilian silver coins is based on the Æginetan stater reduced from 12·5 to 11·6 gram., and divided not into 10 obols, but into 10 litras, the decimal division being as peculiarly Italian as the duodecimal Greek.

14. Is No. 4 repeated.

22. ⊬ : tridrachm yielding drachma of 3·62 gram., *i.e.*, the Attic drachma of late Roman period. *See* Böckh, M. U., p. 105.

30. ⊬ ıı. For this way of expressing a certain number of drachmas *and a half*, cf. Nos. 45, 46.

36. ıı (26·42). Unintelligible.

40. T on both sides (= 58·29) double Korinthian tristater. It is cut round the edge to give the appearance of being two tristaters welded together.

54. KYII [κου] TPIC [τατηρ,] 44·43 gram. The stater would be 14 81. Mommsen[9] quotes a distater of Kyzikos = 29·80, *i.e.*, 14·90 for the stater; and a stater KYI CTA [τηρ] = 18·70. This Woodhouse specimen has lost a great deal, and may very probably have been originally as nearly as possible 48 gram., the weight yielded by the coins of Kyzikos.

55. Is of bronze, not suspicious in appearance, but quite unintelligible.

58. ⋿ : [57·51] bears the sign of a quarter of a diota, resembling the letter B reversed.[10]

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[9] Münzwesen, p. 7. *Cf.* C. I. Gr. 3681. Longpérier, *Annali dell' Instit.*, 1847, pp. 336, 337. Lenormant, *Rev. Num. Franç.*, 1856, p. 7.

[10] *Cf.* No. 98.

63. 86·91  As this figure resembles the Greek letter M with horizontal line from one foot to the other, and since the weight suits exactly, it may be taken as a monogram of Γ M, *i.e.*, Γ [*εμπτημόριον*] M [*νâς*]. *Cf.* No. 64.

91. 287·56. Diota, TPITH : taking this as a third, we have an integer of 862·68. That is just double the Attic Solonic mina. The same result is obtained from that larger class of weights with sign of tortoise. Mr. Poole calls this integer a large mina; I prefer to call it a dimnoun, or double mina; in the first place, because it has exactly the weight of a double Solonic mina, and, in the second place, because we see no other means of explaining such denominations as EMITP [*ιτον*] and EMITET [*αρτον*], while such words as EKTON and OΓΔOON were not only at their disposal, but were employed for specimens exactly half the weight of those named EMITPIT and EMITET.[11]

98. 105·82; ¼ diota; ΔEMO. If all weights with sign of diota are to be taken as *thirds*, and we have seen the word TPITH on no other class, this specimen would be $\frac{1}{12}$ of some integer. 105·82 × 12 = 1269·84, *i.e.*, just double the Presolonic mina (No. 122). We call this one, therefore, $\frac{1}{12}$ of the Presolonic Attic, or its equivalent, the Æginetan dimnoun.[12]

102—119. What was said of the diotæ (91) applies also to the tortoise weights. The latter class, it will be seen, in this as well as in other collections, is much more abundant than the former. This will tend to show in what favour the system of division by four stood among the Greeks over that by three, so familiar to the Orientals.

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[11] *Cf.* 56, 57, 58.

[12] Contrast 58, which also bears the sign of ¼ diota.

122. 645·08, Dolphin; MNA AΓOP [*ανόμων.*] This completion of the word depends on No. 131. It gives a drachma of 6·45 gram. That is a little over what we have already quoted evidence to show was the Presolonic drachma.

128. 255·57; HMIMN. This specimen was found in Krete. It is over-weight; but that may be traced to an intentional over-coinage, as the *astragalus* rising upon it seems to suggest.

130. 110·36; Dolphin. The inscription seems unintelligible; but the weight is clearly ¼ of the Solonic Attic mina.

131. 234·06; AΓOPANOMΩN M is a fac-simile, the original of which was found in Corfu, and is now in the Museum at Athens. Mustoxydes (Delle Cose Corciresi) and Schillbach (Annali dell' Instit., vol. xxxvii. 1865) publish the original without being able to find any other explanation of it than by taking M as a numeral, *i.e.*, 40 drachmas, though the drachma of 5·8 gram. which this would give is, Schillbach confesses, too heavy for those of Korkyra or Korinth.

132. 155·44; $\frac{\text{T}}{\Theta}$ AYA (bronze), with figure of owl. Longpérier reads it *Θυριάτων τρίτα δύα*; but Schillbach doubts the possibility of *δύα* for *δύο* or *δύω*, and takes it as a third of the Solonic Attic mina, *i.e.*, 155·44 × 3 = 466·32. Böckh, C. I. Gr. 210, publishes it in doubt as to its being a tessera.

NOTE ON GREEK WEIGHTS.

By Professor Theodor Mommsen, of Berlin.

The set of weights discovered by Mr. Murray seems to me of very great importance; and I think he is quite right in combining them with the Italo-Sicilian coins enumerated in my R. M. W., p. 93. Examining these anew, I believe to have discovered their origin, and at the same time the place occupied by the weights in question in the ancient system. They belong to the Æginetan stater, reduced from 12·5 gram. to about 11·6, and divided, which is new and very interesting, not in *oboli*, but in *litræ*, after the decimal system. Some gold coins, it is true, which have been compared with those appertaining to this system, must be separated and expelled, especially those of Syracusæ with the lyre and with the head of Artemis Soteira. My explanation, too, is erroneous, as it appears now. But the discovery is very curious, and merits to be noticed somewhere. I should be very glad to learn from Mr. Murray—(1°) if the provenance of the coins from the south of France is well ascertained, and if they may not have been brought to England from the south of Italy or from Sicily; (2°) if the set appears complete,—that is to say, if there is no ground for supposing that the heaviest weights, marked with 11 and 12, have been lost, though I fear very much that this question may prove unanswerable.