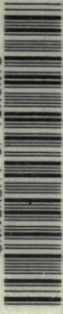


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The earliest coins of  
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THE BRITISH ACADEMY

The Earliest Coins of  
Greece Proper

By

Percy Gardner

Fellow of the Academy

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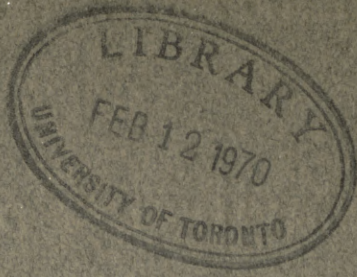
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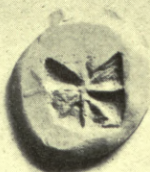
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THE EARLIEST COINS OF GREECE  
PROPER

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## SUMMARY

- I. THE first question which arises is whether the earliest coins of Hellas were of electrum. Electrum coins have been attributed to Thrace, Aegina, and Euboea ; but in every case the attribution is improbable, and an Asiatic origin more likely.
- II. The tradition ascribing the first issue of coins at Aegina to Pheidon must be considered. The date of Pheidon may be fixed to the eighth century B. C. But this is too early for the issue of coins : nor did Aegina belong to Pheidon. Pheidon regulated the weights and measures of Peloponnese : these are of doubtful, possibly Mycenaean, origin. It was on the standard of Pheidon that the Aeginetans first issued silver coins as substitutes for the bars of bronze and iron which had made up the earlier currency of Peloponnesus. These bars were dedicated at Argos, and some survive. The proportions of value were probably, iron 1, bronze 5, silver 600, so that a silver obol of 16 grains was equivalent to 20 drachms of bronze or a mina of iron. The obol, the drachm, and the talent made up a system proper to Greece : the mina of 100 drachms was interpolated. Origin of the didrachm, and the double talent.
- III. The cities of Euboea issued money in the seventh century on the gold standard of Babylon, which they divided according to the scheme of Pheidon. Their coins were uniform with those of Athens, and perhaps of Megara, bearing one type only.
- IV. The Corinthians began the issue of coin as early as the time of Cypselus. Often restruck in Italy. They divided the Euboic stater into 3, a fact which gives us valuable data in regard to the spread of Corinthian commerce.
- V. The earliest coins of Athens bore as types the owl or the amphora. They were introduced by Solon. Accounts by Aristotle and by Androtion of Solon's legislation. Their reconciliation. Solon's alteration of measures, and cutting down of debts, both of which were done from democratic motives. Solon adopted the Euboic standard for coin, which was raised to the level later called Attic by Peisistratus, who first struck the tetradrachms with the head of Athena. His motives. The result the foundation of Athenian commerce, and the victory of the Athenian silver coinage, to the weight of which Corinth, Eretria, and other cities were obliged to conform. Wide circulation of Athenian coin : the barbarous copies.



# THE EARLIEST COINS OF GREECE PROPER

BY PERCY GARDNER

FELLOW OF THE ACADEMY

## I. SUPPOSED EUROPEAN COINS IN ELECTRUM

THERE can be no question but that Asia Minor preceded European Greece in the introduction and use of coins; and down to late in the seventh century the monetary issues of Asia Minor were of electrum only. Therefore, in inquiring what are the earliest coins of Hellas, we are bound first to consider certain electrum coins possibly issued on the European side of the Aegean, and having some claim to be regarded as outgrowths of the Ionian electrum coinage. Did the coinage of Europe, like that of Asia, begin with electrum? We must consider electrum coins which have been given to Thrace, Aegina, Euboea and Athens.

An electrum coin attributed to Thrace bears on the obverse the type of a centaur carrying away a woman; on the reverse a square incuse roughly divided into four (Pl. No. 1). It is a stater of Phocaeian weight.<sup>1</sup> The assignment to Thrace, however, rests on no solid basis. The reason for it is that on early silver coins of the people of the Pangaeian range, the Orrescii, Zaeelii and Letaei, we have a not dissimilar type of a centaur carrying a woman in his arms. But a comparison of the electrum with the silver coins shows at once differences far more striking than the general likeness. On all the Thracian silver coins the Centaur kneels and bears the woman lying at length in both arms so that her head is in front of him. On the electrum coin he is walking, and turns round to greet the woman, who is seated on his back. The motive is thus quite different. The incuse of the reverse also is quite different from the flat millsail-like incuse of the Thracian silver coins, which are, in fact, quite a century later than the electrum coin. M. Babelon regards the coin as of Ionic provenance.<sup>2</sup> Whether it was actually struck in Ionia or Thrace, it

<sup>1</sup> Grains 252.5 (16.35 grammes). *Br. Mus. Cat. Ionia*, p. 9, Pl. ii. 2. It contains some 64 per cent. of pure gold.

<sup>2</sup> *Traité des Monn. Gr. et Rom.* ii. 134. Cited below as *Traité*.

belongs, beyond doubt, to the Phocæan, or North Asia Minor circle of influence; and has no relation to the coins of Greece proper. Thrace, indeed, at that time was more exposed to the influence of Asia than to that of Europe. This is clearly indicated by the fact that when the cities of Thasos and Lete began striking silver coin, they struck it on a different standard from those of Aegina and of Corinth.

We turn next to the electrum coin attributed to Aegina. It is an unique electrum stater weighing 207 grains (13·45 grammes) at Paris. The type of the obverse is a tortoise: on the reverse are two deep oblong incuses side by side (Pl. No. 2). This particular form of incuse is rare: I know it only for Calymna, Cos, Rhodes, and other Carian mints, in the sixth century. This electrum coin has been regarded as the earliest coin of Aegina, and indeed as remains of the bridge by which coinage passed from Asia to Greece. But the type is not the sea-turtle as on the earliest Aeginetan money, but a land-tortoise, and neither the incuse nor the weight is Aeginetan. Its attribution is therefore very doubtful: it may be of Asia Minor: it is more probable that it is Asiatic than that it is European.

Other electrum coins of the Euboic standard have been given to cities of Greece<sup>1</sup>:—

1. Owl to l. (Pl. No. 3).	Rev. incuse. wt. 21· grains (1·36 grammes)
2. Eagle devouring hare (Pl. No. 4).	„ 44·4 „ (2·87 „ )
3. Eagle flying	„ 22·1 „ (1·43 „ )
4. Wheel of four spokes (Pl. No. 5).	„ 21·8 „ (1·41 „ )

The reverse device of No. 1 is remarkable, consisting of two rectangles and three triangles. These coins have sometimes been set aside as modern forgeries. U. Kochler, however, has maintained their genuineness.<sup>2</sup> He mentions several examples, one of which was found in the bed of the Ilissus, one at Piræus, others at Athens. If we grant the genuineness of these coins, we must regard them as an attempt to introduce into Athens the electrum coinage of the Ionian coast. The coins are sixths of the Euboic stater of 130 grains; they thus follow the Asiatic system of division by thirds and sixths, and not the European system of division by halves and quarters. They have not the appearance of being very early: certainly they are not as archaic as the earliest silver of Aegina. They stand apart

<sup>1</sup> Head, *Hist. Num.*, ed. 2, p. 358.

<sup>2</sup> *Athen. Mittheil.* 1884, 359.



from the silver coinage of Athens, and seem to have exercised no influence upon it.

The other coins were by Mr. Head given to Chalcis in Euboea, mainly on account of silver coins of Chalcis:—Eagle flying, with serpent in beak = ΨΑΛ (ΧΑΛ) wheel. Tetradrachms, tetrobols.<sup>1</sup> But more recently he has retracted that attribution,<sup>2</sup> observing that they are found in Asia Minor, No. 2, for example, at Priene. The recent discovery of a hoard of electrum coins at Ephesus<sup>3</sup> with a great variety of types has decidedly increased our disinclination to regard type in early electrum coins as a satisfactory indication of mint. It is therefore far more probable that these eagle and wheel coins belong to Asia than to Europe. Thus it seems that any electrum issue in Europe is more than doubtful, or if any such took place (at Athens for example) it was rather in the way of a tentative issue for special purposes than as a regular state currency. It was certainly not on a bridge of electrum that coinage passed from Asia to Europe; but the coins of Europe were from the first of silver.

## II. PHEIDON AND THE COINS OF AEGINA

The problem as to which king or which city of Hellas first issued coin was much discussed in antiquity. Before considering the evidence offered by extant coins, which is of course by far our most valuable source of knowledge, we must consider the testimony bequeathed to us on the subject by ancient historians, and such historic documents as the Parian Chronicle.

The grammarian Julius Pollux, though he wrote in the reign of Commodus, and can have had no direct knowledge of early Greek coins and weights, is yet of value to us, because he had access to a considerable range of literature, much of which has disappeared. He retails<sup>4</sup> to us a number of ancient views as to the earliest Greek coins. I have elsewhere<sup>5</sup> discussed the origin of the electrum coins of Asia, which were much earlier in date than the silver coins of Hellas. Only such of Pollux's statements as refer to coins of Greece Proper concern us here. He mentions an opinion that coins were first struck at Athens by Erichthonius and Lycus. It is, however, the universal opinion of modern numismatists that coins did not make their appearance at Athens until the sixth century, and that the

<sup>1</sup> *B.M. Cat. Central Greece*, p. lii, *Num. Chron.*, N.S. xv, Pl. viii. 16-18. Cf. Babelon, *Traité*, ii. 1, p. 670.

<sup>2</sup> *B.M. Cat. Ionia*, p. xxxi.

<sup>3</sup> *Brit. Mus. Excavations at Ephesus*, p. 74 (Head).

<sup>4</sup> *Onomast.* ix. 83.

<sup>5</sup> *Proceedings of the British Academy*, 1908.

money of various other cities is earlier in fabric. And, indeed, the very fact that two mythical heroes like Erichthonius and Lycus were credited with the first issue of coins appears to be in itself a proof that there was no tradition connecting the earliest issue of coins in Greece with historic persons at Athens. We are told by Plutarch that Theseus issued money with the type of a bull: but here again we are in mythic surroundings. The laws of Draco mention oxen as the measure of value in case of fines, which clearly shows that in his time (620 B. C.) the Athenians did not ordinarily use coins, though at that time they were certainly in use at Aegina and Corinth. Pollux also tells us that Aglosthenes ascribed the earliest issue of coins to Naxos, of which island the writer was probably an inhabitant. Early coins of Naxos are known to us; but they appear to be imitations of those of Aegina, and less archaic. Both of these attributions are probably due to patriotic feeling, which often induced Greek writers to attribute to their own city the origin of great inventions.

A more serious claim to the origination of a coinage in Europe is put forward on behalf of Pheidon of Argos. The whole question of the position of Pheidon in early Greek history and of the nature of his policy is a difficult one. Here we need only consider his date, and his connexion with early weights, measures, and coins.

In reviewing the statements of ancient writers in regard to this matter, I propose first to mention them in historic order, and afterwards to examine them critically, to judge of their respective value and their truth.<sup>1</sup> Herodotus, our earliest authority in point of time, makes two statements. He says that Pheidon established the measures (*τὰ μέτρα ποιήσας*) of Peloponnese<sup>2</sup>; and that his son Leocedes was one of the suitors of Agariste, daughter of Cleisthenes of Sicyon (about 595 B. C.). The next authority in order of date is Ephorus, who is quoted in this connexion by Strabo.<sup>3</sup> He says that Pheidon of Argos, who was tenth in descent from Temenus, invented the measures called Pheidonian, and the weights, and struck coins, both silver and other, that is, presumably, gold or electrum.

In another place<sup>4</sup> Strabo cites Ephorus as authority for the statement that silver was first issued by Pheidon at Aegina. The *Etymologicum Magnum*<sup>5</sup> makes the same assertion, and adds that Pheidon dedicated in the Argive Heraeum the spits (of iron or bronze) which

<sup>1</sup> This has already been done by M. Théodore Reinach (*L'Histoire par les Monnaies*, p. 35: *Revue Numismatique*, 1894) and others. I have preferred to make an independent investigation; but my results are much like those of M. Reinach.

<sup>2</sup> Hdt. vi. 127.

<sup>3</sup> P. 358.

<sup>4</sup> P. 376.

<sup>5</sup> s. v. ὀβελίσκος; cf. Orion, s. v. ὀβελός.



had hitherto served as a currency, but were now demonetized. Pausanias gives us a valuable statement as to the date of Pheidon when he says that that tyrant in conjunction with the people of Pisa celebrated at Olympia the eighth occasion of the festival: 748 B. C. The Parian Chronicle says that Pheidon was the eleventh in descent from Herakles, whereas Ephorus makes him the tenth from Temenus, and so the fourteenth from Herakles. The Parian Chronicle would thus date him to about the middle of the ninth century, according to the ordinary Greek way of reckoning by generations, Ephorus to the middle of the eighth century. Thus various authorities place Pheidon in the middle of the ninth, the middle of the eighth, and the end of the seventh centuries.

Confused by these conflicting authorities, modern historians have given very various dates to Pheidon. Some, following Weissenborn and Curtius, have assigned him to the twenty-eighth Olympiad (668 B. C.) rather than the eighth. Others have accepted the date of Herodotus,<sup>1</sup> as determined by the appearance of Pheidon's son among the wooers of Agariste. But the date of Weissenborn is an unsatisfactory compromise, a mere correction of the text of Pausanias, and the whole story told by Herodotus of the wooing of Agariste has the air of fable rather than of fact.<sup>2</sup> It is not at all difficult to suppose that Herodotus may have missed out a few generations, or confused an earlier with a later Pheidon. On the other hand, the date given by Pausanias, 748 B. C., is consistent with that given by Ephorus, which works out as 757 B. C. And it is almost certain that Pausanias had seen at Olympia some documentary authority for his date; though no doubt the records of the early Olympiads were of no great historic value.<sup>3</sup> On these grounds we may regard it as at least very probable that Pheidon belongs to the middle of the eighth century B. C. And it is even more probable that he had to do with a reform or regulation of the measures of Peloponnese. Not only Ephorus, but Aristotle<sup>4</sup> and the Parian Chronicle speak of certain measures as fixed by and named after Pheidon. So much then we may regard as historic fact. That he regulated weights as well as measures is extremely probable, since there is a close connexion between the two. We are justified in ascribing to him the weights used in commerce for a long time not only in Peloponnesus, but in Athens also, which are known to us by many extant examples,<sup>5</sup>

<sup>1</sup> So formerly did I. See *Types of Greek Coins*, p. 7.

<sup>2</sup> Compare the note of E. Abbott on Hdt. vi. 127.

<sup>3</sup> See especially Mahaffy in *Journ. Hell. Stud.* ii. 164.

<sup>4</sup> In Pollux, x. 179.

<sup>5</sup> Smith, *Dict. of Antiq.*, art. *Pondera*, p. 452.

following the so-called Aeginetan standard. The phrase of the Parian Chronicle is ἐδήμεισε τὰ μέτρα . . . καὶ ἀνεσκεύασε. This regulation would naturally take the form of making weights and liquid measures consistent one with the other; that is to say, equating his standard of weight with a certain cubic measure of water. This sounds a somewhat complicated proceeding for so early a time, but it is the readiest way of producing a system of weights and measures: and it was probably by doing this that Pheidon attained his fame in Greece. It is probable that he merely regularized existing measures and weights, not inventing them, but making them systematic and consistent.

These Pheidonian weights are in all probability the same that were used in Greek commerce, until the time of Alexander the Great and later, in Northern Greece and Peloponnesus. Several specimens have reached us from Athens. And they were no doubt used by Pheidon for bronze and iron, as for other commodities. According to them were regulated the old oboli in those metals which circulated in Greece before the invention of silver coin. And when silver coin came into existence it went by the same standard, though probably with new denominations. This standard is that which we are accustomed to call Aeginetan, because it is made familiar to us through its adoption by the people of Aegina.

The assertion that Pheidon issued coins at Aegina is a statement which we cannot accept. In the first place, no coins of Greece proper seem to be so early as the eighth century; and in the second place, Pheidon never had any authority in Aegina. Probably the Aeginetans were the first people in Greece to strike money; and their money was on the Pheidonian standard: hence a natural confusion. It was the weights, not the coinage of Greece, which were due to Pheidon.

We turn next from the literary to the archaeological evidence. It is at once clear that the compiler of the *Etymologicum Magnum* would scarcely have asserted that dedicated oboli were preserved in the Heraeum of Argos, unless one of his authorities had seen them there. The Heraeum, as we know, was burned in 423 B. C., when there is a probability that dedications of bronze would be melted and disappear, in which case the oboli preserved in the later temple could scarcely be genuine, but rather restorations. However that may be, it is certain that the recent excavations conducted by the American School of Athens on the site of the Heraeum have brought to light a great quantity of votive bronzes of early date. Many of these were spits, and many pins or nails for the hair or garments.<sup>1</sup>

<sup>1</sup> *The Argive Heraeum*, i. 61; ii. 330.



Dr. Waldstein suggests that these were the original bronze currency: but as there is no record of their weights the theory is hard to verify. On the other hand, a mass of iron was discovered, which was found to consist of numerous rounded bars of metal coming to a point, and which was held together at either end by an iron coil tightly twisted round. It is hard to regard these iron spits as anything but oboli dedicated after being demonetized. This discovery would seem to refute the suggestion of T. Reinach,<sup>1</sup> that the obols exhibited in the temple were really standard-weights kept in the temple for reference. Mr. Svoronos has made diligent search for these iron spits in the Museum at Athens, and discovered them.<sup>2</sup> They are much broken and decayed, so that their present weight gives us little information. It is, however, desirable to record that in Mr. Svoronos' opinion the length of the spits was about 1.20 metres (four feet); and the weight 495-302 grammes (7,650-4,675 grains), a Pheidonian mina being about 622 grammes (9,600 grains). Supposing that these iron bars were a remnant of early currency, that currency, being dedicated in the Heraeum of Argos, would naturally be not Aeginetan but Argive. If I have rightly assigned the date of Pheidon, their dedication would be later than his time. For it appears that until the seventh century, and even later, the currency of Peloponnesus consisted of literal oboli or bars of metal. These were of bronze or of iron: the iron of course being heavier and less valuable. This currency was everywhere except at Sparta replaced later by the Aeginetan coins, at all events in large payments. The dedication therefore, must belong to the seventh or sixth century.

The Aeginetan standard as known to us from extant weights and coins is as follows:—

Talent	37,320 grammes	576,000 grains.
Mina	622 „	9,600 „
Drachm	6.22 „	96 „
Obol	1.03 „	16 „

But while this is certainly the standard which passed in later times as Pheidonian, and must have been connected with Pheidon, it is a system based upon the weight of the silver drachm. In discussing its origin, we had best take our start, not from the perplexing traditions as to Pheidon, but from the known facts as to the earliest coins.

At a far earlier date even than that of Pheidon, regular systems of weights and measures had been in use in the great empires of the

<sup>1</sup> *L'Histoire par les Monnaies*, p. 38.

<sup>2</sup> *Journ. Internat. de Numism.* ix, p. 196.

East, Babylon, Assyria, and Egypt. That they were in use also in prehistoric times in Crete and Mycenae is in itself very probable, and seems to be established by Sir A. Evans in a paper contributed to *Corolla Numismatica*.<sup>1</sup> He shows that talent and shekel weights were in use at Cnossos, and that in every case the standard used was taken from Egypt, though in some cases it may be traced beyond Egypt to Babylon. That a system approximating to the light Babylonian gold standard was in use in Egypt, in Crete, and in Argolis in the second millennium B.C. seems to be clearly made out. The use of a standard corresponding to that of Aegina is, however, not proved for prehistoric times. What Evans has called the heavy Egyptian gold standard is certainly followed in Crete in the case of several weights which bear marks of value, showing an unit of 12.30 to 13.98 grammes (188 to 215 grains). At first sight this may seem a probable source for the weight known as Aeginetan, with a drachm of 96 grains (6.22 grammes), and a didrachm of 192 grains (12.44 grammes). But it is very doubtful whether there is here any line of connexion. In the first place, the weights generally are much nearer to the higher than to the lower limit, and so are not at all close to the Aeginetan standard. And in the second place, the break between Mycenaean and historic Greece is so complete; it is so clear that a period of barbarism and poverty separates one from the other; that we may well doubt whether so civilized an institution as a weight-standard would survive.

Mr. Head<sup>2</sup> is disposed to regard a group of weights found at Naucratis, which seems to follow the Aeginetan standard, as indicating that that standard may have come from Egypt. But Naucratis was not of very early foundation; and there is no reason for thinking that the weights in question are earlier than the date of Pheidon, or even than the first issue of coins at Aegina.

Talents and minas of gold and silver and electrum, together with the stater of electrum, which was a fraction of the mina, and its divisions  $\frac{1}{3}$ ,  $\frac{1}{6}$ ,  $\frac{1}{12}$ ,  $\frac{1}{24}$ , had long been known in Asia, and used by the Ionians of the coast of Asia Minor. But the comparatively rude inhabitants of Peloponnesus had been content with a currency of bronze pieces, sometimes round, in the shape of a *πέλανορ*, but more often long, in the form of a bar or spit (*ὀβελός*). A handful (six) of these bars made up a drachm (*δραχμή*).<sup>3</sup> In larger payments bronze was probably weighed out, as was the *aes rude* of Italy.

<sup>1</sup> *Minoan Weights and Currency*, pp. 336-367.

<sup>2</sup> *Hist. Num.*, 2nd edition, xlv; cf. Petrie, *Naukratis*, i, p. 78.

<sup>3</sup> So *Etym. Magn.*, s. v. *δραχμή* and *ὀβελίσκος*.



It was this rude currency which Pheidon regulated, without, so far as we can judge, superseding it. But later, in the seventh century, this primitive system was out of date. Probably the bars of bronze were very irregular in shape, and perhaps in weight. They were not suited to the growing commerce of the Greek islands. The people of Aegina, at that time in the front ranks of commerce, must have known all about the electrum coins of Ionia. Electrum, however, was not native to Greece. Silver, on the other hand, was procurable from Spain, Thrace, and elsewhere. The Aeginetans decided to strike in silver coins which should represent the bronze oboli which were current. The silver obol would stand for one such bar; the silver drachm for a handful of such bars, that is for six; the silver didrachm would stand for twelve.

Setting aside the notion that Pheidon was connected with the earliest coinage of Aegina, we may claim for Aegina the precedence in European coinage, on the ground of the extremely rude and primitive character of the oldest examples of Aeginetan coinage, and because they seem to have served as models for all the coins of the islands of the Aegean. In the noteworthy find at Santorin, in 1821, 760 early coins of the Greek coast and islands were found, and of these 541 were of Aegina, while many other coins showed in fabric and type signs of an attempt to conform to the Aeginetan pattern.<sup>1</sup> To this find we will presently return.

Though the question of the origin of the standard used at Aegina for silver coin has been a subject of much discussion, the discussion has not been fruitful, mainly because it has not proceeded on scientific lines. It has been carried on by numismatists solely in relation to coins: the inquiry has been why the Aeginetans struck coins weighing 192 or 194 grains, when no people used that standard for money before. The question, however, is really a much wider one, including the whole question of the origin of currency in Peloponnesus.

We may begin by dismissing the current views as to the origin of the silver weight of Aegina. One view<sup>2</sup> is that it is the weight of the South Ionian stater (224 grains), somewhat reduced. And in support of this theory the fact has been brought forward that one of the very early Aeginetan silver coins weighs as much as 211 grains. This coin, however, stands quite by itself, and as Mr. Head suggests, may be a mere accident. No reason for the degradation of weight-

<sup>1</sup> *Num. Chron.* 1884, pp. 269-280 (Wroth).

<sup>2</sup> So Head, *Hist. Num.*, p. xxxviii. In the second edition of his great work, however, Mr. Head takes another view.

standard by thirty grains has been given, nor any reason why the South Ionian standard should have been adopted at Aegina, when it was not adopted at any other European mint. It is a mere guess, without any evidence to justify it. The same may be said of Prof. Ridgeway's view that the object in issuing coins of the Aeginetan weight was that ten of them should be of the value of a Homeric talent or Euboic gold coin of 130 grains. He suggests that 130 grains of gold, at the rate of 15 to 1, would be equivalent to ten silver coins weighing 195 grains. This view is based upon two assumptions, both of which not merely are arbitrary, but can be definitely disproved. It is assumed that the standard of value in Aegina was a gold coin or talent. This was not the case; the standard of value was, according to our authorities, a bar of bronze or of iron. And it is assumed that gold and silver passed in the proportion of 15 to 1. This was not the case. When the Athenians needed gold for the Parthenos statue of Pheidias, they bought it with silver at the rate of 14 to 1: but this is the highest rate of exchange of which we hear in Greece Proper: the rate usual in the Persian Empire was 13 or  $13\frac{1}{2}$  to 1.<sup>1</sup> Passing these baseless conjectures, let us consider the real circumstances of the case.

In adjusting the new silver currency to the existing currency of bronze, two courses were possible. The Aeginetans either could strike coins of such a weight that a round number of the bronze oboli, say ten or twenty, would go for one of them. In that case they might have originated a new standard of weight for coinage, other than the Pheidonian. Or they could strike silver coin on the Pheidonian standard, leaving the question of the number of bronze bars which would go for each to settle itself.

We know that other States when they issued coins in a fresh metal, say in silver or in gold, sometimes, like the kings of Lydia and Persia, used different standards for the two metals, in order that a round number, ten or twenty, of the silver coins should pass for one of the gold. And sometimes, like the Athenians and like Alexander the Great, they used one standard for the two metals.

It was the latter of these systems which was adopted by the people of Aegina. They issued their silver money on the already familiar Pheidonian standard (Pl. No. 6). The weight of these early silver staters is well known to us. The didrachm weighed about 192 grains (grammes 12.44), the drachm 96 grains (grammes 6.22), the obol, which was the sixth of the drachm, 16 grains (grammes 1.03). These

<sup>1</sup> See T. Reinach's paper in *L'Hist. par les Monnaies*, pp. 41-73.



weights correspond with the standard of numerous weights of Pheidonian type which have come down to us.

At the same time the Aeginetans fitted the new coins into the old currency by equating the new obol of silver with the old obolus or spit of bronze. In primitive societies it is easy and usual to find some simple proportion between various objects used as measures of value; for example, a slave may be equated with three oxen, an ox with ten sheep, and so on. We have reason to think that the relation established between the values of silver and bronze at Aegina was 120 to 1. We have an indication of this in the facts of the regular currency of Sparta. At Sparta the current oboli were not of bronze; the currency consisted of iron bars, which were of the weight of an Aeginetan mina.<sup>1</sup> According to Plutarch and Hesy-chius these minae of iron were worth only half an obol of silver. In that case iron would be in relation to silver only as 1 to 1200. Hultsch, however, gives reasons for thinking that the normal value of these bars was an obol, giving a relation of 1 to 600. Now bronze was in Greece about five times as valuable as iron. Haeberlin<sup>2</sup> has given reasons for thinking that in Italy in the third century the relations of value between silver and bronze were 120 to 1. If the same proportion held in Greece, the silver obol of 16 grains would be equivalent to an obol of bronze weighing 1,920 grains (124 grammes), or twenty Aeginetan drachms. This corresponds to the reason and probability of the matter. The bronze bars would in that case have weighed about a quarter of a pound; a drachm or handful of six of them would weigh about  $1\frac{2}{3}$  pounds, somewhat less than a kilogram.

The early currency of Peloponnesus seems to have consisted of bars both of bronze and iron, bronze for larger, and iron for smaller payments. At Sparta iron only was allowed. But it would appear that this regulation was not a primitive one, but introduced in the course of Spartan history: for in the Homeric age, as we know, iron was very valuable; and its value could not have become despicable until well on in the iron age. At Byzantium, and in Peloponnesus iron bars or coins were retained for small payments until the fourth century B. C.

The Aeginetan talent, consisting of 60 minae, or 6,000 drachms, or 48,000 obols, must have reference to minae, drachms, and obols of silver, not of bronze. For  $48,000 \times 16$  grains weighs about eighty pounds, or forty kilograms, which would be about what a man might

<sup>1</sup> Hultsch, *Metrologie*, p. 535.

<sup>2</sup> *Systematik des ält. röm. Münzwesens* (1905).

easily lift. If a talent had been formed from the bronze obolus of 1,920 grains, it would be a weight 120 times as great, which would be quite out of proportion to a man's capacity for lifting. So the drachm which was in weight the hundredth of a mina, and the obol which was in weight the sixth of a drachm only came into existence when silver began to be coined. The drachm and the obol as coins appear to have been invented by the Aeginetans. They were borrowed by all the systems of silver coinage which came into use in Hellas. This is abundantly proved by the marks of value which the coins of Peloponnesse bear in the fifth century.<sup>1</sup> And even in Asia it became usual to strike drachms or obols of Persian or Phoenician standard. But originally, as the Aeginetans from the first went by the drachm and the obol, so the Ionians of Asia used the stater and its parts.

A difficulty remains. Why in that case should the Aeginetans have struck at first, not the drachm of 96 grains, but the didrachm of 192 grains? The answer I think is ultimately this, that man has two hands and not one only. A didrachm is the equivalent of the bars of bronze which a man carries when he has both his hands full of bars, six in each. It stands for a man, while a drachm represents only half a man.

We may observe a parallel phenomenon in regard to the talent. Students of metrology are puzzled at finding that the various talents in use in Asia, and even in Europe, have two forms, light and heavy; and the heavy is of exactly double the weight of the light. Now a talent, usually weighing some 60 or 80 of our pounds, is what a man can lift: the root of the word is  $\tau\lambda\alpha$ :  $\tau\lambda\acute{\alpha}\omega$  meaning I bear. But a man can lift in two hands double as much as he can lift in one. What a man can carry in one hand is a light talent: what he can carry in two hands is a heavy talent.

At Aegina the mina is an arbitrary division,  $\frac{1}{60}$  of the talent, or 100 silver drachms. The name shows it to be of Asiatic origin: it is a stepping-stone in European systems of weight between talent and drachm. But the talent is a natural weight, almost as natural as a weight, as the foot and the fathom are as measures of length. And like them it varies in various countries between certain limits, following the local notion as to what a man can be expected to lift. As the yard represents the length of the King's arm, measured from the breast-bone, so the royal talents of Assyria represented what the King could comfortably lift in one hand or in two. In a sense the drachm also is a natural measure, for given the usual

<sup>1</sup> *Br. Mus. Cat. Peloponnesus*, p. xvii.



size of a bar of metal, it would not be convenient to carry more than a certain number of them in the hand: the bars of Peloponnese were of such a size that six could be carried.

### III. COINS OF EUBOEAE.

THE cities of Chalcis, Eretria, and Cyme in Euboea were among the great colonizing cities of Greece at the beginning of the Olympiads. Cumae in Italy was a foundation of the people of Chalcis and Cyme,<sup>1</sup> and the earliest of all Greek settlements in Italy; and Italy, Sicily, and Chalcidice in Macedon were dotted with Euboean colonies. The Euboeans would not be likely to be far behind the Aeginetans in the issue of coin. And being more detached from the Greek mainland, and in closer relations with the people of Ionia where Cyme in Aeolis was a colony of Euboea, it is probable that their earliest issues would have a closer resemblance to those of Asia Minor.

The standard which was derived from Babylon and was largely used for gold coins in Asia, was known to the Greeks, including Herodotus, as the Euboic standard. This does not of course imply that the Babylonian standard was adopted from Euboea. The opposite line of derivation is the only one probable or indeed possible. It does, however, prove that it was through Euboea that the Greeks gained knowledge of the standard of Babylon.

The issue of silver coins on a gold standard is a remarkable phenomenon. In Asia, gold and silver were in the sixth century, and probably earlier, minted on different standards, in order that a round number of the silver coins should exchange against one or two of the gold coins. The issues of Croesus and of the Persian kings, for example, are so arranged that twenty of the silver pieces pass for one of the gold pieces. And this custom has generally prevailed, down to our days. The Euboeans took another line, which was later adopted by the Athenians and by Alexander the Great. They issued silver money of the same weight as the gold which was current. Not much gold would pass in Greece, but such as there was would no doubt pass by the Babylonian weight, which indeed had struck such deep roots that no gold coins (with insignificant exceptions) were struck on any other standard than the Euboic and its Attic variant down to Roman times. The price of the gold stater in silver coins of the same weight was left to be determined, not by any authority, but by the demand, and the circumstances of the time.

<sup>1</sup> Modern historians are generally agreed that it was Euboean Cyme, and not Cyme in Aeolis, which took part in this settlement.

It is a characteristic difference between Asia, where the will of kings regulated all things, and Europe, with its free cities.

This is a point of some importance, because some archaeologists have been disposed to see in the frequent changes at some cities of the standard used by them for silver coins, a series or succession of attempts to adjust the silver coinage to the gold, when the proportionate value of the two metals changed. It is in this direction that Professor Ridgeway has looked for the origin of some silver standards, notably the Aeginetan.<sup>1</sup> And Mr. Head<sup>2</sup> is disposed to see in the somewhat notable changes of the silver standards used in the fifth and fourth centuries at Abdera in Thrace, a series of adjustments of the silver coinage to a constantly rising value of silver in proportion to gold. I cannot in this place fully consider Mr. Head's theory. It will be sufficient to point out two preliminary objections to it. In the first place we can scarcely suppose Abdera to have adopted quite a different system of coinage, the bimetallic, when all the other cities of Thrace were monometallic. And in the second place, the standard of value in Abdera, in the fifth and fourth centuries, was not, as Mr. Head's theory assumes, the daric or gold stater, but the silver coins of Athens.

But though the Euboeans accepted the Babylonian weight for their stater, they did not divide it, on the Asiatic plan, into thirds and sixths and twelfths, but into halves and twelfths, drachms and obols. This was the Pheidonian system of division. Herein, as we shall see, they differed from the Corinthians.<sup>3</sup> And they succeeded in making their coinage thoroughly European and national.

This is the simplest, and I think the true, view of the origin of the Euboic weight. It is not, however, wholly free from difficulty. That it was bronze, not gold, which was the standard of value in Greece I have insisted in speaking of the early coins of Aegina. And the Aeginetans adapted their issues of silver to a bronze and not to a gold currency. Why should the Euboeans have taken another course? Dr. Lehmann-Haupt<sup>4</sup> has maintained that the Euboeans also adapted their silver to bronze: but in my opinion he does not prove this satisfactorily. He supposes that Chalcis, being as its name implies a city abounding in copper, and commanding copper mines,<sup>4</sup> was able to force copper to a higher comparative value than it had

<sup>1</sup> See above, p. 12.

<sup>2</sup> *Hist. Num.*, ed. 2, p. xliii.

<sup>3</sup> In the trinal divisions of the silver coins of Chalcidice, I should see not Euboean influence, as Dr. Imhoof-Blumer, but Corinthian. See below, p. 25.

<sup>4</sup> Copper and bronze are not clearly distinguished. *Hermes*, 1892, p. 549; *Zeitschr. f. Numism.*, 27, 125.



elsewhere. The ordinary relation between copper and silver in the Levant being 120 to 1, a mina of silver would ordinarily pass, where the Babylonian silver weight was used, for two talents (120 minae) of copper. But if the Chalcidians were able to force copper up to a value of 1 to 96 in comparison with silver, then these two talents of copper would be equivalent only to  $\frac{9 \cdot 6}{120}$  or  $\frac{4}{5}$  of a Babylonian mina of silver. Now  $\frac{4}{5}$  of a Babylonian mina of silver is nearly a Euboic mina of 436.6 grammes (6,750 grains).<sup>1</sup> Thus the writer supposes that the greater value given to copper resulted in the invention of a new and lighter standard for silver. It will however be observed that Dr. Lehmann-Haupt's theory is entirely conjectural; and is built upon the astonishing assumption that when you have a greater quantity of goods to dispose of, you can raise the price of the goods, which is entirely contrary to economic fact. Of course, if Chalcis had a monopoly of copper, it would be somewhat different: but even then, why should the people who bought copper at a high price in Euboea sell it at a lower price in Asia Minor? Moreover, Chalcis had no monopoly: but only valuable mines. The theory in question therefore is utterly baseless and unacceptable. Only one plausible argument can be urged in its favour, that at Athens the *χάλκοϋς* was one ninety-sixth of the didrachm, since eight chalci went to the obol and six obols to the drachm. But this argument has no weight. The chalcus was probably a late-invented fraction of the obolus: in some places six went to the obol, in other places eight: there is no indication that at Chalcis it was originally of the weight of a didrachm, as the theory requires.

Mr. Head<sup>2</sup> is disposed to think that the Euboic standard came to Euboea from Samos, where it had already been used in early times for electrum; and the use for electrum would be a natural stage on the way for its use in silver. The chief objection to this view is that the early electrum coins in question, attributed by Mr. Head to Samos, are not really struck on the Babylonian gold standard, but on a somewhat heavier standard, stater 135 or 270 grains, 17.50 or 8.75 grammes, which was later in use at Cyrene and was introduced at Athens by Peisistratus. This standard I regard as of Egyptian origin: I consider it later, under *Athens*. Thus a Babylonian origin of the Euboic standard is by far the most probable.

I have already discussed, and dismissed, the view that the earliest coins of Euboea were struck in electrum.

<sup>1</sup> This is a false value for the Euboic mina, which really weighed 421 grammes (6,500 grains).

<sup>2</sup> *Hist. Num.*, ed. 2, p. xlvi.

The earliest silver coins which can be attributed with certainty to Chalcis are the tetradrachms, didrachms, and smaller divisions bearing as type on one side a flying eagle, on the other a wheel in a triangular incuse.<sup>1</sup> The weight of the tetradrachm is 258·7 grains (16·76 grm.) : that of the didrachm just half this. The attribution of these coins to Chalcis is guaranteed by the appearance on them of the letters (VAΨ) (XAA) in some later examples.

These later examples, however, can scarcely be given to an earlier date than the middle of the sixth century ; and the uninscribed coins, some of which may perhaps belong to Chalcis, must begin at least half a century earlier.

The earliest coins which can with certainty be attributed to Eretria are tetradrachms and lesser coins bearing on one side a cow scratching her head with a hind foot and the letter E ; on the other side a cuttlefish in an incuse. The weight of the tetradrachms varies from 260 to 267 grains (16·84–17·27 grm.) : their date would begin probably when Eretria was rebuilt after the Persian destruction of 490 B. C., say about 485 B. C.<sup>2</sup> These coins show the raising of the standard which is so general in Greek cities about the middle of the sixth century<sup>3</sup> ; that raising cannot be so clearly traced at Chalcis.

It is, however, almost certain that the coins which I have mentioned were not the earliest issues of Eretria. A large and varied series of uninscribed silver coins was first attributed to the cities of Euboea by F. Imhoof-Blumer and E. Curtius.<sup>4</sup> It consists of what have been called in Germany *Wappenmünzen*, didrachms of Euboic weight (130 grains, 8·42 grammes), bearing on one side a very simple type, often enclosed in a linear circle, on the other side an incuse square divided into four triangles by crossing lines.

The types are as follows :—<sup>5</sup>

1. Gorgon-head—Didrachm, obol, tetartemorion.
2. Ox-head, facing—Didrachm, hemiobol.
3. Owl to l.—Didrachm, obol.
4. Horse, standing, unbridled—Didrachm.
5. Forepart of bridled horse r. or l.—Didrachm.
6. Hinder part of horse to r.—Didrachm, drachm.
7. Amphora—Didrachm, obol.

<sup>1</sup> Babelon, *Traité*, p. 667.

<sup>2</sup> As Mr. Head points out, *Cat. Central Greece*, Introd. p. lviii, Eretria must have been speedily rebuilt, as Eretrian ships were present at the battle of Artemisium, 480 B. C.

<sup>3</sup> See below, p. 39.

<sup>4</sup> *Hermes*, x. 215 ; *Monatsber. der Pr. Akad.* 1831.

<sup>5</sup> Babelon, *Traité*, ii. 1, pp. 674–723, Pls. xxxi–iii.



8. Astragalus—Didrachm.

9. Wheel. Sometimes of archaic type, one transverse crossed by two supports: sometimes with four spokes, with or without supports—Didrachm, drachm, obol.

10. Triskele of human legs—Didrachm, drachm, triobol.

11. Scarabaeus—Didrachm, obol.

12. Frog—Obol.

These types are by Mr. Head conjecturally assigned as follows to the cities of Euboea:—<sup>1</sup>

Chalcis—Wheel, triskele.

Eretria—Gorgon-head, bull's head.

Cyme—Horse; fore- or hind-part of horse.

Athenae Diades—Owl, astragalus.

Histiaea—Amphora.

These attributions, however, are anything but certain; and the whole question must be seriously considered.

We begin by identifying the coins of Eretria, which form the most important class of early Euboean money. They form a series thus:—<sup>2</sup>

*Didrachms.*

Gorgon-head = incuse (in one case, lion's head in incuse).

Bull's head = incuse.

*Tetradrachms.*

Gorgon-head = Bull's head.

„ = face and forepaws of panther.

*Later Coinage, after Persian wars.*

Cow scratching herself = Sepia in incuse square.

As regards this later coinage, it can be given with confidence to Eretria, as we have seen. But the earlier series, between which and the later there is no point of direct contact, presents more difficulty. It stretches over a considerable period of time, the style showing gradual development, and the incuse giving way to a second type. Only two attributions are suggested for the series, Athens and Eretria. And the conclusive reason for assigning them to Eretria rather than to Athens is that many of them are certainly later than the earliest coins bearing the head of Athena and certainly of Athenian origin, and that it is not to be supposed that two sets of coins of quite

<sup>1</sup> *Br. Mus. Cat. Central Greece*, p. xlix.

<sup>2</sup> *Br. Mus. Cat. Central Greece*, Introduction.

N.B.

different types and fabric would be issued contemporaneously from the Athenian mint.

This argument may be enforced and made more definite by a careful consideration of the weights of the coins. The earliest didrachms above mentioned seldom exceed 130 grains in weight. The specimens in the British Museum average 129.5 grains (8.39 grammes). The later tetradrachms bearing the Gorgon-head and another type, the head of a panther, are heavier, the average of six examples being  $2 \times 130.6$ , or if we omit one abnormal example,  $2 \times 131.4$ ; these latter, then, constitute the coinage of Eretria contemporary with the early Athena types at Athens.

In treating of the coins of Athens I shall try to show that these two-type pieces are first struck in the time of Peisistratus, who raised the monetary standard from the Euboic level (130 grains for the didrachm) to the Attic level ( $135 \times 2$  grains for the tetradrachm.) If that view be correct, it will follow that the tetradrachms at Eretria are later than the middle of the sixth century, and the didrachms which preceded them presumably earlier than that date. We shall find in dealing with the coins of Corinth that in the middle of the sixth century Attic influence in that city also appreciably raised the weight of the coins. Thus the Peisistratid issue of tetradrachms turns out to be of great value as evidence for the arranging and dating of the coins of Greece Proper.

On some of the tetradrachms given to Eretria there are two globules in the field.<sup>1</sup> These can scarcely be taken for anything but marks of value. M. Six and M. Babelon regard their presence as proving that the coins in question were issued as didrachms—double, that is to say, of the drachm of 130 grains which they regard as used at Athens between the time of Solon and that of Hippias. M. Six draws the further conclusion that they were struck at Athens, there being no evidence for the existence of so heavy a drachm elsewhere. In my opinion, however, there is no satisfactory evidence for the currency, even at Athens, of a drachm of the weight mentioned. I regard the globules on the Eretrian coins as merely shewing that they were of double the value of the coins which had up to that time circulated at Eretria, and which were without doubt Euboic didrachms. The people of Eretria in the archaic period, just like the people of Aegina,<sup>2</sup> thought not in drachms, but in staters or didrachms. At Delphi, at a much later date, and at other places, expenses were ordinarily reckoned in staters.

<sup>1</sup> *Br. Mus. Cat. Central Greece*, p. 121; Babelon, *Traité*, Pl. xxxi. 14.

<sup>2</sup> See above, p. 14.



Another series, that of the owl, has been attributed, not without reason, to Athens. As M. Babelon has well observed, if a numismatist were asked what coinage would naturally at Athens precede the Athena-type, the only reply he could make, remembering the analogy of other series, would be, a coinage with owl for type.<sup>1</sup> Examples have been found both in Attica and Euboea. The amphora type would also be very appropriate to Athens. On the later issues of the city the owl stands on an amphora; and the amphora naturally would represent the oil which was the great gift which Athena had bestowed upon men. The olive-spray marks the Athenian coinage almost throughout, and the amphora would have the same significance. The astragalus occurs frequently on the well-known weights and tesserae of Athens.

M. Babelon tries to show the appropriateness to Athens of some of the other types. He would connect the horse-type and the wheel, as shorthand for a chariot, with the legend which narrated that Erechtheus was the inventor of chariots. It might have been better to seek in the types some allusion to the great festival of Athena, with its processions of chariots. But in any case, little weight can be assigned to what may be called literary or mythical arguments. If a type is actually used on Athenian monuments, as are the owl and the amphora, there is some reason to expect them on the early coins. But the mere fact that a type has a legendary connexion with the city goes for very little. I would therefore regard the horse coins as rather Euboean than Attic.

The wheel series has been given by Mr. Svoronos to Megara.<sup>2</sup> For this also there is some show of reason. The type of Mesembria, a Megarian colony in Thrace, is a radiate wheel, apparently a symbol of the sun-god. The types at Megara would certainly be Apolline; on the coins of the fourth century they are the head of Apollo and the lyre: but it is possible that the wheel may have been an earlier type at Megara. It is scarcely to be supposed that Megara, the outpost of the Dorians against Athens, and a great colonizing city in the seventh century B. C., should have been without coins when Aegina, Corinth, and Athens, her three neighbours, were all issuing them.

In view of the occurrence of the wheel on coins given with certainty to Chalcis one might be disposed to give these wheel coins to that city. But they are not earlier than the coins of Chalcis of which I have spoken: and it is improbable that the city would issue at the same time two dissimilar sets of coins.

<sup>1</sup> Babelon, *Traité*, ii. 1, p. 705.

<sup>2</sup> *Journ. int. d'archéol. numism.* 1898, p. 273.

It is doubtful whether in the case of these series, just as in the case of the early electrum of Asia, we are justified in regarding the types as regular civic stamps. Indeed, the variety of types is so considerable, and the similarity of fabric so great, that Beulé declared they must all of them, or none, come from the mint of Athens. They seem from the evidence of finds to have circulated together with the regular early tetradrachms of Athens and Euboea. For example, a hoard found at Eleusis<sup>1</sup> consisted of an early triobol of Athens, a didrachm and triobol of Eretria, three obols bearing the wheel, one the Gorgon-head, and a half obol bearing the bull's head. A hoard found near Cyme in Euboea consisted of tetradrachms and lesser coins of Eretria, many archaic tetradrachms of Athens, and the following *Wappenmünzen*, wheel (1), owl (1), hind-part of horse (1), fore-part of horse (1), standing horse (1), Gorgon-head (2). Another hoard found at Eretria contained tetradrachms and didrachms of Eretria, early Athenian tetradrachms, a tetradrachm with Gorgon-head, and several examples of *Wappenmünzen* (types not stated).<sup>2</sup>

It is thus clear that these coins had a wide and general circulation; and it seems almost certain that they belong to a monetary convention of some kind. In the sixth century Athens and Eretria were closely associated. But on the other hand there was hostility between Athens and Megara.

To Euboea and Athens therefore I would attribute the series, though certainty is impossible. We can separate one class as Euboean, and another as probably Attic; but such types as the horse, the wheel, the frog must remain of doubtful attribution.

#### IV. COINS OF CORINTH AND CORCYRA.

That the coinage of Corinth began very early is sufficiently proved by its extremely archaic art and fabric. It is easy to prove that it began at an earlier time than that of Athens. For the earliest tetradrachms of Athens are almost on the same level of art as the coins of Corinth on which the head of Athena appears on the reverse, and these are preceded by at least two regular series of coins, stretching over a considerable space of time, as is shown by their variety and abundance.

Now these coins of Athens can be dated with reasonable certainty

<sup>1</sup> Köhler, *Athen. Mitth.* 1884, p. 357.

<sup>2</sup> Köhler l.c. It is noteworthy that in these hoards there were found no coins of Chalcis. Eretria and Athens stood together: Chalcis stood apart from them, with Corinth.



to the middle of the sixth century. The coins of Corinth then must reach back to the early part of the seventh century, certainly to the reign of Cypselus. They can scarcely, however, be so early as the time of the foundation of Corcyra, or the Corcyrean coin would have probably started under their influence.

Mr. Head's assignment of the early coins of Corinth is as follows:—

*Time of Cypselus, 657–625 B. C.*

1. ♀ Pegasus with curled wing = incuse square, of similar pattern to that on coins of Aegina. Stater (130 grains, 8.42 grammes). (Pl. No. 9.)

*Time of Periander and later, 625–500 B. C.*

2. ♀ As last = incuse developing into the croix gammée pattern. Stater and drachm (43 grains; 2.78 grammes). (Pl. No. 10.)

On the hemidrachm of this class, a half Pegasus occurs, on the obols a Pegasus, on the hemiobol, the head of Pegasus.

*After 500 B. C.*

3. An archaic head of Athena appears on the reverse of the staters; an archaic head of Aphrodite on the drachm. The diobol bears the mark of value Δ, the trihemiobol the letters TPIH, the hemiobol H. (Pl. No. 11.)

It appears to me that as Mr. Head has placed the archaic coins of Athens bearing the head of Athena too early, so he has placed the earliest staters of Corinth bearing the same head too late. Von Fritze<sup>1</sup> has well pointed out that there cannot be much difference in date between the two series, as the style of art is closely similar. We cannot place the Athenian series earlier than, nor the Corinthian series much later than, the middle of the sixth century.

Some of the earliest flat coins of Metapontum (*Br. Mus. Cat. Italy*, p. 239) are restruck on coins of Corinth of the second type. These Metapontine coins belong to the second half of the sixth century. Somewhat later coins of Metapontum of thicker fabric and belonging to the early years of the fifth century are restruck on coins of Corinth of the third type, bearing the head of Athena.<sup>2</sup> This evidence is however indefinite; it only shows the coins of Corinth in each case to be older than the Metapontine restriking; but does not tell us how much older.

<sup>1</sup> Von Fritze, *Zeitschr. f. Numism.* xx. 143.

<sup>2</sup> Babelon, *Traité*, ii. 1, p. 1405.

I should modify Mr. Head's dates, which in any case are too precise, in the following way:—

Class 1	(about)	650-600	B. C.
2	,,	600-550	,,
3	,,	550-	,,

As we have no reason for connecting a change of fabric with any special events in the history of Corinth, any attempt at great accuracy cannot be successful.

There is however one indication, that of weight, which Mr. Head does not seem to have used. If we compare the coins of Class 2 with those of Class 3 we shall find that the latter are distinctly the heavier. From the collection in the British Museum, which contains only coins in good condition, we reach the following results.

Of 21 staters of Class II, the average weight is 127 grains.

Of 28 staters of Class III, the average weight is 132 grains.

That proves that at about the time when Class III came in, the standard of the stater was raised by about five grains. A precisely similar rise in the standard from 130 grains to  $135 \times 2$  grains, took place at Athens in the time of Peisistratus, as I shall presently try to prove. I conjecture that the occasion of raising the standard at Athens was the acquisition by Peisistratus of the silver mines on the Strymon and at Laurium. Corinth seems to have followed the lead of Athens, probably because she could not help herself. This little investigation of weights strongly confirms the fixing of the middle of the sixth century at Corinth as the time of the introduction of the head of Athena as reverse type. One may even suspect that the type itself was borrowed from the fine coinage of Peisistratus.

To go back. It is safe to attribute the origin of coinage at Corinth to Cypselus. Generally speaking, we find the wealthy and art-loving tyrants of Greece responsible for such innovations. We have next to consider the monetary standard, and the reason for selecting it.

The Corinthian stater of 130 grains is of the weight of the Daric or gold shekel of Persia, and of pre-Persian times. Like the people of Euboea, those of Corinth transferred a gold standard directly to silver, as the people of Phocaea had transferred it to electrum. But they did so with a difference. The Euboeans, as we have seen, took the stater as a didrachm, and divided it into two drachms of sixty-five grains or twelve obols of eleven grains. They thus completely Europeanized it, following the system of Pheidon. The Corinthians retained the Asiatic system of division by three. They divided their stater into three drachms of forty-three grains,

and eighteen obols of seven grains. This fact was already known from the statements of ancient metrologists, and received final confirmation when inscriptions on the coins were read as marks of value,<sup>1</sup> Δ or ΔΙΟ standing for diobol, ΤΡΗ for trihemiobol, and Η for hemiobol. As the weights of these diobols, trihemioobols, and hemioobols are just what they should be when the drachm weighs forty-three grains, the proof that this was the standard is beyond doubt.

If we seek a reason for this combined system, one may easily be found. The object of Cypselus seems to have been to make terms with the two systems of weight in use in Greece, the Euboic<sup>2</sup> and the Aeginetan. The Corinthian stater of 130 grains would pass not only as an Euboic stater, but as two-thirds of the Aeginetan stater of 196 grains. The Corinthian drachm of forty-three grains would be equivalent to two-thirds of the Euboic drachm of sixty-five grains, and four-ninths of the Aeginetan drachm of ninety-six grains. Mr. Head<sup>3</sup> has suggested that the Corinthian drachms may have been regarded as practically the equivalent of an Aeginetan hemidrachm of forty-eight grains. It is, however, difficult to believe that the drachm when equated with Aeginetan currency would pass at a higher rate than the stater or tridrachm; and this is implied in Mr. Head's view. It is, however, quite probable that in some places in later periods of Greek history, the Corinthian drachm and the Aeginetan hemidrachm were equated. The fact is that we know very little indeed as to the way in which Greek coins of various systems were related in value on the tables of the money-changers: there may have been a fixed convention in the matter, or there may have been continual fluctuations according to demand and supply. This is a matter for further investigation.

The trinal division of the Corinthian stater is valuable to the numismatist, as it enables him to discern, in the Greek colonies of Italy, Sicily, and Chalcidice in Macedonia, the influence of Corinthian commerce. There is a natural presumption that when cities which adhere to the Attic standard divide their stater of 135 grains by two they belong to the sphere of Euboic or Athenian commerce; when they divide it by three, they seem rather to be under Corinthian influence. This reasonable view, however, has not been accepted by Dr. Imhoof-Blumer, who sees in the trinal division of the stater in Chalcidice a trace of Asiatic influence. The point is a fine one, but

<sup>1</sup> First by myself, in *Num. Chron.* 1871.

<sup>2</sup> The coins of Cypselus seem to be earlier than any extant coins of Euboea: but we may well suppose the Euboic standard to have been already in existence.

<sup>3</sup> *Hist. Num.*, ed. 2, p. 399.



not unimportant. I prefer to consider the actual facts of exchange and commerce as more important to the people of Chalcidice than mere traditions of Asiatic procedure. That some of the cities of Chalcidice and of South Italy use a drachm of 43–45 grains is therefore an important fact in the history of commerce. This investigation, however, cannot be carried further in this place, as it is remote from our immediate object.

*Corcyra.*

In the case of Corcyra also there is an interesting clashing between the Aeginetan, the Corinthian, and the Euboic systems. We might naturally have expected the city, when it first issued coins, to take as its model the Corinthian coinage, which was certainly then in existence. But the relations of Corcyra to the mother-city were never from the first cordial: and the first issue of coin probably took place at the time when the people of Corcyra asserted their independence about 585 B. C., after the death of Periander. The type of the obverse, a cow suckling a calf, seems to refer to the early settlement of the island from Euboea, that being an ordinary type of Carystus, and referring probably to the worship of the Mother-Goddess.<sup>1</sup> The reverse type, a stellar pattern, is unlike anything in Greece Proper, and bears a nearer likeness to devices used in Ionia. The weight is the Aeginetic, but somewhat light; probably through the influence of the Corinthian standard, which was in use at Anactorium and about the mouth of the Corinthian gulf. The Corinthian drachm, it must be remembered, 43–45 grains, is distinctly lighter than the Aeginetan hemidrachm of forty-eight grains. The coins of Corcyra do not from the beginning exceed 180 grains (grm. 11.66) for the stater, and 90 grains (grm. 5.83) for the drachm. If the above conjecture is correct, these would pass as four and two drachms of Corinth.<sup>2</sup> As the coinage of Corinth was closely copied by the cities of Acarnania, Anactorium, Leucas, and the rest, so the cities founded by Corcyra in the north, on the coast of the Adriatic, notably Dyrrhachium and Apollonia, closely copied the coins of Corcyra, from which their money only differs in virtue of the inscriptions which it bears. The coins give us a vivid impression of the clear geographical line which separated the commercial sphere of Corcyra from that of Corinth. That the Corcyrean standard had no influence in Italy or Sicily, but only in the Adriatic is an important fact, indicating that the course of Corcyrean trade ran northwards only.

<sup>1</sup> *Br. Mus. Cat. Thessaly to Aetolia*, p. xlvi.

<sup>2</sup> In *Hist. Num.*, ed. 2, p. xlix, Mr. Head has come to the same conclusion.

It has been suggested<sup>1</sup> that the coin-standard of Corcyra might not be connected with that of Aegina, but directly derived from some of the cities of Asia, such as Miletus or Camirus. But all likelihood is taken from this conjecture by the fact that it does not correspond with any Asiatic standard. It is too heavy for the official standard of Persia; too light for that of Miletus. It is therefore better to derive it from the Pheidonian standard which had course in all Greece Proper, from Thessaly to Sparta.

#### V. EARLY COINS OF ATHENS.

There is no subject in Greek Numismatics which has been so fully discussed as the earliest coinage of Athens; and there are few subjects in which a greater variety of opinion prevails. The discussion has not been confined to numismatists, but has been taken up by philologists and historians. Without going into all the by-ways of the subject, I shall try briefly to portray its main features.

##### I. *The earliest coinage.*

There are three views as to what were the earliest coins of Athens. If we could settle this question, which is a purely numismatic one, we could with more confidence approach the other questions, philological, economic and historic, which are involved.

The first claimants are certain coins of electrum, small pieces of the weight of about twenty-one grains, having on one side an owl, and on the other side an incuse. These we have already discussed and shown that they lie outside the regular Athenian coinage.

The next claimant is the silver coins of various types, the so-called *Wappenmünzen*, of the weight of 130 grains, which are found in Euboea, Attica and Boeotia. I have spoken of them already under Euboea, and claimed them mostly for Chalcis, Eretria, and other cities of that island. But it is probable that some of them may belong to Athens, and that Athens, early in the sixth century may have issued coin closely like that of the cities of Euboea.

As we have seen, the coins of this class which can best claim Athenian parentage are those of the type of the owl. M. Babelon mentions<sup>2</sup> the following examples:—

Didrachms	124·1 grains (8·04 grammes)	British Museum. (Pl. No. 7.)
	130·8 „ (8·47 „ )	De Luynes
	130 „ (8·42 „ )	„
Obols	11–9·6 grains (·72 to ·60 grammes)	Several examples.

<sup>1</sup> *Hist. Num.*, ed. 2, p. 326.

<sup>2</sup> *Traité*, ii. 1, p. 701.

The best indication what early uninscribed coins belong to a city is to be found by comparing the types with those of the later and recognized coins of that city. As the acknowledged coins of Athens are stamped with an owl, we may claim the uninscribed coins with that type for Athenian. As the later tetradrachms of Athens have an amphora, on which the owl stands, for type, and many weights have an amphora as type, we may fairly claim for Athens also the uninscribed coins stamped with an amphora. (Pl. No. 8.)

While we may attribute the owl coins, and the amphora coins to Athens, I should stop there. I think M. Babelon's<sup>1</sup> attempts to find mythological justification for the assignment of such types as the horse and the wheel to Athens are fanciful. The bull's head type, which some writers would assign to Athens is so closely connected with the Gorgon-head, which almost certainly belongs to Eretria, that we must refuse it to Athens.

Some numismatists attach value to the statement of Plutarch that Theseus struck coins bearing the type of a bull. Pollux<sup>2</sup> also says that the didrachm was of old the coin of the Athenians, and was called a bull, because it had a bull stamped on it. In consequence of these statements those coins have been attributed to Athens which have as type a bull's head. It is however very probable that the statements arose from a misunderstanding of the laws of Draco, in which fines are stated in oxen. Later writers fancied that by oxen Draco must have meant some kind of coin, knowing that the coins of Aegina were called tortoises, those of Corinth horses, and those of Athens owls. But we know that Draco was speaking of real oxen. And it may be added that the head of an ox is a very different thing from an ox.

The earliest coins, then, of Athens, appear to be silver didrachms of Euboic weight, bearing as type the owl, or the amphora. These may be safely given to the time of Solon, and connected with his reforms. The tetradrachms bearing the head of Athena were almost certainly, as I shall try to show, first issued in the time of Peisistratus. Thus the coinage of Athens, during the first half of the sixth century, seems to exhibit the city as closely related to Eretria in Euboea, and a member of a monetary union including a group of cities in the region. The fact is not uninteresting. In the time of Solon Athens was still struggling with Megara for the possession of Salamis, and dreams of the headship of Hellas, whether in letters, in commerce, or in arms, had not yet risen above the horizon. It was the legislation

<sup>1</sup> *Traité*, ii. 1, p. 707.

<sup>2</sup> ix. 60.



of Solon, and still more the ambition of Peisistratus, which turned Athens from a small city into a great one.

## II. *The Reforms of Solon.*

The question of the Solonic reform of the Athenian coinage is one which has aroused more controversy than any other in Greek numismatic history. Numismatists used to think that they had a satisfactory account of the matter in a passage of Androtion (probably from his *Ἀθ(ε)ς*) quoted by Plutarch in his *Life of Solon* (xv). But certain statements in Aristotle's *Constitution of Athens*, since brought to light, have been held to be quite irreconcilable with those of Androtion. Some writers, such as W. Christ,<sup>1</sup> still regard Androtion as the preferable authority, thinking an archaeologist more likely to be accurate in such matters than a philosopher. But the great majority of the commentators on the work of Aristotle<sup>2</sup> maintain that his authority is final. In my opinion it is possible to reconcile the statements of the two authorities, except in one or two points. This I shall proceed to do.

The text of Plutarch runs as follows: Καίτοι τινὲς ἔγραψαν, ὡν ἔστιν Ἀνδροτίων, οὐκ ἀποκοπῆ χρεῶν, ἀλλὰ τόκων μετριότητι κουφισθέντας ἀγαπήσαι τοὺς πένητας, καὶ σεισάχθειαν ὀνομάσαι τὸ φιλανθρώπειμα τοῦτο, καὶ τὴν ἅμα τούτῳ γενομένην τῶν τε μέτρων ἐπαύξεισιν καὶ τοῦ νομισματος τιμῆν. Ἐκατὸν γὰρ ἐποίησε δραχμῶν τὴν μῦν, πρότερον ἑβδομήκοντα καὶ τριῶν οὖσαν· ὥστ' ἀριθμῶ μὲν ἴσον, δυνάμει δ' ἔλαττον ἀποδιδόντων ὠφελείσθαι μὲν τοὺς ἐκτίνοντας μεγάλα, μηδὲν δὲ βλάπτεσθαι τοὺς κομιζομένους.

According to Androtion, then, the alteration in the coinage was part of Solon's *Seisachtheia* or relief of debtors. Solon, says Androtion, did not cancel the debts but moderated the interest. He caused the mina which before had been of the weight of 73 drachms to be equivalent to 100, so that debtors paid the same number of drachms which they had borrowed, but in drachms of less weight; thus those who had sums to pay were gainers while those who received them were no losers. It was this operation which gained for Solon and his friends the name of *χρεωκοπίδαι* or debt-cutters. Androtion, however, adds that at the same time Solon made an increase of measures, that is, no doubt, measures of capacity. Apart from this phrase, to which we will return later, the passage seems quite clear. As the proportion of 73 to 100 is just the proportion in weight between the

<sup>1</sup> *Münchener Sitzungsber.* 1900, 118.

<sup>2</sup> The literature of the subject, which is extensive, is given in Head's *Historia Numorum*, ed. 2, p. 365.

mina and drachm of the Athenian coinage and those of Aegina, numismatists naturally concluded that the Aeginetan standard was before Solon's time in use at Athens, and that he lowered the standard from Aeginetan to what may be called Solonic or Attic level, in order that debtors should save 27 per cent. in their repayments. To say that the creditors would lose nothing is of course absurd: whatever the debtors would gain they would lose: but it is very natural that Solon should not have realized this fact. M. Babelon has no difficulty in showing that the measure attributed to Solon was financially unsound;<sup>1</sup> but that is scarcely to the point. It is quite certain that, all through the course of history, coinage has been debased in order to accommodate debtors or to relieve the financial straits of governments; and we have no reason to think that Solon would be too wise to attempt such things.

We must next turn to the passage bearing on the question in the recently discovered work by Aristotle on *The Constitution of Athens*.

The text of Aristotle, as determined by Blass and Kenyon, runs<sup>2</sup>:  
 'Εν μὲν οὖν τοῖς νόμοις ταῦτα δοκεῖ θεῖναι δημοτικά, πρὸ δὲ τῆς νομοθεσίας ποιῆσα[ι] τὴν τῶν χρ[ρ]εῶ[ν] ἀποκοπήν, καὶ μετὰ ταῦτα τὴν τε τῶν μέτρων καὶ σταθμῶν, καὶ τὴν τοῦ νομίσματος αὐξήσιν. ἐπ' ἐκείνου γὰρ ἐγένετο καὶ τὰ μέτρα μείζω τῶν Φειδωνείων καὶ ἡ μὲν πρότερον [ἄγο]υσα στα[θμ]ὸν ἐβδομήκοντα δραχμὰς ἀνεπληρώθη ταῖς ἑκατόν. ἦν δ' ὁ ἀρχαῖος χαρακτήρ δίδραχμον. ἐποίησε δὲ καὶ σταθμὰ πρὸς τ[ὸ] νόμισμα τ[ρ]εῖς καὶ ἐξήκοντα μῶναι τὸ τάλαντον ἀγοῦσας, καὶ ἐπιδιευεμήθησαν [αἱ] τ[ρ]εῖς μῶναι τῷ στατήρι καὶ τοῖς ἄλλοις σταθμοῖς.

The only serious question as to the reading arises over the phrase beginning τὴν τε τῶν μέτρων with the repetition of the article τὴν before τοῦ νομίσματος. Hill had already remarked on the oddness of the phrase, and suggested as a possible emendation τὴν τε τῶν μέτρων καὶ σταθμῶν (αὐξήσιν), καὶ τὴν τοῦ νομίσματος (μείωσιν). This may be the original reading: but in any case the word αὐξήσις if applied to coin need not mean its increase in weight, but may, as some commentators have pointed out, only imply a greater abundance. I shall presently, however, suggest a better explanation, namely that Aristotle somewhat misread his authority.

Let me, however, give a paraphrase to show how I would interpret the passage:—

Such were the democratic features of his lawgiving; before which

<sup>1</sup> *Journ. Intern. de Numism.* vii. 228.

<sup>2</sup> Quoted from Hill in *Num. Chron.* 1897, 285, 'Aθ. Πολ. c. 10. I have not thought it necessary to mark the editors' restorations where they are certain.

he arranged (1) the cutting-down<sup>1</sup> of the debts; and after it (2) the increase in weights and measures and the multiplication<sup>2</sup> of the coins. For under him the measures became greater than those of Pheidon; (3) and the mina which formerly weighed seventy drachms was filled up with the hundred drachms. (4) The early stater was a didrachm. (5) He made also weights to go with the coinage, a talent weighing 63 minae, which extra three minae were distributed over the stater and other weights.

I am not at all convinced that Aristotle means to say anything very different from what Androtion says. If we put the two sets of statements in parallel columns there will appear a remarkable likeness between them.

*Androtion.*

(1) He favoured the poor and lightened their burden, not by cutting down the debts, but by moderating the interest: this benevolence they called *Seisachtheia*.

(2) It was accompanied by an increase of the measures, and a change in the value of the coins.

(3) He made the mina which before had contained 73 drachms consist of 100 drachms,

so that, when men repaid coins equal in number but less in weight, they were greatly advantaged, while those who received were not injured.

(4)

(5)

*Aristotle.*

He arranged the cutting down of the debts;

after that, an increase in weights and measures, and increase (?) of coin, the measures becoming greater than those of Pheidon.

The mina which formerly weighed 70 drachms, was filled up with the hundred drachms.

The early stater was a didrachm.

He also made weights to go with the coinage, a talent weighing 63 minae, which extra 3 minae were distributed over the stater and other weights.

In passage (1) no doubt there seems a formal contradiction between the authorities: but it is not deep, since the proceeding of Solon

<sup>1</sup> ἀποκοπή means mutilation rather than destruction.

<sup>2</sup> Or decrease, μείωσιν, as above suggested.



might be regarded equally well in either aspect, as a diminution of the debt, or as a lightening of the interest. A reduction in the value of the coin would serve both purposes, since interest as well as principal would be paid in the reduced coinage. (2) Here both authorities are confused. Both are clear that the measures of capacity were increased, so as to become, as Aristotle says, larger than those of Pheidon, but as to what happened to the coin they are less explicit. The phrase in Plutarch is *γενομένην τῶν τε μέτρων ἐπαύξησιν καὶ τοῦ νομισματος τιμήν*. The phrase in Aristotle is *τὴν τε τῶν μέτρων καὶ σταθμῶν καὶ τὴν τοῦ νομισματος αὔξησιν*. The phrases sound as if the writers were following the same authority, but did not understand precisely what happened to the coins. But Plutarch (or Androtion) goes on to show clearly what he supposed to have taken place, and we have no reason for thinking that Aristotle would have rejected his explanation, which obviously implies that the value of the coins was lessened. (3) Commentators have commonly supposed that here there is no real conflict of the two authorities, but that while Aristotle uses the round number 70, Plutarch gives the more precise figure of 73. But the difference is in my view important. The proportion between 70 and 100 is nearly that between the *Euboic* mina and the *Aeginetan*; the proportion between 73 and 100 is nearly that between the *Attic* mina and the *Aeginetan*.<sup>1</sup> Metrologists have not usually distinguished between the *Euboic* and the *Attic* mina, calling it the *Euboic-Attic*. But if we discriminate between the two, as I think we are bound by undeniable facts to do, then we must consider Aristotle's statement as the more correct. It is very natural that Plutarch's authority, writing at a time when the *Attic* standard was in universal use, should have supposed that it was that which was introduced by Solon. But we have in Aristotle a valuable record of the real facts of the case: if we may believe him, it was not the later *Attic* standard which Solon introduced, but the real *Euboic*, which was appreciably lighter. The coins bear out this view, and not the other.

Turning to the coins themselves, as the only safe test where authorities differ, we are justified in saying that there were at Athens none at all before the time of Solon. The fines in the laws of Draco are given in oxen; and as in the time of Draco the coins of *Aegina*

<sup>1</sup> As we have seen above (p. 20) the *Euboic* drachm weighed 65 grains (4.21 grammes): the *Attic* 67.5 grains (4.37 grammes). The difference between them is 3.6 per cent. Taking the *Aeginetan* drachm at 94 grains (6.09 grammes) a mina weighing 70 such drachms would give 100 drachms weighing 65.8 grains, and a mina weighing 73 such drachms 100 drachms of 68.6 grains.

were widely circulated, we may be sure that Athens was dilatory in the introduction of coinage. As we are expressly told that the measures which Solon introduced superseded the Pheidonian, we may fairly assume the same in regard to the coins, and conclude that the Aeginetan mina and drachm were in use at Athens in 600 B. C. For the current didrachms of Aegina, Solon substituted coins weighing 130 grains, that is staters of the Euboic standard, which was already accepted at Chalcis and Eretria, and (with a different system of division) at Corinth. The whole question then narrows itself down to this, were these staters, as Androtion asserted, didrachms intended to pass in place of the heavier Aeginetan didrachms, or were they drachms, as Aristotle is supposed by some recent authorities, such as Six, Head, Hill, Babelon, and others to assert? They suppose that for some reason Solon introduced a mina not of the Euboic weight, but of double that weight, which mina was again lowered by the half by Hippias. They allow that at the end of the sixth century a coin of 130 or 135 grains was a didrachm, but they think that for the first three-quarters of that century it was called a drachm.

Their reasons are twofold. In the first place they insist on interpreting the word *αὔξησις* as implying an addition to the weight of the coins. In the second place they appeal to the testimony of extant Athenian weights.<sup>1</sup> They cite one of archaic style, bearing the inscription *ἤμισυ ἰερόν δημόσιον Ἀθηναίων*, weighing 426.6 grammes (6,585 grains) which yields a mina of 13,170 grains and a drachm of 131 grains, and another inscribed *δεκαστάρηρον*, weighing 177.52 grammes (2,738 grains) yielding a stater (or didrachm?) of 273 grains. The second of these, however, proves little, as the familiar tetradrachm of Athens of the usual type, and weighing 270 grains, might well be called a stater. And the first in fact only confirms what we knew before, that there was in use at Athens for some unknown purposes, a mina and drachm of double the weight of those ordinarily used for coins. But the use of this double mina was by no means confined to the period between Solon and Hippias, as it should be to give it any value in the present connexion. On the contrary, it was used contemporaneously with the ordinary Solonic weights in the fifth and fourth centuries.<sup>2</sup> It can, therefore, have had nothing to do with the Solonic reform of the coinage.

There is then no argument to be drawn from existing coins or

<sup>1</sup> *Num. Chron.* 1895, 177; 1897, 288; Pernice, *Griech. Gewichte*, pp. 81, 82.

<sup>2</sup> Murray, *Greek Weights* in *Num. Chron.* 1868, 68, 69; cf. Article *Pondera* in Smith's *Dict. of Antiquities*.

weights to overthrow the view which I read in our ancient authorities. Let us next turn to the historic probabilities of the case.

These seem to me entirely on the side of the reduction of weight. Solon was essentially a moderate, wishing to destroy neither rich nor poor, but to find for them a way of living together. But the poor were overwhelmed with debt, and had largely mortgaged their land. In such a case, to reduce the debt without abolishing it would be the natural plan for a mediator. And although Solon was, doubtless, a very great and wise man, I cannot see why he should not have thought that he could most fairly accomplish this by reducing the weight of the coinage. It is a process which has been resorted to by financial reformers in all ages, until the English pound of silver weighs a third of a pound, while the French *livre* weighs but a fraction of an ounce. We have no reason to think that Solon's wisdom lifted him above all the ways of thought of the time.

On the other hand it is hard to imagine any reason which Solon could have had for raising the standard of the coin. The only suggestion I find as to a motive is given by M. Babelon, who observes<sup>1</sup> that he would by this means give an advantage to Athenian coin, and promote its circulation. This will scarcely stand. In the first place, in the time of Solon the Athenians had not discovered the mines of Laurium, which were first worked in the time of Peisistratus, and so had no particular motive for pushing their coin. In the second place, if the Athenians were prepared to exchange their own coin of 130 grains for the Aeginetan drachm of 96 grains they must have been very bad men of business. A slight addition to the weight of the drachm would bring the coinage of Athens into request; but an addition of 40 per cent. would not have had this effect at all. It would be simply introducing a new monetary standard without any visible reason.

We come now to statement No. 4, that the old standard coin was a didrachm. I have translated *χαρακτήρ* by 'standard coin'; for though the word properly means the type stamped on a coin, it may also stand for the coin which bore the type. Six, Babelon, and Hill have taken the phrase as proving that the early Athenian tetradrachms really passed as didrachms. But if in Solon's time, as I have maintained, only didrachms of the ordinary Euboic weight of 130 grains were issued, then Aristotle's assertion exactly corresponds with the fact. Indeed, it entirely confirms my contention.

We return to paragraph No. 2, in which we have again a valuable

<sup>1</sup> *Journ. Int. de Num.* vii. 226.



historic record which modern commentators have misunderstood. We can scarcely suppose the statement of Aristotle that Solon increased the measures and weights of Pheidon to be quite baseless. This is in itself unlikely, and is rendered less so by the fact that even Androtion also speaks of an enlargement of measures, at the same time that he speaks of the lightening of the coinage. Aristotle calls the enlargement of the measures a democratic measure, and it is clear that from the point of view of the man in the street the enlargement of measures was as much in his favour as the depreciation of the coin, in which he had to pay for such measures.<sup>1</sup>

The measures and weights of Pheidon being in use at Athens at the time, it would seem that Solon somewhat augmented them at the same time that he lowered the weight of the coins. That Pheidonian weights for goods were in use in later times we already knew: but Solon, perhaps temporarily, raised them in a small degree.

The probable nature of his proceeding is made clear by comparison with an Attic decree of some centuries later (*C. I. G.* i. 123, *I. G.* ii. 476) which runs as follows: 'The mina of commerce shall weigh 138 drachms of the Stephanephoros' (i. e. Attic drachms, and so be of the Pheidonian standard) 'and there shall be added (thrown in) 12 drachms.' It goes on to say that in every 5 minae, one mina shall be thrown in in like manner, and in every talent 5 minae. Thus in case of the talent, by this extraordinary decree, every seller was bound to add  $\frac{1}{12}$ , in case of 5 minae  $\frac{1}{5}$ , in case of a mina  $\frac{1}{12}$ . The date of the decree is the second or first century B. C.

Though it is difficult to understand the procedure in case of the 5 mina weight, which seems exceptional, it is impossible to regard this decree as anything but a deliberate attempt to make the sellers in the market give more than full weight. Probably a custom had arisen of adding a little beyond the exact weight, as indeed often happens among ourselves, and this is made compulsory, by a really democratic law, a law which would have satisfied Shakespeare's Jack Cade. Of course it was futile; but the mere fact that it was passed throws a remarkable light on the nature of the later democracy of Athens. If such laws could be made in the Hellenistic age, after centuries of successful Athenian trading, we can scarcely be surprised that in the simple and unpractised sixth century B. C., even a wise lawgiver who wished to conciliate the people should legislate to a similar effect, and ordain that the seller should give the buyer full weight and a little more.

<sup>1</sup> This has already been pointed out by Prof. v. Wilamowitz-Möllendorff, *Aristoteles und Athen*, i, p. 43.

And this may explain a fact which I have elsewhere<sup>1</sup> noted, that it is quite usual in the case of Greek weights, and especially in the case of the numerous Athenian weights which have come down to us, that they should be appreciably heavier than the standard. A people so fond of bargaining as the Greeks, whether ancient or modern, would greatly appreciate a liberal measure; and by using such weights and measures a dealer in the market would be sure to increase his *clientèle*. We must not hastily apply modern scientific notions on such subjects in the case of the ancient world.

All through the course of history the tendency of coins is to deteriorate in weight and quality, unless when some fully organized State with a commercial instinct makes it a part of its policy to keep up the standard, and in so doing perhaps to keep up the standard of its neighbours. But the tendency in weights and measures is quite different; competition keeps them up or even raises them. This may explain how it was that Solon, while he increased the measures and the commercial weights, lowered the standard of the coin. Formerly I supposed that his standard was slightly heavier than the Euboic, 67·5 grains for the drachm, in place of 65. But I am now convinced that this slight increase in the weight came in the time, not of Solon, but of Peisistratus, as shall be presently shown.

Paragraph (5) is made somewhat obscure by the addition of the phrase *πρὸς τὸ νόμισμα*. Apart from that, we might naturally have supposed that it gives one the exact percentage by which the Pheidonian weights were increased, namely three minae to the talent, or five per cent. And this must, in spite of the additional words, be what is meant. We must therefore take the phrase *πρὸς τὸ νόμισμα* to imply not that the coin-weights were raised, which is clearly not the fact, but that the weight of commodities which were bought and sold for money was raised. It seems to me that these interpretations give us for the first time a reasonable and probable view of the monetary reform of Solon.

### III. *The Coinage of Peisistratus.*

The date of the first issue of the well-known tetradrachms of Athens, which bear on one side the head of Athena, on the other an owl and an olive-twig, has been much disputed. The opinion of Mr. Head, an opinion always entitled to great weight, assigns this issue to the early years of the sixth century, and to the reform of Solon. He observes that<sup>2</sup> ‘among them are the oldest and rudest

<sup>1</sup> Article *Pondera*, in Smith's *Dict. of Antiquities*.

<sup>2</sup> *Hist. Num.*, ed. 2, p. 369.

examples of a human head on any ancient coins . . . and I take these to be quite the earliest Greek coins which were struck with both obverse and reverse types.'

On the other hand Dr. Imhoof-Blumer and M. J. P. Six regard it as impossible that coins with two types on obverse and reverse, should make their appearance so early. These excellent authorities think that the coinage did not arise until the time of Hippias 520-514 B.C. The coins which appear to Head so rude, and which are indeed of very careless and primitive style, are regarded by them as barbarous copies, or coins issued at a time of stress, and not really very archaic. Imhoof regards them as struck during the democracy which followed the fall of Hippias: Six prefers to suppose that they were struck when Hippias was besieged in the Acropolis.

I have no hesitation in a partial acceptance of this view. It seems to me clear that a great proportion of the extant early tetradrachms is really of barbarous and imitative character. Such coins are Babelon pl. xxxiv, nos. 2-11 and *Brit. Mus. Cat.* pl. i, 3, 5, 6 (our Pl. Nos. 14, 15). These must be distinguished from the really fine archaic coins of Athens, which certainly preceded them. The fabric of the two classes of coins is very different; in the one case we have fine and careful work, in the other great carelessness and irregularity.

It is to be observed that the theta with crossed bar  $\Theta$ , which is a really archaic form, is found, so far as I am aware, only on coins of the finer and more careful type,<sup>1</sup> which I regard as struck at Athens itself. The other form of  $\Theta$  is found invariably on the ruder coins, which may be barbarous copies. Although archaic forms of letters often reappear at a time when one would suppose them obsolete, and so are not a very trustworthy guide in the assignment of dates by inscriptions, yet the facts which I have noted fall in rather with the theory that these rude coins are late in date than with the view that they belong to the time of Solon.

The barbarous class may very possibly have been struck by the Persian army when in Greece. The troops of Xerxes would need silver money as well as the gold darics to pay for such necessaries as they could not procure without payment. And this view is actually confirmed by the discovery of coins of the class in the canal of Xerxes by Mount Athos,<sup>2</sup> and on the Acropolis itself.<sup>3</sup> This

<sup>1</sup> Such as *Brit. Mus. Cat.*, Pl. ii. 5-7; Babelon, *Traité*, Pl. xxxiv. 15-17. This  $\Theta$  is found in the very early inscriptions of Athens, down to the time of Euphronius. See Droysen, *Preuss. Akad. der Wiss., Sitzungsber.* 1882, p. 8.

<sup>2</sup> Babelon, *Traité*, ii. 1, p. 765.

<sup>3</sup> Babelon, pl. xxxiv. 2-8, 10, 11.



theory had already occurred to Beulé and F. Lenormant. Such coins as I am considering may then fairly be given to the end of the sixth or the beginning of the fifth century.

But what is the date of the really earliest coins of Athena type, those pieces of fine archaic type the style of which is so distinctive that we can venture with confidence to give them a date? I refer to such coins as Babelon pl. xxxiv. 14-18; xxv. 1, 2; *Brit. Mus. Cat.* pl. i. 11, pl. ii. 2, 7 (our Pl. Nos. 12, 13). We must briefly consider their fabric and style. In regard to fabric the most noteworthy fact is that they have a reverse—as well as an obverse—type. This is a rare phenomenon in the sixth century, east of the Adriatic. But two types were in use in Italy at the middle of the sixth century; and some coins of Samos, which must be given to the same date, have a reverse type enclosed in an incuse square.<sup>1</sup> But we know of no coins earlier than about 550 B.C. which have two types. In regard to style we have a great range of Athenian sculpture in the sixth century for comparison. The coins do not exhibit the so-called island style, notable in the case of the dedicated Corae; but they may well be set beside the head of Athena from the pedimental Gigantomachy, which may date from about 530-520 B.C., the head of the Calf-bearer, and the heads of the bronze statuettes of Athena from the *Perserschütt*.

I therefore accept the view of several authorities, perhaps best defended by von Fritze,<sup>2</sup> that the earliest tetradrachms of Athens belong to the middle of the sixth century. Von Fritze shows that the head of Athena on them is about contemporary with that on the coins of Corinth of 550-500 B.C.<sup>3</sup> There can I think be little doubt that this coinage was initiated by Peisistratus. That Tyrant had, as every one knows, a special cult of Athena. He obtained possession of extensive mines of silver, both at Laurium, and in the valley of the Strymon,<sup>4</sup> and required large issues of silver for the payment of his mercenaries. He filled Athens with artists, brought from Ionia and the Islands, and employed them on great works. He made the Panathenaic festival more splendid. In short, he was precisely the man to initiate a great coinage. It is possible that a great celebration of the Panathenaea by Peisistratus was the occasion of its first appearance.

The Athena coinage of Athens, from its first appearance, is regulated by a standard somewhat heavier than the Euboic—drachm

<sup>1</sup> Gardner, *Samos*, pl. i. 8-12.

<sup>2</sup> *Zeitschr. f. Num.* xx. 143. So also Perrot and Lermann.

<sup>3</sup> See above, p. 24.

<sup>4</sup> *Hdt.* i. 64.

67·5 grains (grammes 4·37), instead of 65 grains (grammes 4·20). This is easily explicable if they were issued by a tyrant of magnificent ideas, anxious to make his city, his temple, his coins, the best in the world. The coins were of fine silver, almost without alloy; and they very speedily gained a reputation which they never lost. They seem to have given rise, almost at once, to barbarous imitations; and barbarous imitations abounded until Hellenistic times, when the mint of Athens took careful measures to exclude such. Indeed they were remarkably easy to copy; and there was no reason why they should not be copied by any tyrant or state which wished to put silver into circulation.

The raising of the monetary standard by Peisistratus is one of the land-marks of the early coinage of Hellas. We have seen, in dealing with coins of Euboea, Corinth, and other cities that the action of Athens compelled them also to raise the weight of their coins, which otherwise would have stood in an unfavourable position in the neutral markets. And thus we are furnished with a date in arranging the early series of coins which is as valuable for the money of the sixth century as is the introduction of the Rhodian standard for the classification of the money of the early fourth century. Numismatists generally have missed this clue, because they have identified the Euboic and Attic standards, whereas the evidence of the coins themselves proves them to have been perceptibly different.

The standard introduced by Peisistratus was used in the earliest times of coinage, the sixth or even the seventh century, at Samos or some neighbouring city, for electrum and for silver.<sup>1</sup> It was also used at Cyrene for silver from 600 B.C. It appears to have been derived from Egypt, where a *kat* of the weight of 135–140 grains (grammes 8·74–9·07) was in use in the Delta. Through Naucratis this weight spread in one direction to Cyrene, in another to Samos. Peisistratus adopted it partly perhaps with a view to trade in Egypt. It is a suggestive fact that large numbers of early Athenian coins have been found in Egypt, on the site of Naucratis and elsewhere.

Another explanation of the raising of the standard by Peisistratus may be found in the fact of his working mines of silver in Thrace. We see in examining the coins of Thasos and the neighbouring coast, that the stater in ordinary use there in the sixth century weighed from 140 grains (9·07 grammes) upwards. Whence this standard was derived is uncertain; but the source may very possibly be Egyptian.

Whencesoever Peisistratus derived his coin-standard, it is certain that its adoption at Athens was the beginning and foundation of

<sup>1</sup> Head, *Num. Chron.* 1875, 273; *Cat. Ionia*, pp. xxiii, xli.

Attic commercial supremacy. Thenceforward the Attic silver coin dominated more and more the trade of the Aegean. The pure and heavy coins of Athens tended to drive out inferior issues. When the reign of the Tyrants at Athens gave way to that of the democracy, the determination of the people to force the circulation of their money grew stronger. Recently published inscriptions have proved to what a degree the Athenian Demos hindered and prohibited the issue of coins by the subject allies in the time of the Delian League.<sup>1</sup> In a well-known passage in the *Frogs* (405 B.C.) Aristophanes speaks of the Athenian coinage as everywhere dominant, received both by Greeks and barbarians. Even after the political fall of Athens, Xenophon could write<sup>2</sup> that foreign merchants who carried away from Athens not goods but the silver owls did a good business, for they could anywhere part with them at a premium.

The roots of the flourishing Athenian Empire were fed largely by the silver of Laurium. The Peisistratid coinage presents a striking contrast to the modest issues of Solon, scarcely to be distinguished from those of Euboea. It marks what Shakespeare calls 'the tide in the affairs of men, which taken at the flood leads on to fortune.' None of the triumphs of the Athenian tetradrachms was greater than that which they won when the powerful tyrants of Sicily, Gelon and Hieron and Theron accepted their lead and initiated the splendid coinage of Sicily.

In the time of the tyrant Hippias (527-511 B.C.) a fresh crisis took place in the Athenian coinage, if we may trust an obscure passage in the *Oeconomica* attributed to Aristotle, which runs 'he made the current money of Athens no longer legal tender, and fixing a rate of purchase ordered the people to bring it in to him, but when they were assembled in expectation of the issue of a new type he gave back the same money.'<sup>3</sup>

The natural way of taking this passage is as a statement that Hippias called in the current money, valuing it at a certain rate of discount, and crediting at that rate those who brought it in: but afterwards he paid these persons not in a new and full-weighted coinage, but in the old currency. This of course is a procedure the first part of which has been followed from time to time in all countries, when a coinage has become outworn or debased, though more usually

<sup>1</sup> Weil, in *Zeitschr. f. Numism.*, xxv, p. 52.

<sup>2</sup> *De Vectigal.* iii. 2.

<sup>3</sup> τὸ τε νόμισμα τὸ ὄν Ἀθηναίους ἀδόκιμον ἐποίησε, τάξας δὲ τιμὴν ἐκέλευσε πρὸς αὐτὸν ἀνακομίζειν' συνελθόντων δὲ ἐπὶ τῷ κόψαι ἔπερον χαρακτῆρα, ἐξίδωκε τὸ αὐτὸ ἀργύριον. *Oecon.* ii. 4. A similar story is told of Dionysius of Syracuse.

<sup>4</sup> *Num. Chron.* 1895, p. 178; cf. *Num. Chron.* 1897, p. 292. So M. Babelon, *Traité*, p. 742.



in modern times it is the state and not the individual which bears the loss. But there are difficulties in supposing that this is the meaning of the writer, or at all events in supposing that this really took place at Athens. For the early money of Athens is of full weight and great purity, so that there could be no excuse for calling it in as debased, and it is difficult to see what could have been the motive of the tyrant.

M. Six, followed by Mr. Hill, has supposed that though Hippias gave back the same coin, he did not give it back at the same rate; but that he reduced the standard of the drachm from the earlier level of 135 grains to the later level of 67.5 grains, thus halving its weight; and while he had accepted the ordinary Athena and owl coins as didrachms he returned them as tetradrachms, thus making a gain of 50 per cent. We have however seen that there is no valid reason for supposing the drachm between the times of Solon and Hippias to have been of double the weight of the later Athenian drachm. The view of M. Six therefore lacks foundation.

Mr. Head has suggested<sup>1</sup> that Hippias may have improved and modernized the types of the coinage; although to the people who were expecting something quite different it might well seem the same coin over again. Perhaps this suggestion is the best. If we are to accept the statement of the *Oeconomica* as historic, the best plan is to take it quite literally and simply. Hippias, on some pretext, called in the money of the Athenians at a discount, and then, instead of issuing an entirely fresh coinage, gave out coins of the old types at full value. A possibility which occurs to us is that his object may have been to exclude from the coinage the barbarous imitations which seem to have been so abundant. In any case the extant coins sufficiently prove that no great change took place at that time in the Athenian issues.

<sup>1</sup> *Num. Chron.* 1893, p. 249.







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