

ARTISTS, ENGRAVERS, AND STYLE IN GREEK COINAGE¹

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SINCE the eighteenth century, archaeology has developed from the artistic pursuit of collectors and *dilettanti*² to a highly specialized, scientific discipline: in no single branch, perhaps, has the change been so marked as in the study of Greek coinage.

Different aspects of coins have fascinated different generations. Petrarch, presenting an imperial Roman coin to the Emperor Charles V, in A.D. 1354, addressed him in the following words which reflect the Renaissance interest in the ethical significance of the coin types :

Et ecce, inquam, Cesar, quibus successisti ecce quos imitari studeas et mirari, ad quorum formulam atque imaginem te componas, quos preter te unum nulli hominum daturus eram.³

In succeeding centuries uninscribed coins were haphazardly assigned to any number of Greek and Roman mints.⁴ The realization of the historical potential of Greek coins was a relatively late development and Numismatics, as a subject for serious study, can hardly be said to have existed before B. V. Head published his *Historia Numorum* in 1887, in which he confidently, but perhaps somewhat prematurely, asserted that “. . . it is now a matter of no great difficulty for the experienced numismatist to place a coin within certain limits often surprisingly narrow. It is thus possible with a tolerably complete series of the coins of any one city at our disposal to arrange them in the

¹ A lecture delivered in the John Rylands Library on Wednesday, the 13th of January 1971.

² Contrast the situation described in C. T. Seltman, *Riot in Ephesus*, pp. 13 ff., “A mine of Statues”, with the scientific methods of survey, discovery, and analysis recorded in P. Courbin, *Études archéologiques* and D. Brothwell and E. Higgs, *Science in Archaeology*² : a Survey of Progress and Research.

³ *Le Familiari*, III, xix, 3, 15.

⁴ So J. Eckhel, *Doctrina numorum veterum* (1792-8), *Prolegomena*, p. 42. This work reflects the general state of numismatic knowledge at that period. Eckhel himself had never seen a gold stater of Athens, or a single Cyzicene stater which led him erroneously to doubt the ancient literary evidence for their existence!

order in which they were issued and so to reconstruct the numismatic history of the town."¹

All numismatic research depends, fundamentally, on the fact that the dies imprint their history on the metal blanks of the coins at the time of striking: the evidence thus provided is direct² and, unlike that of manuscripts, free from errors of transmission, although the coins may be worn, or damaged, as a result of circulation or burial.

The first "scientific" die-sequence, based on the comparative study of die deterioration (the forerunner of the modern *corpus*), appeared in 1906 for the mint of Terina.³

Within the last twenty years,⁴ the study of Greek coins has entered yet another important phase in its development largely as a result of the wider use of classical methods of chemical analysis and the development of more sophisticated non-destructive techniques such as neutron activation,⁵ electron

¹ *Historia Numorum*, p. xvii: How much light may be thrown upon the dark spaces of political history by a series of coins classified and duly arranged in order of date can only be fully appreciated by those who are familiar with the science of numismatics. There have been many variations on this theme, among them, W. Ridgeway's foreword to C. T. Seltman, *The Temple Coins of Olympia*, and, most recently, C. M. Kraay and Max Hirmer, *Greek Coins* (hence-forward abbreviated to Kraay, G.C.), pp. 20-21. See also W. Schwabacher, "Neue Methoden in der griechischen Münzforschung", *Studies in Mediterranean Archaeology*, vol. xv.

² Cf. W. Schwabacher, *Grekiska mynt ur Konung Gustaf VI Adolfs Samling*, p. 15: "Tar man i sin hand ett grekiskt mynt, ett präglat betalningsmedel precis som ett av våra egna får man direkt kontakt med ett stycke bevarat grekiskt liv."

³ K. Regling, *Terina* (1906). *Sechshundsechzigstes Programm zum Winckelmannsfeste der archaeologischen Gesellschaft zu Berlin*.

⁴ The awakening interest in the application of scientific methods to the study of numismatic problems was reflected in a report by Professor P. Naster, *Congrès international de numismatique* (Paris, 1953), vol. i, *Rapports*, pp. 171 ff., "Numismatique et Methodes de Laboratoire:" "Ce rapport vise à faire connaître les examens de laboratoires auxquels des monnaies ont été ou pourraient être soumises avec profit. Nous devons en signaler l'utilité, les possibilités et les limites. Il ne s'agit pas nécessairement d'instruire les numismates sur les manipulations mêmes qui relèvent du domaine des sciences exactes, mais sur l'opportunité qu'il peut y avoir à recourir aux services techniques des laboratoires. Cf. also A. France-Lanord, *Études archéologiques* (ed. P. Courbin), section III, pp. 105 ff., "Intérêt et limites des Méthodes Scientifiques en Archéologie."

⁵ For a description of the technique see C. M. Kraay, *Archaeometry: The Bulletin of the Research Laboratory for Archaeology and the History of Art* (Oxford),

micro-probe¹ analysis, and other minimally destructive techniques.² A further important factor is the growing acceptance by numismatists of the rôle which applied science can play in solving certain absolute problems especially in connection with Greek metallurgy and mint practice. It is, however, now more important than ever to re-iterate a warning against the indiscriminate and sometimes over-enthusiastic use of results which can differ significantly according to the analytical techniques by which they have been obtained.³ These results must, in future, be carefully assessed in the light of our knowledge from all literary and archaeological sources.

Die-study, the physical properties of the metal, or alloy,⁴ from which the coins were struck, its relative purity or adulteration, weight-standards, the volume of issues, find spots, the composition of hoards, the degree of surface wear, the significance of types, symbols, and other additions in the field, are all factors which severally, or together, can help to throw light on the political, economic, and artistic development of the issuing city, or state.

As a complement to the increasing volume of scientific data available, a re-examination of Greek coin types in the light of general stylistic trends in Greek art and, in particular, of the work of individual artists is now necessary. The identification of "hands" or even of "schools" of engraving where, as in the majority of cases, coins carry no indication of artistic authorship

1, no. 1 (1958), 6 ff. and C. M. Kraay and Vera M. Emeleus, *Composition of Greek Silver Coins : Analysis by Neutron Activation*, pp. 9 ff. (V. M. Emeleus).

¹ A. S. Darling and J. F. Healy, "Micro-probe Analysis and the Study of Greek Gold-Silver-Copper Alloys", *Nature*, 231, 5303 (1971), pp. 443 ff.

² These were discussed at length in my Inaugural lecture, "The Art and Science of Greek Numismatics : Techniques in the Study of Greek Electrum", at Royal Holloway College, 16 May, 1968. Cf. also M. Aitken, *Physics and Archaeology*, pp. 156 ff.

³ As demonstrated in papers read to a recent Symposium (9-11 Dec., 1970), under the auspices of the Royal Numismatic Society, at which various methods of analysing the metal contents of ancient and medieval coins were discussed.

⁴ See J. F. Healy, "The Composition of Mytilenean electrum", *Congrès international de Numismatique* (Paris, 1953), *Actes*, II, published 1957 (Healy, *Congrès*), pp. 529 ff. I would like to record my thanks to Herr. H. von Aulock for his help and interest in problems connected with electrum.

would be of inestimable value to the comparative study of the issues of a number of mints. The problem is not unlike the one originally experienced in Greek vase-painting¹ where, as the result of many years of detailed and sensitive stylistic analysis, we have been provided with a definitive index of Black and Red-figure vases² assigned to named individuals, or to groups conveniently referred to by the subject of their *chef d'oeuvre*, as in the case of the artist known as the "Pan painter"³ after his spirited version of that god.⁴

Two main currents may readily be identified in Greek numismatic art :

(1) *Conservative*—often a euphemism for archaizing tendencies or a reluctance, for a variety of reasons, to alter, improve, or modernize, a basic, repeated type. At Athens the type combination of a helmeted Athena with an owl reverse,⁵ which replaced the so-called "Wappenmünzen" by 520-510 B.C.,⁶ continued throughout the whole history of the mint with only minor additions—indeed the replacement of the archaic frontal eye in the profile version of the goddess' head was delayed until the fourth century B.C. In view of the exciting developments in other fields of Athenian art, especially in red-figure vase-painting and in sculpture, the reason for this phenomenon of apparently purposeful archaism is most likely to have been economic and political rather than psychological, or because of any inadequacy in technical ability on the part of the engravers.⁷

¹ See R. M. Cook, *Greek Painted Pottery*², ch. XV, "The History of the Study of Vase-Painting".

² By J. D. Beazley in, *Attic Black-figure Vase-painters* (1956) and *Attic Red-figure Vase-painters*² (1966) respectively. Cf. also R. M. Cook, *ibid.* pp. 325 ff.

³ J. D. Beazley, *Der Pan-Maler*.

⁴ P. E. Arias, B. B. Shefton, M. Hirmer, *A History of Greek Vase-painting*, pp. 346 ff. J. D. Beazley, *ibid.* pls. 3-4.

⁵ C. T. Seltman, *Athens, Its History and Coinage*, pls. V ff.

⁶ R. J. Hopper, *Essays in Greek Coinage presented to Stanley Robinson*, pp. 16 ff. "Observations on the Wappenmünzen."

⁷ Cf. E. S. G. Robinson, "Some problems in the late fifth century B.C. coinage of Athens", *American Numismatic Society (A.N.S.) Museum Notes*, ix. 1 ff. During the seventy years following the Persian wars, the coinage, in striking contrast to other manifestations of Athenian genius, soon became uniform to the point of monotony—an uninspired repetition of the old formulae, and often carelessly executed at that. It is not altogether easy to see why this should have

(2) *Modern, or innovating*—reflecting the current artistic trends and styles in Greek art generally. The hektai (sixths of a stater) struck by the mint of Mytilene, the political and commercial capital of the island of Lesbos, afford a good example of a series with a wide variety of ever-changing types and type-combinations.¹ At Mytilene the engravers were sensitive to innovation and bold in their treatment of subjects.²

In addition some electrum coin series, as those of Kyzikos³ and Phokaia,⁴ belong to both currents combining archaic incuse reverses with modern obverses which display a multiplicity of sensitively executed types. Kyzikos, with its staters and parallel hektai, and Mytilene, from which mint only hektai are extant—except for the unique stater⁵—provide a comprehensive index of numismatic art of the fifth and fourth centuries B.C. and also reflect some of the main developments in Greek sculpture with which the art of the die-engraver has an affinity.

Almost all genres of art may be shown to follow a kind of *cursus*, or progression of development⁶: the only differences lie in the relative time-scales for each stage. Thus Greek art

come about. No doubt it was partly due to cautious conservatism—to a subconscious fear that any change in the currency might make it less acceptable in world markets. But Corinth, whose coinage, though to a lesser degree, was also an international one, had something of the same problem to face, and solved it with a fine coinage, combining uniformity of types with variety in execution. L. Lacroix, *Reproductions de statues sur les monnaies grecques*, p. 33, also sees in this practice the engravers' wish to safeguard the acceptability of their staters and hektai which were used principally for exchange with semi-barbarous peoples. Outward appearances are important to less sophisticated races.

¹ See J. F. Healy, *Numismatic Chronicle (N.C.)* 1962, p. 65, n. 1.

² Cf. J. Babelon, *Le portrait dans l'antiquité d'après les monnaies*² (Babelon, *Portrait*²), p. 52: Seules quelques pièces donnent à penser que l'art va s'engager sur des voies qui lui permettront de se renouveler. Parmi elles, je citerai les petites monnaies d'électrum de Phocée ou de Lesbos (*ou de Cyzique*—the italics are mine) où des types d'une grande variété attestent que, sur un champ si exigü, l'artiste se laisse séduire par les traits individuels d'un modèle soit vivant soit traditionnel.

³ W. Wroth, *British Museum Catalogue of the Greek Coins of Mysia (B.M.C. Mysia)*, pls. III-VIII.

⁴ B. V. Head, *B.M.C. Ionia*, pls. IV-V.

⁵ J. F. Healy, "A new light on the unique stater of Mytilene", *A.N.S., Museum Notes*, viii. 1 ff. and pl. I.

⁶ That is, from the earliest primitive expression to the sophisticated: other categories which may be defined are the idealizing, realistic, and "theatrical".

passed from the archaic, through a classical period, to the baroque of the hellenistic era. This does not imply a deterioration but a series of changes in emphasis on the part of the artists. Regling, clearly subscribing to this view of art, attempted to arrange Greek coins in a number of precise categories from "Früharchaisch" (700-520 B.C.) to "die Hellenistische Zeit" (323-31 B.C.).¹ Since his work, however, a whole generation of specialized study has been devoted to aspects of Greek coin art and it is now necessary to provide a revised artistic background against which the activities of Greek artists and engravers can be assessed. We must, however, constantly bear in mind the fact that the relative chronologies of all Greek coin series are far from fixed²: the framework is at best somewhat "procrustean".

The earliest Greek coins, it is now generally agreed, were struck in Lydia c. 640 B.C.³ and the preponderant types of the archaic period, which is defined as lasting until 480 B.C., were animal *protomai*, or heads, singly, or in confronted poses.⁴ The engravers, on the whole, compensate for their lack of skill by injecting elements of vigour and rugged vitality into the types. Yet even these relatively unambitious types show artistic influences, variations in treatment, and, on the simplest level, differences in skill in execution⁵ thus enabling distinctions to be drawn between individual coins and groups of coins. The early

¹ *Die antike Münze als Kunstwerk (Antike Münze)*, plates generally.

Früharchaisch	700-570 B.C.
Hoch archaisch	570-520 B.C.
Reif archaisch	520-480 B.C.
Gebundener Stil	480-440 B.C.
Parthenonischer und verfeinert- parthenonischer Stil	440-400 B.C.
Bis auf Skopas und Praxiteles	400-359 B.C.
Die Zeit Philipps II und Alexanders	359-323 B.C.
Die hellenistische Zeit	323-31 B.C.

His date, however, for the commencement of the "early archaic" period is not acceptable.

² Cf. Kraay, *G.C.* p. 20.

³ E. S. G. Robinson, "The date of the earliest coins", *N.C.* 1956, pp. 1, ff. especially p. 8, and, most recently, Professor S. Kiyonaga, "The date of the beginning of coinage in Asia Minor", *The Journal of Classical Studies*, xvii (Kyoto, 1969), 11 ff. ⁴ C. T. Seltman, *Greek Coins*² (Seltman, *G.C.*²), pls. I ff.

⁵ See Kraay, *G.C.*, pl. 178, 591-2.

lion heads from Lydia¹ and elsewhere, are “ fundamentally Anatolian but with touches of direct Assyrian influence especially suitable to the geographical and political conditions of the Lydian kingdom ”.² Comparison with later lion heads from other Greek cities, for example with those from Knidos,³ underline the distinction. Likewise a whole range of winged boars, lions, griffins, and sphinxes all derive their inspiration and much of their detail from a long oriental ancestry.⁴ Oriental influence is also clearly seen in the earliest head of a *korè* type from the mint of Phokaia.⁵ The frontal, almond-shaped eye, high cheek bones, and artificial hair style are noteworthy. The free-standing, female votive figure draped in *chiton* and *himation* is a type frequently repeated in Attic sculpture of the last quarter of the sixth century B.C.—also under the influence of Ionian art.⁶ The appearance of such a type at Phokaia is not surprising since being a mainland city it was in more direct contact with Oriental art than the island city of Mytilene. At this time direct links, or parallelism between types, stem from the fact that the subjects represented belong to the common repertoire of engravers and artists in the Greek cities of Asia Minor and the islands. Such parallelism, therefore, does not necessarily imply any chronological link. One further complication arises from the use of master hubs in the preparation of dies, for which there is evidence at Mytilene.⁷ Closer links are rare but there is a later interesting

¹ Seltman, *G.C.*², pl. I, 11.

² E. S. G. Robinson, “ Coins from the Ephesian Artemision reconsidered ”, *Journal of Hellenic Studies* (*J.H.S.*), lxxi. 163.

³ H. A. Cahn, *Knidos : die Münzen des sechsten und des fünften Jahrhunderts v. Chr.*, pl. 4, 51 ff. (490-465 B.C.).

⁴ K. Regling, *Ancient Numismatics* (“ Münzkunde ”, translated by T. Merz), p. 19. Coin types originated from the animal kingdom, corresponding with other art... in addition to these there were symbolic and fabled animals from the Orient, particularly in Asia Minor which was dependent upon the Orient. Cf. also C. T. Seltman, *Approach to Greek Art*, p. 21.

⁵ *B.M.C. Ionia*, pl. IV, 1 and C. M. Kraay, *G.C.*, pl. 179, p. 595 (enlarged × 4 diameters).

⁶ G. M. A. Richter, *Korai : archaic Greek Maidens*, plates generally—Group V—especially Acropolis Museum, No. 682, pl. 116, figs. 366-7, which is akin to the Phocæan (hekte) type.

⁷ The two extant examples (*obv.* head of a lion r. in outline only with “ points ” to enable the engraver to finish individual details : *rev.* a bull’s head in *intaglio*, r.)

reminiscence of a Lydian type found at Kyzikos¹: the linked lion and ram's heads parallel the well-known confronted lion and bull's heads from Lydia (datable c. 560 B.C.).²

The classical period covering the major part of the fifth century B.C., which had been divided by Regling into two periods (480-440 and 440-400 B.C.),³ was marked by the increasing skill of the engraver and the meticulous care with which types were adjusted to the circular field of the coin flan: the composition shows a marked improvement. There is a fineness of detail without preciosity. The true classical period denoted an era wherein the artist had attained effortless control of his medium, and employed it to suggest a spiritual harmony the amplitude of which lay beyond the world of ordinary experience.⁴ Freshness, simplicity and somewhat "idealized" representations are its hallmark and, as in Red-figure vase-painting, "we must not look for individualized character. . . . It is the type not the individual that is brought before us, and emotions are indicated by gestures, only rarely by the features."⁵ The engraver is pre-occupied with the rendering of the head which, in philosophical terminology, expresses an "idea". Artists were much travelled men; as, indeed, were all those Greeks who attained fame either in literature or in fine art. . . . Having no strong civic ties, but rather a pan-Hellenic attitude of mind, being engaged in an art that could only appeal to men who were prosperous and leisured, the celators (that is *engravers*) were forced to wander to some other city where work and appreciation might await them.⁶ In other words artists and engravers, like

represent two hubs. (1) Cabinet des Médailles, Paris, E. Babelon, *Traité des monnaies grecques et romaines* (Babelon, *Traité*), 2132, pl. clix, 7). (2) Cabinet royal des Médailles, The Hague. See also, D. G. Sellwood, "Some experiments in Greek Minting Techniques", *N.C.* 1963, pp. 219 ff.

¹ A. B. Brett, *Catalogue of the Greek coins in the Museum of Fine Arts, Boston* (Brett, *Catalogue*), p. 188, and pl. 71, 1422.

² Kraay, *G.C.*, pl. 177, 584.

³ See above, p. 154, n. 1.

⁴ Cf. G. M. A. Richter, *Sculpture and Sculptors of the Greeks* (Richter, *Sculpture and Sculptors*), pp. 21 ff., "The general characteristics of Greek Sculpture," and, pp. 74 f. "The head" (fifth century B.C.).

⁵ G. M. A. Richter, *Attic Red-figure Vases*, p. 4.

⁶ C. T. Seltman, *Masterpieces of Greek Coinage* (Seltman, *Masterpieces*), pp. 10-11.

poets and musicians, can best exercise their talents in economically sound, or artistically sympathetic environments. Wars, therefore, or natural disasters, were the main causes which led to large-scale movements of engravers and there were many occasions when these resulted in the growth of new centres of artistic activity.¹ In the mid-sixth century B.C. at the time of the Persian conquest of Asia Minor, many artists went to Athens, or to Sicily and Italy. Soon after, c. 535 B.C. Pythagoras, son of the gem engraver Mnesarchos, left Samos for Magna Graecia where he re-organized the city of Croton giving it new laws and, probably a coinage of unique pattern with both obverse and reverse sharing, at first an identical type—the latter being in *intaglio* and the whole coin being struck from a pair of fixed, related dies.² Coins of Croton, Metapontum, Poseidonia and elsewhere illustrate this unusual technique. They belong to a homogeneous group: whether one should subscribe to a possible philosophical explanation for their form—a numismatic version that is of Pythagoras' "duality of Opposites" involving the classification of Principles in opposing pairs,³ is open to serious doubt!

Again, in the early part of the fifth century B.C., the Persian threat to the Greek mainland itself resulted in further migrations to Sicily and Italy—in particular to Magna Graecia—where the engravers began to produce noteworthy dies of high quality for the major cities of these areas—among them dies for masterpieces such as the heads of queen "Demarete" for Syracuse (Pl. I, 16)⁴ and of Dionysos for Naxos⁵ in Sicily.

Animal types continued to be used but with the addition of divine, heroic, and human heads which eventually replaced them. Among the hektai from Mytilene, with *intaglio* reverses,⁶ which replaced the standard quadripartite incuses of other "white gold", or electrum series, is a splendid version of a head of

¹ Cf. C. T. Seltman, *Masterpieces*, p. 11.

² C. T. Seltman, "The problem of the first Italiote coins", *N.C.* 1949, pp. 1 ff. C. H. V. Sutherland, *American Numismatic Society*, "The incuse coinage of South Italy", *Museum Notes*, i. 21 ff.

³ Seltman, *Masterpieces*, p. 34.

⁴ Seltman, *G.C.*², pl. XIV, 9.

⁵ H. A. Cahn, *Die Münzen der sizilischen Stadt Naxos*, pl. III, 54 ff.

⁶ *B.M.C. Troas*, pl. XXXI.

Herakles wearing his traditional lion skin.¹ He has inherited much of the earlier Black-figure vase-painting character,² possibly exaggerated because the *intaglio* technique gives much the same impression as a silhouette with incised detail. The dotted border of the neck termination is reminiscent of that on silver coins from the Auriol hoard³: there is also present a small quadripartite incuse in the field but separate from the actual type.⁴ Six believed that the type belonged to the sixth century B.C.⁵: such an early date, however, is untenable because of the stylistic development of the obverse types with which it is in combination.⁶ The type, at first sight, seems to be an anomaly but the explanation must surely be a simple one, namely that it was the copy of a seal, or signet, in use in previous generations? It may even have been a *type-parlant* for a magistrate named Herakleidas.⁷

¹ *B.M.C. Troas*, pl. XXXI, 16-19 (revs.). Also L. Lengyel, *Chefs d'Oeuvre des Monnaies grecques* (Lengyel, *Chefs d'Oeuvre*), pl. V, 33.

² As in the version of Dionysos by the Amasis painter. A. Lane, *Greek Pottery*, pl. 42 (c. 540 B.C.). ³ Babelon, *Traité*, pls. LXXXI-IV.

⁴ Cf. *B.M.C. Troas*, pl. XXXI, 16 (rev.). ⁵ *N.C.* 1890, p. 197.

⁶ *B.M.C. Troas*, pl. XXXI, 16-18 (obvs.).

⁷ Cf. G. Macdonald, *Coin types: their origin and development*, pp. 53 and 57.

PLATE I. Sources of illustrations

(All coins are from the British Museum collection: *Catalogue* references are given where available.)

1	Kyzikos	(<i>obv.</i>)	<i>B.M.C. Mysia</i> , pl. VI, 4
2	Mytilene	,,	<i>B.M.C. Troas</i> , pl. XXXIV, 23
3	Kyzikos	,,	<i>B.M.C. Mysia</i> , pl. VI, 2
4	Mytilene	,,	<i>B.M.C. Troas</i> , pl. XXXIV, 8
5	Lampsakos	,,	<i>B.M. Guide</i> ² , pl. 18, 19
6	Kyzikos	,,	—
7	Kyzikos	,,	<i>B.M.C. Mysia</i> , pl. VII, 9
8	Gela	(<i>rev.</i>)	—
9	Kyzikos	(<i>obv.</i>)	<i>B.M.C. Mysia</i> , pl. VII, 4
10	Tarentum	,,	<i>B.M. Guide</i> ² , pl. 13, 7
11	Klazomenai	(<i>obv. and rev.</i>)	,, pl. 19, 33
12	Syracuse	(<i>rev.</i>)	,, pl. 26, 31
13	Morgantina	(<i>obv.</i>)	,, pl. 26, 30
14	Syracuse	(<i>rev.</i>)	,, pl. 7, 30
15	Leontini	,,	,, pl. 15, 44
16	Syracuse	,,	,, pl. 16, 54



1



2



3



4



5



6



7



8



9



10



11(*obv.*)



11(*rev.*)



12



13



14



15



16



1



2



3



4



5



6 (*obv.*)



7



8



6 (*rev.*)



9



10



11



12



13



14

The passing of the Athenian Currency decree in c. 454 B.C.¹ which not only forbade the local striking of silver by the allies but also ordered the recall of silver for re-striking, although never completely successful, nevertheless restricted the activities of engravers who, probably disenchanted by the production of dies for the repetitive Athenian type combination, soon transferred their skills to mints—such as those of Kyzikos and Mytilene—which continued to issue white gold and electrum. As Gardner² originally suggested, Athens could not, at a stroke, have substituted in Asia her silver for these coinages to which the people of the coasts of Asia Minor had been accustomed for centuries. There was also an economic reason in that it is likely that white gold and electrum, until superseded in the late fourth century B.C. by the vast coinages of the Macedonian kings, formed the staple medium for larger payments in the N.E. Aegean and Black sea districts.³ The Currency decree did not, therefore, interfere with the use of these basically gold-silver-copper⁴ alloys and, in fact, indirectly stimulated a renewed

¹ E. S. G. Robinson, *Hesperia Supplement*, viii. 324 ff. The chronological scheme for Mytilene (p. 322) shows a break between 435-405 B.C. but the evidence of the die-sequence suggests that this should be 427—c. 412/11 B.C.

² *History of Ancient Coinage, 700-300 B.C.*, pp. 232-30.

³ *British Museum Quarterly (B.M.Q.)*, x. 160 ff.

⁴ *Nature*, 231, 5303 (1971), pp. 443 ff. Healy, *Congrès*, pp. 529 ff.

PLATE II. *Sources of illustrations*

(All coins are from the British Museum Collection: *Catalogue* references are given where available.)

1	Thurium	(<i>obv.</i> and <i>rev.</i>)	<i>B.M. Guide</i> ² , pl. 13, 12
2	Terina	„ „	„ pl. 14, 23
3	Hyele	„ „	Lloyd Bequest
4	Syracuse	(<i>rev.</i>)	„
5	Syracuse	(<i>obv.</i>)	„
6	Pandosia	(<i>obv.</i> and <i>rev.</i>)	<i>B.M. Guide</i> ² , pl. 25, 23
7	Heraklea	(<i>rev.</i>)	„ pl. 25, 12
8	Kyzikos	(<i>obv.</i>)	—
9	Mytilene	(<i>obv.</i>)	<i>B.M.C. Troas</i> , pl. XXXII, 19
10	Mytilene	„	„ pl. XXXIII, 26
11	Mytilene	„	„ pl. XXXIII, 5
12	Mytilene	„	„ pl. XXXIII, 14
13	Mytilene	(<i>rev.</i>)	„ pl. XXXIII, 28
14	Mytilene	(<i>obv.</i>)	„ pl. XXXIV, 9

interest in them. The alloys were highly regarded in the ancient world because of their aesthetic appeal and electrum in particular, like modern 9 carat gold to which it is approximately equivalent, because of its hardness¹ and resistance to surface wear enjoyed an added advantage. At about this time two interesting types—a head of Herakles, wearing a lion skin (r.)² and a head of a Satyr (three-quarters r.)³ were introduced into the Mytilenean series. They were both engraved with consummate skill and, although different in character and treatment, probably originated from the same “hand”. The Satyr type, which is comparable with then contemporary Red-figure vase representations,⁴ is combined with a lion’s head of developed fifth-century type in *intaglio*⁵ and, later, in *relief*⁶ providing the point of transition between the two series. He is full of character and the foreshortening of facial detail is accurately rendered. A protuberant, furrowed brow, snub nose, moustache, neat beard and animal ear facilitates identification. The wrinkled forehead and cheeks impart a remarkable degree of plasticity to the whole face.

The outbreak of the Peloponnesian war in 431 B.C. and the Plague in the following year, provided further disincentives for engravers to remain at Athens and the later character of the only emergency gold coins issued at Athens (in 407/6 B.C.)⁷ bears witness to what must have been a serious depletion of engravers of the first rank. The coins of this period provide plenty of evidence to substantiate the view that deteriorating conditions on the Greek mainland led to an exodus of engravers in two main directions, namely to the east, to the Greek cities of Asia Minor and the islands, and to the west, to the cities of Magna Graecia and Sicily. Phrygillos appeared in Italy where he began

¹ *Nature*, 231, 5303 (1971), p. 443. In the fourth century B.C. Mytilenean electrum had a hardness of 247-274 HV (unprepared surface) and 188-243 HV (polished flat). A gold nugget is 70 and a classical bronze speculum 460 HV, respectively.

² Lengyel, *Chefs d’Oeuvre*, pl. XLIV, 211.

³ Babelon, *Traité*, 2150, pl. CLIX, 27 (obv.).

⁴ E. Pfuhl, *Malerei und Zeichnung der Griechen*, III, pl. CXXIX, 403.

⁵ Babelon, *Traité*, 2150, pl. CLIX, 27 (rev.).

⁶ There are two examples known (1) from Munich and (2) from a private collection in Lisbon.

⁷ Seltman, *G.C.*², pl. XXVII, 8-9.

cutting dies for the Athenian colony of Thurium.¹ Yet another outstanding artist—of unknown name—suddenly began to produce dies for a fine group of hektai at Mytilene with a sensitive representation of a head of Apollo as its obverse type.² His most inspired engraving is seen in the head of Apollo *Maloeis*³ on the unique stater, for which he engraved the die when caught up in the attempted secession of Mytilene from the Delian league in 428/7 B.C.⁴

This youthful type has an accurately represented profile eye, with asymmetrically marked lids. Both chin and mouth, with fully formed slightly pursed lips are well modelled, as is the whole contour of the face generally. He wears a laureate wreath. His hair hangs down on to the nape of the neck but is comparatively short. A further curl is visible by the ear. The representation in spirit epitomizes the general character of the best in fifth-century die-engraving.⁵

But it was not until the final disaster of the Athenian expedition to Sicily, towards the end of the Peloponnesian war, that the most interesting and significant migration occurred—a wholesale movement of artists which can be traced from the coin types. A re-examination of the chronology of events⁶ provides important evidence. In the years following the Athenian defeat, the Sicilian cities, with the exception of Syracuse and Panormos, were captured by the Carthaginians: Segesta fell in 410 B.C. followed by Selinos (409), Himera (408), Akragas (406), Gela and Kamarina (405) and Messana c. 396 B.C. In

¹ Seltman, *Masterpieces*, p. 16. On Thurium, and Athens' relationship with the Western Greeks generally (c. 500-413 B.C.), see H. B. Mattingly, *Annali. Istituto Italiano di Numismatica*, Rome, vols. 12-14 (1969), *Supplement*, pp. 201-22.

² J. F. Healy, *A.N.S., Museum Notes*, VIII, pl. I. The similarity between these representations of Apollo (2-4) and that of the unique stater (1) is underlined when they are compared with a die by an inferior engraver (5).

³ *Ibid.* pl. I, 1. Also illustrated in Kraay, *G.C.*, pl. 197, 696 (enlarged × 4 diameters).

⁴ *Ibid.* p. 8.

⁵ *Ibid.* pp. 7-8. Cf. Seltman, *Masterpieces*, pp. 62-63: The stater partakes of a vitality of a kind that astonishes even now, which animated Greece for many centuries. It was apparent in many ways, and among the artists of the fifth century B.C. it showed itself most clearly in a pre-occupation with sparkling youth.

⁶ J. F. Healy, *Congresso internazionale di Numismatica* (Roma 1961), vol. ii, *Atti*, published 1965 (Healy, *Congresso*), pp. 42-43.

404 B.C. Dionysios captured Katana and Naxos, and in 387 B.C. Rhegion—the latter was restored in 350 B.C. The issues of Leontini ceased in 422 B.C. (except for a short period between 405 and 403 B.C.).

There were many parallel versions of types current in different cities or areas of the Greek world extending over the whole period of the issue of coinage. These include, among others, interesting heads of Zeus, Athena, Dionysos, Hermes, and Poseidon¹ together with maenads, heroes, and satyrs.² Many of the Olympians are differentiated only by slight details and a symbol is sometimes added, in the field, to assist positive identification, as, for example, a trident³ for Poseidon and a *kerykeion*⁴ for Hermes. There are also related types of a less universal character and so of greater significance in the present context since there is no common reason to explain why they are shared: such types are found at Kyzikos, Mytilene, Phokaia and, in the fourth century B.C., at Lampsakos. Closer examination reveals not only identical subjects, or even groups of figures, but in the case of Mytilene, Kyzikos and Lampsakos the high quality of the engraving and close parallelism are such as to indicate that the dies were not made by local artists copying the masterpieces of other distant mints but by engravers of exceptional merit in their own right.⁵ Furthermore the evidence of the composition of hoards in Asia Minor and the islands does not support the likelihood of fine examples having been available for local artists to copy as has been tentatively suggested elsewhere.⁶ The engravers, as in the west, travelled from city to city to make these dies on commission, as the evidence of a few examples clearly illustrates. There are several identical versions of a head of Zeus (Pl. I, 1-2) but this evidence is not likely to be conclusive. *Kyzikos* (Pl. I, 3) and *Mytilene* (Pl. I, 4), how-

¹ A. Baldwin, *American Journal of Numismatics*, liii, *Third (Final) Part*, pp. 1 ff. "Lampsakos; The gold staters, silver and bronze coinages" (Baldwin, *Lampsakos*), pl. IV shows Lampsacene and related types.

² These are common types found throughout Greek mints generally: no special significance, therefore, should be attached to their occurrence in any particular area.

³ Brett, *Catalogue*, pl. 76, 1565 (obv.).

⁴ Seltman, *Masterpieces*, p. 117, no. 53.

⁵ Healy, *Congresso*, p. 42.

⁶ *Ibid.* p. 44 (Dr. O. Mørkholm).

ever, share laureate heads of a youthful Apollo in a three-quarters view with the same degree of foreshortening—a type which is reminiscent of the earlier head of Apollo in a similar pose from the East frieze of the Parthenon¹: they also share a head of Aktaion, in profile (l. and r. respectively) and a head of Zeus Ammon (r.). *Lampsakos* and *Mytilene* have in common a head of a youthful Demeter/Persephone (r.). *Lampsakos* (Pl. I, 5) and *Kyzikos* (Pl. I, 6) share a bearded Dioskouros/Kabeiros² where the similarities in physiognomy, hair, beard and overall treatment are so spectacular as to show beyond any reasonable doubt that these dies were the work of the *same* individual. No copyist, however skilful, could have achieved this degree of likeness. The issues from the mint of Kyzikos, on the Propontus, a series important for Athens' economy,³ shared a number of identical types with western Greek cities—among them types not locally appropriate at Kyzikos but perhaps of sufficiently pan-Hellenic character to justify their re-use in another Greek city. For example a man-headed bull or river god from *Gela*⁴ (Pl. I, 7-8), a youth on a dolphin from *Tarentum* (Pl. I, 9-10) a head of Zeus Ammon from *Cyrene*,⁵ a winged horse from *Corinth*,⁶ a young Herakles strangling serpents (originally Theban),⁷ and Herakles strangling the Nemean (?) lion from *Heraklea*⁸ (Pl. II, 7-8) where it was clearly a *type parlant*, or punning type on the name of the city. Additionally there are nymph types paralleled at Metapontum and at Syracuse, and a helmeted head of Athena comparable with the version cut by Phrygillos for Thurium.⁹ Lastly at Mytilene there occurs a splendidly helmeted, three-quarters facing head of Athena¹⁰—although, of course, one must bear in mind that this was, perhaps, the most universally employed version of Athena throughout Greek art during the first part of the fourth century B.C.

¹ R. Lullies and M. Hirmer, *Greek Sculpture*², pp. 78 ff. and pl. 156.

² See Baldwin, *Lampsakos*, pl. IV for these (33-34) and a number of other related types.

³ See *B.M.Q.*, x, 160 ff.

⁴ I wish to thank Mr. G. K. Jenkins for his helpful discussion of the Gela parallel and other similar problems.

⁵ See Healy, *Congresso*, pl. II, 13-14 and Kraay, *G.C.*, pl. 214, 788.

⁶ Cf. Kraay, *G.C.*, pl. 153, 485. ⁷ Seltman, *G.C.*², pl. XXXIII, 8.

⁸ Seltman, *Masterpieces*, pp. 79-81, and 33b. ⁹ *Ibid.* p. 66, 26a.

¹⁰ Babelon, *Traité*, 2190d, pl. CLX, 30 and *B.M.C. Troas*, pl. XXXIII, 14.

The artists in their travels clearly took with them a limited number of stock types which they were prepared to reproduce for any city which required their services ; but most important of all, they took with them their skill.¹

The next question—an obvious one—is who were these engravers and to what extent, or with what degree of certainty, can they be named?² Most coins are, in fact, anepigraphic, or carry at most an ethnic referring to the people of the issuing city, thus at Syracuse we find ΣΥΡΑΚΟΣΙΩΝ³: such an ethnic may appear in varying degrees of abbreviation at different times, as at Mytilene where, *M*, *MYTI*, (electrum) and *MY*, *ΜΥΤΙΑΗΝΑΙΩΝ* (silver and bronze), all occur. Although not a few names of actual engravers are known, the signature is the exception rather than the rule.⁴ Nor do ancient literary sources provide additional information.⁵ Rarer still is a die-cutter's function made explicit by the addition of a verb to the personal name, as in the case of Theodotos ΘΕΟΔΟΤΟΣ ΕΠΙΟΕΙ (for ΕΠΟΙΕΙ) on coins of Klazomenai (Pl. I, 11) and ΝΕΥΑΝΤΟΣ ΕΠΙΟΕΙ on

¹ Healy, *Congresso*, p. 43.

² K. Regling, *Ancient Numismatics*, p. 31: In the last third of the Fifth and the first third of the Fourth century, when we are able to differentiate the individuality of the engraver by his work, engravers also began to sign their works with their names, principally in the issues of southern Italy and Sicily, more rarely outside this region. Sometimes these signatures had the additional sign ἐπο(ι)ει. See also R. Forrer, *Signatures de graveurs sur les monnaies grecques*. (*Forrer, Signatures de graveurs*), p. 4.

³ Kraay, *G.C.*, pp. 15-16: Sometimes also the genitive singular of the place itself occurs, as ΑΚΡΑΓΑΝΤΟΣ (no. 170, pl. 59), or even the nominative, ΠΑΝΟΡΜΟΣ (no. 194, pl. 69), though this may sometimes be the label of the type (as at Selinus, no. 186, rev., pl. 66) rather than the name of the issuing authority. Adjectival forms in the singular are also found (e.g. ΝΑΓΓΙΔΙΚΟΝ no. 669, pl. 193), with which some word such as νόμισμα ("coin") or an appropriate denomination must be understood; occasionally this is made explicit as at Gortyna (no. 537, pl. 164)—"this is the striking of the people of Gortyna". Where the issuing authority was a monarch his name and titles are usually given in the genitive.

⁴ Forrer, *Signatures de graveurs*, pp. 6-7. This situation is comparable with that found in Greek vase-painting.

⁵ *Ibid.* p. 5: Les auteurs anciens ne nous ont laissé aucun renseignement sur les graveurs de monnaies de l'antiquité. Ils n'ont certes pas songé que les monnaies, sans grande importance artistique pour eux, survivraient aux plus nobles travaux d'architecture, de sculpture et de peinture de l'époque, et seraient des reliques précieuses d'un âge caractérisé par le bon goût et le culte de la beauté.

coins of Cydonia : nevertheless a number of names are so inconspicuously placed in the type that they can hardly be anything but artists' signatures.¹ This possibility is indeed confirmed when the name is found at more than one mint. Such names are those of Euainetos (at Kamarina, Katana and Syracuse), Kimon (at Messana and Syracuse) and, most widely travelled of all, Phrygillos whose career is well documented by the evidence of the coins struck from his "signed" dies. His name appears in full, $\Phi\PY\Gamma\text{I}\Lambda\text{I}\text{O}\Sigma$ abbreviated, $\Phi\PY$ as a single letter Φ ² and, by allusion, by means of a canting-symbol (a chaffinch)—a pun on his name³ (with, or without, Φ to confirm the identification). C. T. Seltman, some twenty or more years ago in a magnificently illustrated "essay"—one of the first of its kind—to which I am indebted for many of the following details, traced Phrygillos' travels across the Greek world.⁴ As has already been mentioned, Phrygillos probably left Athens at the time of the Plague c. 430 B.C.⁵ and went to Thurii to work for that city as a free-lance die-cutter (Pl. II, 1). His work has a characteristic and immediately recognizable purity of style echoing the full classical period of Greek art. On the west coast of Italy he also made dies for the city of Terina and a version of Nike-Terina (Pl. II, 2) seems to have been inspired by the same girl, or "model", as the head of Athena on the Thurian didrachm. The style of the engraving shows that Phrygillos, like the Achilles painter, probably belonged to the same generation

¹ Kraay, G.C., p. 16.

² The identification of Φ as the first letter of Phrygillos' name is now generally accepted. Contrast, however, R. S. Poole, *N.C.* 1883, pp. 271 ff., especially p. 277: To sum up, we find in Lower Italy a distinctly Athenian school, probably owing its first acclimatization to Thurium. The greatest engraver or engravers of this school sign, Φ the abbreviation of the fuller form either $\Phi\text{I}\Lambda\text{I}\Sigma$ or less probably $\Phi\PY$. The works with the initial Φ form a series of Thurium, Terina, Elea, Heraclea and Pandosia. See also A. Evans, *N.C.* 1912, pp. 21 ff., "Artistic Engravers of Terina".

There is, however, no direct link of the kind proposed by R. S. Poole (*loc. cit.*) and others, with the relief sculptures of the temple of Nike Apteros at Athens.

³ Liddell and Scott, *Greek-English Lexicon*¹⁰ (*LS*¹⁰), see under $\Phi\rho\nu\gamma\acute{\iota}\lambda\omicron\varsigma$. Cf. also the story in Pliny, *Natural History*, xxxvi, iv, 42. Nec Sauram atque Batrachum obliterari convenit . . . etiam nunc in columnarum spiris inscalpta nominum eorum argumento lacerta atque rana.

⁴ Seltman, *Masterpieces*, pp. 16 f. and 66 ff.

⁵ See above, p. 160.

as the sculptors of the parapet of the Nike temple in Athens.¹ He went next to Hyele²—Elea—(Pl. II, 3) famed for its philosophical schools of Xenophanes, Parmenides and Zeno : thence to Leontini where the dies were usually made by local engravers of inferior ability. In c. 424 B.C. Phrygillos was called in to make a very sensitive version of a head of Apollo.³ After 424 B.C. Leontini became a dependency of Syracuse and ceased to issue its own coinage. His fame may well have led the Syracusans to enlist his services in addition to those of Eukleidas and Euainetos.⁴ The types, though not the execution of the main Syracusan issues, were more conservative than those of smaller, less important cities for similar reasons to those which obtained at Athens, but were sensitive and in the forefront of artistic development. In c. 416 B.C. he produced obverse dies (at least four) for Syracuse.⁵ On these tetradrachm dies he signed his name $\Phi\PΥΓΙΛΛΟΣ$ below the neck (Pl. II, 4) and abbreviated— $\Phi\PΥ$ —upon a band on the forehead of the young goddess Artemis Arethusa (Pl. II, 5). In 415 B.C. Phrygillos and a local colleague, Eumenes, both made dies to combine with the reverse chariot die made by a third artist, Euthymos.⁶ This carried his name in full. In c. 412 B.C. Phrygillos left Sicily for Italy where he made more dies for Thurii. For Pandosia,⁷ a hill-town near Terina, he engraved a canting-type of a seated Pan complete with hound and with a terminal phallic Herm before him in the field : it carried the letter Φ (Pl. II, 6). At Heraklea⁸—his splendidly conceived and executed die of Herakles strangling the Nemean lion (Pl. II, 7)—a lion remarkably like the vibrant lion made for Hyele some years earlier—was, I believe, his last effort in the west. The struggle is dramatically portrayed and the tense atmosphere is visible in every muscle of Herakles : there is also a grim, but probably unintentional, humour in the way in which the lion tries to get some purchase by pushing against Herakles' leg with his paw.

At this point Seltman's account ended with the speculation—

¹ Cf. Seltman, *Masterpieces*, p. 69.

² Cf. *Ibid.* pp. 70 and 72.

³ *Ibid.* p. 71.

⁴ *Ibid.* p. 74.

⁵ *Ibid.* p. 74.

⁶ *Ibid.* p. 76.

⁷ *Ibid.* p. 78. See also, R. S. Poole, *N.C.* 1883, p. 275.

⁸ Seltman, *Masterpieces*, pp. 79-80.

not a very convincing one—that Phrygillos (or a clever pupil!) made dies for Sinope on the Black Sea coast where an eagle and dolphin type had been current since the first years of that mint's operation and was subsequently modernized in the manner of late fifth-century Sicilian art.¹

If, however, we return to the fourth-century issues of Kyzikos, and, in particular, to the type of Herakles and the lion (Pl. II, 8) we can add to Phrygillos' career since there can be little doubt that soon after Phrygillos had finished his commission for Heraklea, namely at the time of the Athenian disaster in Sicily, he, in company with other artists unnamed, travelled directly to Kyzikos (*not to Sinope*) where he continued for some years to engrave for that city and possibly for Lampsakos² or even Mytilene.³

Summary of Phrygillos' career c. 430 B.C.—early fourth century B.C.

(Plate II, 1-8)

(a) *From Athens to Italy at the time of the Plague*

THURIUM	c. 430/29 B.C. and subsequently (Pl. II, 1)	
TERINA	c. 425-	2
HYELE	c. 425-	3

(b) *In Sicily*

LEONTINI	c. 424-422 B.C.	
SYRACUSE	c. 416-413 B.C.	4-5

(c) *Return to Italy after the Athenian disaster in Sicily*

THURII	c. 413-400 B.C.	
PANDOSIA	c. 413-400 B.C.	6
HERAKLEA	c. 413-400 B.C.	7

(d) *From Italy to the Greek cities of Asia Minor and the islands*

KYZIKOS	c. early fourth century B.C.	8
(and possibly)		
LAMPSAKOS	c. early fourth century B.C.	
MYTILENE	c. early fourth century B.C.	

¹ Seltman, *Masterpieces*, p. 80.

² The fine style of engraving of the gold staters of the fourth century B.C. reflects the work of an artist of exceptional ability. See Baldwin, *Lampsakos*, pls. generally.

³ See *B.M.C. Troas*, especially pls. XXXIII-IV.

By the middle of the fourth century B.C. a new attitude and spirit had arisen in Greek art generally which began to reflect moods other than those of calm, impersonal serenity. The trend in sculpture was epitomized by the work of Skopas¹ rather than by that of Praxiteles. Perhaps one of the most interesting examples of his sculpture was the well-known Maenad,² dancing in ecstasy with head back, hair dishevelled, and arms wildly brandishing the goat she has just killed; her Doric *peplos*, flying open like some exaggerated cheongsam, left part of her side exposed. The type occurs on gems³ and on coins (head only) at Lampsakos,⁴ where the degree of realism is noteworthy, and at Mytilene⁵ (head and bust).

The most important single achievement in coin art in the fourth century B.C. was the development of portraiture, a field in which white gold and electrum series had an important contribution to make. The portrait type did not make a sudden appearance, nor is there any clear demarcation, at first, between the *quasi*—and *true* portrait, but the latter pre-supposes at least two antecedent stages of development: (1) when the artist, or engraver, strives to attain a degree of realism independent of any desire to produce a “named” likeness—as the type of a realistically portrayed, bearded old man at Kyzikos (Pl. I, 6),⁶ and (2) when a name is attached to what purports to be a “likeness” of an individual which without the guidance of a legend, or inscription, would not otherwise be immediately

¹ Seltman, G.C.², p. 177: Praxiteles and Skopas searching after new effects, did not attain the power of Myron, or the Master of Olympia.

² P. E. Arias, *Skopas*, pp. 126-7, and pl. X, 34-37. See also Richter, *Sculpture and Sculptors*, p. 583, Fig. 709.

³ A. Furtwängler, *Antike Gemmen*, pl. XXV, 25. The axes of the gem subject are fixed and confirm my attribution of the coin type. It is not a representation of *Artemis* as suggested by E. S. G. Robinson, *Catalogue of the Greek Coins collected by G. Locker Lampson*, foreword, p. v.

⁴ Baldwin, *Lampsakos*, pls. I, 32-5 and II, 1-4 (obvs.).

⁵ *B.M.C. Troas*, pl. XXXIV, 30.

⁶ Brett, *Catalogue*, pl. 203, 1561. The head is tentatively identified as that of Timotheos, son of Konon. See also Babelon, *Portrait*², p. 52: Mais c'est surtout à Cyzique que se manifeste un art libéré de tout conformisme. Les têtes de vieillards dont le relief s'accuse sur les lourdes monnaies de métal jaune, ont été exécutées d'après les modèles dont on ne cherche pas à dissimuler la fatigue ou la vieillesse; ce sont des portraits authentiques, déjà implacables.

identifiable—as, for example, the head of Pythagoras at Abdera¹ and Pharnabazos at Kyzikos² (silver).

With the combined clues of fineness of style and the occasional name, letter, or symbol, to help in the identification of stylistically related groups, it is relatively easy to establish the careers of engravers of the calibre of Phrygillos and Kimon. Our problems, however, arise from the fact that the majority of Greek coins of the sixth, fifth and fourth centuries B.C. do not afford us the luxury of even a single letter of an engraver's name and furthermore the significance of the wide variety of symbols which appear in the field of Greek coins as yet eludes us, except in such obvious examples as those of the magistrates Python³ (a tripod) and Molpagoras (a "molpe" dancer)⁴—both, in fact, self-explanatory *types-parlants*. It is in this field, therefore, that new evidence must be sought, and one is inevitably led back to a closer study of style. Style, if one may join the ranks of the many who have attempted to define this somewhat nebulous yet all-embracing term, is compounded of many elements, among them the artist's attitude towards trends in artistic expression, that is the acceptance, or rejection, of innovation and his treatment of his subject which may, in turn, reflect individual traits or mannerisms—not necessarily present as the result of any conscious effort. Such elements help towards individual attributions in all genres of art⁵—just as

¹ Cf. J. M. F. May (edited by C. M. Kraay and G. K. Jenkins), *The Coinage of Abdera* (May, *Abdera*), p. 157, pl. XIII, 218 (rev.). This head is certainly an idealized one if we compare it with the realistic, bald-headed, bearded types which appear on a certain class of Cyzicene stater of the mid-fourth century, or a little earlier (cf. Babelon, *Portrait*², p. 52), and which are now held to be portraits possibly posthumous. This is a canting-type with the name of the magistrate ΠΥΘΑΓΟΡΗΣ probably a quasi- (idealized) portrait of the philosopher. See also J. F. Healy, *N.C.*, 1962, pp. 85 ff. "Alexander the Great and the last issue of electrum hektai at Mytilene"—the earliest idealized "portrait" of Alexander the Great, as "Zeus Ammon", wearing a ceremonial helmet.

² Babelon, *Traité*, pl. CLXXVIII, 15. See also E. S. G. Robinson, *N.C.*, 1948, pp. 48 f. and pl. V, 8. ³ May, *Abdera*, p. 200, pl. XVIII, 345-8 (revs.).

⁴ *Ibid.* p. 197, pl. XVII, 313-5 (revs.). For the full type (in relief sculpture) see F. Weege, *Der Tanz in Antike*, Figs. 48-9.

⁵ The work of the late Sir John Beazley, in Greek vase-painting, was based on a meticulous analysis of style and the individual characteristics of artists.

In a different field, namely in his study of the Winchester Bible illuminators,

papyri, or manuscripts, may be assigned and writing identified by their peculiar or idiosyncratic features.¹

We come now to the most important and exacting part of our search that is the attempt, both by style and by reference to individual mannerisms, to group works by the same "hand", or, less precisely, dies cut by artists of the same "school" or institution.² Our groups, once established—like the categories of Red-figure vase-painting—will be valid even though we may never actually discover the names of the artists. They may perhaps be distinguished by a reference to their *chef d'oeuvre*.³ Our study, however, is assisted by the fact that the Greek die-engraver was able to give full rein to his artistic talent and was not hampered, like his modern counterpart, by thin flans and restricting collars which produce monotonously regular flans and give little scope for engraving in depth. For the Greeks, however, all manner of exciting effects were possible and these gave them the opportunity to invest each type with a great degree of individuality.

A number of distinctions are possible between groups of coins which help to define the areas of search. Even to a non-specialist the difference between the work of a skilful and an inferior engraver will be immediately obvious. The work of skilled local artists and those of pan-Hellenic reputation are

Dr. W. Oakeshott, to whom I am indebted for advice, uses the evidence of light, colour, stance, physiognomical and other similarities to help identify artists.

¹ Cf. E. G. Turner, *Greek Papyri: an introduction*, p. 92: At the opposite pole from school handwritings are those of the scholars and professors, the members of the Museum. From Oxyrhynchus one particular criterion is helpful in distinguishing texts of this kind: the fact that one can identify the handwritings of scribes who have copied works of more than one Greek author. In 1955 I gave a list of ten such scribes and the work for which they were responsible.

For a more recent problem involving the identification of handwriting "with a rather Germanic cast—in a Spanish language letter", see D. Kahn, *The Code-breakers*, ch. 16, pp. 513 ff. "Censors, Scramblers and Spies", especially p. 514.

² So Dr. W. Oakeshott, *Roman Mosaics*, pp. 73 ff., is able to identify at least five hands in the work of the triumphal arch (Sta. Maria Maggiore) and perhaps eight, very tentatively, in the nave mosaics—all different from the five of the triumphal arch. I am indebted to Miss D. Chant for this and other references in connection with Roman Mosaics.

³ As, for example, in the case of the engravers of "the most magnificent head of a seilenos in all Greek art", who is referred to as the "Aetna master". See Seltman, *Masterpieces*, p. 54, 17a. Cf. also the "Helios master", *ibid.* pp. 106 f., 46a.

equally observable.¹ Not so obvious perhaps is the difference between an original version and that produced by a skilled copyist² (Pl. I, 12-13). Furthermore there are, as will have been seen, stylistic differences which reflect the degree of development of varying periods in the history of Greek art and these are to some extent the same as those discernible in sculpture and vase-painting. Yet other factors must be taken into account, namely (1) that the Greek engraver, in the interest of "mass-production" for large issues of coinage, created master-hubs from which die outlines were produced to be finished off individually³ and types which appear to represent two different subjects, are occasionally, in fact, two views of the same one and probably from the same engraver—as in the case of a delightful head of a nymph at Mytilene in profile (r.) and three-quarters view(r.)⁴ respectively.

Most important of all in any attempt to distinguish the work of individual engravers, are the details of a type and way in which it is executed; the evidence available may add up to little less than an actual "signature". I refer to variations and similarities in physiognomy (Pl. I, 15-16),⁵ the treatment of the hair⁶ (Pl. I, 14 and Pl. II, 9-10), types of head, or hair

¹ Cf. Baldwin, *Lampsakos*, p. 50, pl. 4, 36—a head of Athena (l.)—a copy of an Athenian tetradrachm (35) dated c. 350-300 B.C. It is done in the pseudo-archaic manner of the Fourth century Athenian issues and at first glance looks out of place among the other Lampsacene types. It is executed, moreover, in the copyist spirit and lacks style and beauty altogether.

² See *B.M. Guide to the Principal Coins of the Greeks*² (*B.M. Guide*²), pl. 26, 30 (Morgantina) where the type is inspired by a Syracusan tetradrachm, and 31 (Syracuse) where the type is in the manner of Euainetos.

³ See above, p. 155, n. 7, and W. Schwabacher, *N.C.* 1966, pp. 41 ff., "The production of hubs reconsidered". ⁴ *B.M.C. Troas*, pl. XXXII, 5 and 19-21.

⁵ These issues, from Leontini and Syracuse, respectively, appear to be by the same "hand". See also Heide Scharmer, "Die Meister der spätarchaischen Arethusaköpfe", *Antike Kunst*, 10 (1967), Heft 2, pp. 94 ff., where (pp. 95-96 and pl. 28, 10) the type has negroid features and thick lips. I am indebted to Dr. Shelagh A. Jameson for this reference and for much helpful advice in connection with issues of Syracuse generally.

⁶ *Ibid.* p. 94. Stylistic analysis of the late archaic Arethusa heads has resulted in the identification of two further engravers or "hands" referred to as (1) *Der Meister des grossen Arethusa Kopfes* and (2) *Der Krobylos-Meister*. The latter is named after the hair style *κρωβύλος*—a roll, or knot of hair on the crown of the head, worn by elderly people before the time of Thucydides (see *LS*¹⁰, and

covering (Pl. II, 11)¹, jewellery² (Pl. II, 12), and ornament,³ and even the appearance of the neck truncation⁴ (Pl. II, 13-14); likewise the general "finish" of a type, including mannerisms and stylistic devices, may reflect the individuality of a particular engraver and thus help to distinguish him from other artists.

From the foregoing evidence, which is intended as an indication of some of the possible lines of future research, it will be seen that a detailed and comprehensive stylistic analysis of Greek coins and of the work of individual engravers, or "schools" of engraving, will greatly increase our understanding of the development of Greek numismatic art and provide a definitive index of artists, or "masters" comparable with that already available for Greek vase-painting.

In conclusion one further fact clearly emerges from this re-assessment of the artistic content and significance of Greek coin series. Although Numismatists are turning more and more to the evidence of non-destructive techniques of nuclear physics and even to classical methods of chemical analysis, for assistance in the solution of some of their absolute problems, it must constantly be remembered in future research that, just as a computer, however sophisticated and skilfully programmed, can never completely replace human judgement in literary criticism, so scientific results cannot of themselves provide a complete substitute for the subjective analysis made by a trained eye in perpetual contact with the coins themselves and their cultural environment.

Thucydides i, 6). There are many different hair styles also at Mytilene. See *B.M.C. Troas*, pl. XXXII, 19-21 (obvs.) in formal curls and tied with a cord: XXXIII, 26 (obv.) in a "chignon" on top of the head: XXXIV, 1-2 (revs.) restrained in a *sphendone*: XXXIV, 12-13 (revs.) in a tight roll around the head: XXXIV, 16 (rev.) long and flowing ("Nordic" type).

¹ For example, hair in a *sphendone*: see *B.M.C. Troas*, pl. XXXIII, 1 (obv.): in a *sakkos*, *ibid.* pl. XXXIII, 5-7 (obv.). See also Seltman, *G.C.*², pls. XXII-III,

² Necklace: *B.M.C. Troas*, pl. XXXIII, 14 (obv.) and earrings and necklace *ibid.* pl. XXXIII, 17 (obv.). See also issues of Syracuse and elsewhere generally throughout Greek coin series.

³ So ear-caps and similar objects. See *B.M.C. Ionia*, pl. IV, 1 and elsewhere in the series of Phocaean electrum. They also appear on coins attributed to Smyrna: see further E. S. G. Robinson, *N.C.*, 1960, pp. 31 ff.

⁴ The curved and rimmed neck is common in Mytilenean types. Cf. *B.M.C. Troas* pls. generally.