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THE AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS

VOLUME X

WEIGHTS, MEASURES AND TOKENS

BY

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PART I
WEIGHTS AND MEASURES

BY
MABEL LANG

PREFACE

During the twenty odd years of the Agora Excavations a few of the weights and measures have received passing notice in the annual reports, and one measure was fully published by Margaret Crosby (*Hesperia*, XVIII, 1949, pp. 108–113). Some preliminary work on the weights and measures was done in the early years by Rodney S. Young and Margaret Crosby, to both of whom I am grateful for many helpful suggestions.

The object of the present study is to include all the metrological material from the Agora which is sufficiently defined by context or by its own form to give some indication of standard and use. Bronze and lead weights are dealt with in the same section since both are at least partly official and because their range of weights and area of use seem to be similar. Stone weights, which are not official and served a somewhat different purpose, are treated separately. The measures are divided into dry and liquid because of the different problems which the two shapes present. Each of the four sections is made up of a general discussion followed by a catalogue of the objects. A separate series of numbers is used for each category of objects with prefixed letters to indicate their nature: BW for bronze weights; LW for lead weights; SW for stone weights; DM for dry measures; LM for liquid measures.

The material for the present study was worked over in the years 1953–54 and 1959–60, when the writer held, respectively, a John Simon Guggenheim Memorial Fellowship and a Fulbright Research Grant at the American School of Classical Studies at Athens. I wish to express my gratitude to these organizations and to Bryn Mawr College for its generosity in granting leave for the pursuit of these studies. Gratitude is also particularly due to the Directors of the American School of Classical Studies at Athens, John L. Caskey and Henry S. Robinson; to the Director of the Agora Excavations, Homer A. Thompson; to Miss Lucy Talcott for constant encouragement and guidance; to Miss Alison Frantz for meticulous photography; to Mrs. Poly Demoulini for patient efficiency in expediting material; to Miss Hero Athanasiadou for drawings of profiles; to Miss Margaret Thompson and the American Numismatic Society for photographs of coins; and to the British Museum, Staatliche Museen in Berlin and National Museum in Athens for permission to reproduce photographs of coins and measures in their collections. My especial thanks must be expressed to Miss Lucy Shoe for almost infinite editorial time and patience.

BRYN MAWR COLLEGE

MABEL LANG

APRIL, 1963

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INTRODUCTION

Studies of ancient metrology have for the most part suffered under two severe handicaps: a modern scientific metrological system and an excess of theory over practice. The theory, derived from a combination of statements made by the ancient writers on metrology with a few actual measurements of ancient objects, manipulates figures and calculates correspondences among standards almost in a vacuum. Moreover, the metric system which the modern student uses to express ancient metrological values admits of far finer distinctions than any ancient system contemplated, at least for general practical and commercial purposes. For we are dealing not with minute quantities of valuable metals, as in coinage, or of potent drugs, as in medicine, but with the ordinary units of weight and capacity used in daily commerce for the great bulk of commodities which were bought and sold.

Since the primary purpose of this study is to present the actual weights and measures found in the Athenian Agora, it will perhaps be possible to skirt these pitfalls, at the outset at least, by allowing the weights and measures to set their own standards. The present state of the material, however, will necessarily limit our conclusions both in breadth and depth: the weights almost certainly do not preserve their original weight; the measures are often too fragmentary to provide true capacity; and in both categories the numbers are too small to give us the security of statistical averages.

Some interpretation has been necessary merely to present the weights and measures in some kind of reasoned order. It seemed desirable to ask and, where possible, to answer the questions which the objects themselves raise: what are they? what is their relation to one another? when, how and by whom were they used? to what extent do they confirm, contradict or add to other evidence in what they can tell us about the public and private life of the ancient Athenians?

As far as modern equivalents are concerned, it was necessary on occasion to make use of them in a preliminary fashion in order to introduce the ancient weights and measures. In these cases, I have been content to use time-honored and generally accepted figures like a drachm of 4.36 gr. and a kotyle as 273 cc., since variations from these, although developed with much subtlety, are far smaller than the variations immanent in the ancient standards of weight and capacity as exemplified in extant pieces.

BRONZE AND LEAD WEIGHTS

Of the many bronze and lead weights found in the Agora only those which bear some indication of their weight and their relation to a standard need detailed consideration. Only after standards are determined on the basis of marked weights can those which are unmarked be assigned, and even then they can add nothing except possible weight of numbers. Where there is so much variation in weight even between identically marked weights, the assignment of unmarked ones will for the most part be more arbitrary than useful.

STANDARDS AND EQUIVALENTS

Of the marked weights, more than a dozen belong to the Roman system of pounds and ounces, and a few others have marks or symbols which are not immediately meaningful. For all of these, see below (pp. 23–24). Of the remainder, the largest group appears to belong to one system, without doubt Athenian, because of the general uniformity of style, symbols and inscriptions. Within that general uniformity, however, certain variations in form and in the use of symbols and legends as well as variations in weight make it clear that more than one standard is represented. It will be well, therefore, to consider first the literary evidence for different standards or changes of standard in the Athenian system of weights.

Aristotle, *Ath. Pol.*, 10

Ἐν μὲν οὖν τοῖς νόμοις ταῦτα δοκεῖ θεῖναι δημοτικά, πρὸ δὲ τῆς νομοθεσίας ποιῆσαι τὴν τῶν χρῆδων ἀποκοπὴν 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 μνᾶ πρότερον ἔχουσα σταθμὸν ἑβδομήκοντα δραχμᾶς ἀνεπληρώθη ταῖς ἑκατόν. ἦν δ' ὁ ἀρχαῖος χαρακτήρ διδραχμον. ἐποίησε δὲ καὶ σταθμὰ πρὸς τὸ νόμισμα τρεῖς καὶ ἑξήκοντα μνᾶς τὸ τάλαντον ἀγούσας, καὶ ἐπιδιενεμήθησαν αἱ τρεῖς μναὶ τῷ στατήρι καὶ τοῖς ἄλλοις σταθμοῖς.

Whatever else is obscure in this much vexed chapter,¹ the weight standard is clear. Solon made the weight talent heavier by three mnas than the coin talent and distributed the extra weight among the constituent parts of the weight talent. The one part specifically named is the stater, i.e. the standard weight unit comparable to the earliest standard coin, the didrachm. Thus the weight stater was to the weight mna as the coin didrachm was to the coin drachm.

¹ Cf. recent bibliography: J. G. Milne, "The Monetary Reform of Solon," *J.H.S.*, L, 1930, pp. 179–185; J. Johnston, "Solon's Reform of Weights and Measures," *J.H.S.*, LIV, 1934, pp. 180–184; A. French, "The Economic Background to Solon's Reforms," *Cl. Quart.*, VI, 1956, pp. 11–25; K. H. Waters, "Solon's Price Equalization," *J.H.S.*, LXXX, 1960, pp. 181–190. It seems to me that the differences between Aristotle's and Androtion's (Plutarch, *Solon*, 15) numbers of old drachms in the new mna can best be explained with reference to the difference between the coin mna and the weight mna. Aristotle gives the figure 70, which has reasonably been interpreted as the drachms of Aeginetan weight in the new mna of ca. 436 gr. (100 × 4.36 gr. is 70 × 6.23 gr.). Androtion's statement that what had been 73 drachms now became 100 shows that he was making his calculations on the basis of the weight mna (105 × 4.36 gr. is 457.8 gr.) rather than the coin mna (436 gr.). That is, 73 × 6.23 gr. is 454.8 gr.

That the stater was the weight unit is proved not only by the existing fractional weights based on the stater but also by the use of the unit in inscriptions recording payments for various amounts of weighed materials. For example, in *I. G.*, II², 1673 the prices indicate that there were 30 staters to the talent, so that these staters can not be tetradrachms of silver weight. There seems to be some evidence that raw materials were bought by the stater and finished products by the mna: stater for miltos, glue and iron; mna for hinge-sockets and empolia.

Why the weight unit was the stater rather than the mna has, I think, never been considered. It is possible that it expressed the ratio between bronze and silver in the time of Solon (105:1), so that the bronze stater represented the amount of bronze which could be purchased for a silver stater.

Since by Solon's reform all parts of the weight talent shared in the 5% increase over the coin talent, 6000 weight drachms make up the weight talent of 6300 coin drachms. Similarly, 100 weight drachms make a weight mna (105 coin drachms), and 100 weight didrachms make a weight stater (105 coin didrachms or staters). Thus we have near the very beginning of official Athenian metrology two weight systems.

Other important evidence for different standards comes from the end of Athenian metrological history. A decree of the late 2nd century B.C. provides, among other things, for a new mna of 150 coin drachms² which seems to be based on a mna of 138 drachms.

I. G., II², 1013, lines 29–37 (cf. *Hesperia*, VII, 1938, p. 130), transcribed here as conventional text

ἀγέτω δὲ καὶ ἡ μνᾶ ἐμπορικὴ Στε[φανη]-

[φόρου δραχ]μᾶς ἑκατὸν τριάκοντα κ[αὶ] ὀκτώ πρὸς[ς] τὰ στάθμια τὰ ἐν τῷ ἀργυροκοπίῳ κ[αὶ]

[ρόπ]ην Σ[τε]φανηφόρου δραχμᾶς δεκαδύο, καὶ πωλε[ίτ]ωσαν πάντες τᾶλλα πάντα ταύ-

[τη] τῇ μνᾶ πλὴν ὅσα πρὸς ἀργύριον διαρρήδην εἴρηται πωλεῖν, ἰστάντες τὸν πῆχυν τοῦ λυγ[οῦ]

[ἰσὸρ]ροπον ἄγοντα τὰς ἑκατὸν πεντήκοντα δραχ[μᾶ]ς τοῦ Σ[τε]φανη[φ]όρου. τὸ δὲ πεντάμουν [τὸ]

[ἐμπ]ορικὸν ἔχέτω [ρό]πῆν ἐμπορικὴν μνᾶν, ὅπως ἰσορρόπου τοῦ πήχεως γινομένου ἄγη ἐμπορ[ι]-

[κᾶς μ]νᾶς ἕξ. τὸ δὲ τάλαντον τὸ ἐ[μ]πορικὸν [ἔχέτ]ω ῥοπ[η]ν μ[ν]ᾶς ἐμπορικᾶς πέντε, ὅπως καὶ τοῦ[το]

[ἰσ]ορρόπου τοῦ π[ή]χεως γινομένου ἄγη ἐμπο[ρικ]ὸν τάλαντον καὶ μ[ν]ᾶς ἐμπορικᾶς πέντε. [εἶναι]

[δὲ σύ]νφ[ω]να πάντα τοῖς ἐν τῷ ἐμπορίῳ μ[έ]τρ[οις] κ[αὶ] στ[α]θ[μ]ο[ῖς].

The fact that the new mna was based on the mna of 138 drachms suggests that the latter had been the official standard up to the time of the decree. The statement that everything was to be sold by the new mna of 150 drachms³ except what was specifically directed to be weighed by the silver (coin) standard makes it certain that the mna of 138 drachms was no longer to be used but was to be replaced by the new mna.⁴

² Drachms of Stephanephoros have always been taken as coins. L. Robert ("Les Drachmes du Stéphanéphore à Athènes," *Études de Numismatique Grecque*, Paris, 1951, pp. 105–135) has now shown conclusively that the reference is to the so-called New Style coins which bear a wreath rather than to a supposed hero, Stephanephoros, who presided over the mint.

³ This provision contradicts the assumption of most scholars that the purpose of the decree was to provide for easy conversion of the Athenian weights both to the Aeginetan system, in which the mna is equal to about 138 Athenian drachms, and to the Roman system, in which two pounds equal 150 Athenian drachms. The two standards are not being used at the same time. As for the fact that the standards agree with foreign systems, obviously it would be logical, if the standard had to be raised, to adopt one which would tie in with systems already widely current.

⁴ The makeweight to be added to the five-mna weight presents a difficulty, since this piece is to be augmented by one-fifth whereas both talent and mna are to be augmented by *ca.* one-twelfth. Hultsch's (*Metrol.*, p. 136) explanation that in an earlier part of the decree certain things of negligible value were directed to be weighed by the five-mna piece is unsatisfactory.

Four different weight standards are thus attested by either Aristotle or the late 2nd century B.C. decree. If chance had not preserved the decree and had not brought to light a copy of the *Athenian Constitution*, no literary evidence of changed standards would have survived. That there were other standards or changes of standards about which chance has not seen fit to inform us seems not only possible but likely, especially in view of the indirect evidence supplied by the decree of Teisamenos (Andokides, I, 83). This decree's provision that the city use the laws of Solon and his weights and measures after the expulsion of the Thirty Tyrants strongly suggests that not only had Solon's laws been in abeyance but that weights and measures other than those of Solon had been in use. If, therefore, we find that extant weights can not be fitted into the four attested standards and require that others be postulated, we can only be grateful that chance has preserved the weights in lieu of literary evidence. It will be right, however, first to see how extant weights embody the standards we know so that we shall have some idea concerning allowable variations both in original and preserved weight.

Of the four standards we should not perhaps expect to find the coin standard exemplified in the ordinary semi-official lead weights which seem to be more appropriate for small dealers in groceries, fish and hardware. At any rate, the unit for the coin standard was probably the mna (Arist., *Ath. Pol.*, 10), just as the unit for the two heavier standards was the mna (*I.G.*, II², 1013, lines 29–36). For the weight standard of Solon, however, the unit was the stater, as both its name and its specific mention by Aristotle suggest. We shall thus expect to find some weights marked as fractions of the stater and others of the mna.

Before going on to the weights themselves, we shall do well to look first at the weights of these various standards as translated into the modern equivalents by which extant weights must be weighed. Since all three weight standards are based on the coin drachm, that must be defined first. Its weight may be derived from statistics on coin weights, from calculations based on Aristotle's account of Solon's reform, which depend in turn on Aeginetan coin weights, and from the ancient equations between Athenian and Roman weights. Authorities differ as to the exact figure, but everyone would agree that the Solonian coin drachm must be somewhere between 4.2 and 4.4 gr.⁵ This range gives a weight stater on the 105-drachm standard of 882–924 gr. Since more than one-third of all Athenian weights marked with both symbol and legend are based on staters which fall within this range, and others which have demonstrably lost weight fall not far below, it seems likely that this was the basic Solonian weight standard. Since we shall be dealing for the most part with larger units, it will be more convenient and no less accurate to use the most generally accepted coin drachm of 4.36 gr. rather than the more cumbersome range.

The following table gives the weights of units and fractions in the three standards which we may expect to find exemplified in the weights:

	105	138	150
Stater	915.6 gr.	1203.36 gr.	1308 gr.
Mna (half-stater)	457.8	601.68	654
Third (of stater)	305.2	401.12	436
Fourth (of stater)	228.9	300.84	327

Viedebant (*Hermes*, LI, 1915, p. 138) assumes that Fourmont omitted two lines of the text in copying so that we have the one-mna makeweight which was to be assigned to a twelve-mna weight associated with the five-mna weight. This assumption requires Fourmont to have changed one number in order to make good his omission and introduces an otherwise unknown twelve-mna piece into the series of weights. However shocking it may be in terms of modern accuracy, it seems to me necessary to accept the text and the fact that the Athenians were satisfied with the inequality for the sake of convenience.

⁵ Hultsch, *Metrol.*, p. 208 gives 4.366 gr.; he is followed by Lehmann-Haupt, *Gewichte*, Pauly-Wissowa, *R.E.*, Suppl. III, cols. 611–612. Viedebant, *Forschungen*, pp. 51–56, gives 4.26–4.32 gr. Seltman, *Greek Coins*,² pp. 41–45, gives 4.25 gr. This is a fair sampling of the weights assigned to Solon's coin drachm.

Sixth (of stater)	152.6	200.56	218
Eighth (of stater)	114.4	150.42	163.5
Twelfth (of stater)	76.3	100.28	109
Sixteenth (of stater)	57.2	75.21	81.8

DESCRIPTION OF WEIGHTS

By far the greatest number of marked weights found in the Agora are small roughly square lead plaques of various sizes. Most of these show some symbol in relief and half of those with symbols have short legends also in relief. How they were made is difficult to determine since the rounded corners and edges of many pieces do not suggest a mould. But the way in which the metal around the top edge seems to have folded down over the relief design suggests that they were removed from whatever gave them their impression while still somewhat soft. If this was a mould, then presumably they were removed while still sufficiently malleable for the weight to be adjusted. This adjustment would certainly mean that the weights were handled, which would explain the blurring of the relief by the folding in of the edges, and might also involve paring of corners and edges, which might thus have become rounded. Certainly some pieces have been hollowed out on the underside; the smoothness of the hollow seems to indicate that this too was adjustment of the weight made while the metal was still soft.⁶

The dating of the lead weights except from context is peculiarly difficult. Only a few pieces have context dates more specific than generally Hellenistic, and without a considerable number of pieces dated to various points on a chronological scale, it is impossible to demonstrate that differences are chronological. The symbols might be expected to show some change and development, but slight differences which appear can be as readily explained by different contemporary moulds as by chronological sequence. In a few cases, however, some indications of date appear: the armor-plated land tortoise which succeeded the sea-turtle on Athenian weights must connect with the same change on Aeginetan coins and so should date to the third quarter of the 5th century B.C.;⁷ the late type of Panathenaic amphora symbol can not have been introduced before the development of the amphora itself was complete and is probably contemporary with its appearance on New Style coins; the introduction of the crescent may well be contemporary with its appearance on coins; and the change from crescent to cornucopia may well come at the same time as the appearance of the cornucopia on New Style coins. Explanations for these changes will be considered below (pp. 9-13).

The use of the Attic alphabet in the legends might at first appear to be indicative of an early date, but when we see ἡμίτριτον and δεμόσιον on the same weight (Pernice, nos. 54, 66, etc.), it becomes apparent that the old spelling (δεμόσιον) continued in use as a traditional guarantee long after the change of the alphabet.

An examination of the legends and symbols of all extant weights might produce some general criteria of relative dates which could be translated into absolute terms on the basis of changes in standards and the few context dates known.⁸ At present, however, this is not possible since almost no photographs and only a few drawings have been published of the large numbers of weights in the National Museum in Athens, the British Museum and other museums and private collections. The chief source of comparative material is E. Pernice, *Griechische Gewichte*, 1894, which lists all pieces known to the author through previous publications or personal inspection.

⁶ For moulds used in making weights, see A. Papadopoulos-Kerameus, *Περὶ τινὸς μήτρης σταθμῶν*, Smyrna, 1879.

⁷ E.S.G. Robinson, "A Hoard of Archaic Greek Coins from Anatolia," *Num. Chron.*, ser. 7, I, 1961, pp. 110-112.

⁸ See introduction to catalogue below (pp. 24-25) for such an attempt with Agora weights.

LEGENDS AND SYMBOLS

The legends which appear on the weights are of two kinds: (1) official guarantee, ΔΕΜΟ or ΔΗΜΟ for δημόσιον; (2) weight, e.g. στατήρ, τριτη (μόριον), etc. On a few pieces both types of legends appear. The symbols which appear on the weights are: wheel, astragalos, boukranion, dolphin, amphora, shield, turtle or tortoise,⁹ crescent and cornucopia. Where they came from and why they were used will be considered more at length below (pp. 7-13), but it will be well in passing to note that four of them (wheel, astragalos, boukranion and amphora) are symbols used on the Wappenmünzen. This can not be coincidence but rather seems to confirm Seltman's assignment of these coins to Athens.¹⁰ That symbols were already attached to weights in the 6th century B.C. we know from the three archaic bronze weights (BW 1-3) which were found in a context of ca. 500 B.C. It would be only natural for official weights to be marked with the symbols of contemporary coins.¹¹ That they should continue to be so marked after the coins had changed from a variety of symbols to one only is equally natural, since it was both necessary (for the illiterate) and desirable (for the hasty) that the different units and fractions have different symbols. The difference in size and weight between, for instance, a third and a fourth is not so immediately apparent as the difference between any two coins.

Since the same weight legend does not always accompany a particular symbol, the presence of a symbol alone does not certainly indicate the relationship to the unit. But on the great majority of all extant weights (both the Agora material and those conveniently brought together by Pernice) the symbol-legend combinations listed in the regular system below are constant. The two other systems represent a much smaller group of Athenian weights which will be analyzed below.

REGULAR SYSTEM

Wheel	διστατήρ
Astragalos	στατήρ
Dolphin	μνᾶ
Amphora	τριτη(μόριον)
Half-amphora	ἡμίτριτον, ἡμίτ(ριτον)
Quarter-amphora	ἡμισυημίτ(ριτον)
Tortoise	τεταρτημόριον, τεταρτη(μόριον)
Half-tortoise	ἡμιτέ(ταρτον)
Half-crescent	ἡμισ(υημιτέταρτον)

6TH-5TH CENTURY B.C. SYSTEM¹²

Wheel	διστατέρ
Astragalos	στατέρ
Dolphin	ἡμιστάτερον

⁹ For ease of reference these terms are used throughout to denote the smooth-shelled sea-turtle and the armor-plated land-tortoise.

¹⁰ Seltman, *Athens*, pp. 16-38.

¹¹ Cf. the owl weights, Pernice, no. 4 and BW 5 (Pl. 1). The fact that these are comparatively few and never became part of the regular system suggests that the weight system was already well established before the owl became the monetary badge of Athens.

¹² Based on BW 1-3 (Pl. 1) and comparable shield, turtle and half-turtle weights in Pernice. The early mna (half-stater) with dolphin was found on the Acropolis (Pernice, no. 1 and *I.G.*, I², 917). The wheel and amphora are not definitely known for this period but may be presumed from the regular system.

Amphora	τριτε(μόριον)
Shield	τεταρτε(μόριον)
Turtle or Tortoise	ημίτριτον
Half-turtle or Half-tortoise	ήμισυημίτ(ριτον)

LATE HELLENISTIC SYSTEM¹³

Wheel	τετραμνῶ
Boukranion	διμνοῦν
Dolphin	μνᾶ
Amphora	ήμιμν(αῖον)
Half-amphora	τέταρ(τον)
Half-crescent or Cornucopia	ὄγδο(ον)

In addition there are one boukranion weight marked “mna” and crescent weights of two weight-ranges: one group is unmarked but must be one-quarter of the mna; the other is marked as one-sixth of the mna. For an explanation of this proliferation see under crescents below (p. 12).

The wheel weights from the Agora (LW 1–2, Pl. 2) do not have weight-legends. Of several similar weights listed by Pernice, who did not identify the symbol, one (no. 274) is inscribed: τετραμνῶ; another, which I have seen in the National Museum in Athens (no. 8192: 3094), may be read: διστατέρ.

The astragalos (Pls. 2, 3) never appears with any other weight-legend than *stater*;¹⁴ it may have no legend or only the official guarantee. Similarly, the legend *stater* appears only with the astragalos and with no other symbol.

The dolphin (Pls. 3, 4) never appears with any other weight-legend than *mna*; it may have no legend or only the official guarantee. Two weights with half-dolphins and the legend “half-mna” are listed by Pernice (nos. 265–266); if these are Athenian, they are exceptional and outside the ordinary systems. The origin of the dolphin as a symbol on weights is obscure. Although the dolphin does not appear on the Wappenmünzen, it is a favorite shield device and even appears on Athena’s shield on Panathenaic amphoras (Pl. 4).¹⁵

Mna appears as a weight-legend in combination with a boukranion on one weight listed by Pernice (no. 610). The boukranion symbol is elsewhere accompanied by the legend *dimnoun* (Pernice, nos. 603–605) and appears to replace the *stater*, which is also a *dimnoun*, only after the introduction of heavier standards for which the *mna* has become the unit and the *stater* with its astragalos has been dropped. The fact that the boukranion must have been first attached to weights in the 6th century B.C. along with the other symbols from the Wappenmünzen makes it likely that the use of the boukranion on the *mna* weight belongs to the early period. But the archaic dolphin weight from the Acropolis (Pernice, no. 1) is also a *mna*, even though it is marked as a half-*stater*, so that only the difference in weights provides a clue to the original denomination of each symbol. Whereas the early dolphin *mna* belongs to the 105 standard (though somewhat underweight, 426.63 gr.), the boukranion *mna* (Pernice, no. 610) belongs to the 150 standard; it is severely damaged so that its present weight of 589.6 gr. points to an original weight of at least 654 gr. and the 150 standard. Since the appearance of the bou-

¹³ The date of this system is based on the late Panathenaic amphora type, for which see below, pp. 20–21, 25.

¹⁴ Omitted from all consideration here are various weights in Pernice which appear not to belong to the Athenian system. For example, Pernice, nos. 14–17 have astragaloi in relief but their weights are between one-quarter and one-eighth of a *stater*. No. 14, which is said to come from Crete, has as weight-legend “half-mna,” which further shows that it is out of our series.

¹⁵ *Harv. St. Cl. Phil.*, XIII, 1902, pp. 103–104.

kranion later on two-mna weights can only be explained if the symbol already had a history of association with the mna, it seems to me likely that the original system included a weight between the stater and the mna which was $1\frac{1}{2}$ mnas and that this weight used the boukranion as its symbol. But since a weight of $1\frac{1}{2}$ mnas could always be made up of a mna and a half-mna (or quarter-stater), this piece gradually dropped out of circulation. Only with a rise in standard which brought the mna almost up to an old mna and a half might it be revived to distinguish the new heavy mna from the normal dolphin. The facts that only one of these pieces has survived and that what appear to be later dolphins have weights suitable for the 150 standard suggest that this one mna with boukranion belongs to an early rise in standard when the memory of the $1\frac{1}{2}$ mna piece was still fresh. It may well, therefore, belong to the increase in weights which preceded the decree of Teisamenos.

The amphoras and half-amphoras which appear on Agora weights (Pls. 5, 6) are of two shapes, one of which resembles the early Panathenaic amphora and the other what Sir John Beazley has called (with reference to the amphoras themselves) a caricature of the early type. The symptoms of this later type of amphora begin to appear in the 4th century B.C., but only in the 3rd century does it achieve the exaggerated form which is illustrated not only on the weights but also on the New Style coins.¹⁶ Accompanying the early Panathenaic type of amphora on the weights the most usual legend is τριτη(μόριον), making the amphora-weight one-third of the stater. Only two weights with what appears to be this type of amphora (Pernice, nos. 96–97) are marked as half-mnas. This latter legend seems more properly to belong with the later type of Panathenaic amphora (see LW 30, Pl. 6), as may be seen best from the fairly numerous weights which have a half-amphora of the later Panathenaic type and the legend “one-fourth.” Here again we have a change from the stater as a standard unit to the mna, and as with the dimnoun, the standards for which the mna is the unit are the heavier ones. It seems likely that as the weight increased so that the mna came nearer in weight to the original stater, the double mna or stater became too heavy to use as the basic unit. It would, for example, have required more fractional parts to weigh what had previously been weighed by the smallest fractions of the regular stater. Furthermore, it is apparent that here, at least, the symbol was more closely linked to a specific weight than it was to a particular fraction. If, for example, there was an increase from the 105 standard to the 138 standard, one-third of the old stater or double mna ($\frac{1}{3} \times 210$ drachms is 70) would be very close to one half of the new single mna ($\frac{1}{2} \times 138$ drachms is 69), so that the amphora would continue to represent a particular weight even though its relation to the changing unit had changed. The use of both types of amphoras as half-mnas must be interpreted as evidence for at least two increases from the 105 standard, one of which must have occurred before the 3rd century B.C. change of amphora type. If the two weights with early Panathenaic amphora (Pernice, nos. 96–97) may belong to the late 5th century B.C., they would provide further evidence for the increase of standard at that time, which is suggested by the decree of Teisamenos and the boukranion mna.

Two sets of weight-legends accompany turtle and tortoise weights (Pls. 7, 8). “One-sixth” (and “one-twelfth” for the half-symbol) appears with both turtles and tortoises. “One-fourth” (and “one-eighth” for the half-symbol) occurs only on tortoise-weights. That both of these fractions belong to the stater unit rather than the mna is made certain by the weights of the pieces, which are far larger than any fourths or sixths of even the largest mna. The use of the tortoise as one-fourth does not therefore represent the same sort of change as that of the amphora-weights from one-third of the stater to one-half of the mna.

¹⁶ The beginning of the New Style coins has now been dated securely to the early 2nd century B.C. Cf. M. Thompson, *Am. Num. Soc. Museum Notes*, V, 1952, pp. 25–33 and now also Miss Thompson's answer (*Num. Chron.*, ser. 7, II, 1962, pp. 301–333) to D. Lewis's arguments for a later date (*ibid.*, pp. 275–300).

Both the change from turtle to tortoise and the change of fraction must be explained. That the change of symbol was from the turtle to the tortoise rather than the other way around is made certain by the early appearance of the turtle on one of the bronze weights (BW 3, Pl. 1) found in a context of *ca.* 500 B.C. That this same change should have overtaken the turtle on the coins of Aegina, to the puzzlement of numismatists, seems to relate the turtle and tortoise weights to Aegina.¹⁷ Such a relationship seems reasonable when we consider that it was undoubtedly from Aeginetan (equals Pheidonian)¹⁸ weights that Solon changed to the Euboic-Attic standard. Both for ease of commerce with Aegina and for the sake of conservative Athenians who had grown accustomed to Aeginetan weights, Solon may well have arranged to symbolize the new relationship by putting the Aeginetan turtle on a fraction of his new stater which was equivalent to some part of the Aeginetan mna.

The fact that our earliest turtle appears on a sixth of a stater (BW 3) makes it likely that it was this fraction which Solon equated with an Aeginetan weight. We can not, however, take its weight as the Solonian norm in order to determine the Aeginetan fraction with which it was equated, because the group of weights to which it belongs may not be on the Solonian standard. For the present purpose of determining with what Aeginetan weight Solon made his sixth of a stater equivalent, we must look rather to one-sixth of 915.6 gr. or 152.6 gr.

Concerning the 6th century B.C. Aeginetan mna our information is limited to maximum coin weights and interpretation of Aristotle, *Ath. Pol.*, 10. According to this, Solon's new mna, made up of 100 of his new drachms, held 70 of the old Pheidonian or Aeginetan drachms. Sixth century B.C. Aeginetan coin weights suggest a drachm of *ca.* 6.2 gr.¹⁹ That 70 of these are 434 gr. and so very little less than Solon's mna of 436 gr. suggests that we may confidently use an Aeginetan mna of *ca.* 620 gr.²⁰ One quarter of this mna would be 155 gr., and it seems very likely that Solon equated his own slightly smaller one-sixth of the weight stater (152.6 gr.) with this. Thus it was that although the ratio of the two coin mnas was 7:10, the ratio of the weight mnas was taken as 3:4. Perhaps this easier conversion was an additional reason why Solon provided for the 5% enlargement of the weights.

Granted that the Solonian sixth was marked with a turtle and later a tortoise to indicate its relation to the Aeginetan weight system, what are we to make of the later tortoise weights which are marked "one-fourth"? The change of fraction, unless it was simply arbitrary, can only have come about as a result of an increase and subsequent decrease in the Athenian standard. We have seen that amphoras changed fractions from one-third stater to one-half mna when an increase in standard made it necessary for the amphora either to increase in weight, keeping its own fraction, or to keep its own weight and change its fraction. For a tortoise to change from one-sixth to one-fourth (of the stater in both cases) the standard would have had to be first so increased that the sixth approached the weight of the quarter-stater on the normal standard and then returned to normal so that the tortoise would have either to decrease in weight, keeping its fraction, or to change its fraction and keep its new weight. It will be objected that if the symbol has a greater affinity for its own weight than for a particular fraction, the tortoise would not have increased with the increased standard in the first place, but would have dropped back to become one-eighth instead. There is, however, some evidence to indicate that in several cases increases of standard were accompanied by the various symbols taking on extra weight, for example, LW 3 (Pl. 2), a stater, which has kept the astragalos

¹⁷ S. R. Milbank, *Coinage of Aegina*, *Amer. Num. Soc. N. Mon.*, XXV, 1925, p. 45.

¹⁸ The equation Pheidonian-Aeginetan in this context is generally accepted. Cf. Head, *H.N.*, p. 395; Seltman, *Greek Coins*,² London, 1955, p. 37.

¹⁹ Head, *H.N.*, p. 396, gives 6.28 gr. Gardner, *A History of Ancient Coinage*, Oxford, 1918, p. 114, gives 6.22 gr. Seltman, *Athens*, pp. 116-119, sets the range from 6.0 to 6.2 gr.

²⁰ There is no evidence that the Aeginetan mna had only 60 drachms, as Seltman maintained, *ibid.*, p. 119.

and increased its weight to the 150 standard (1378 gr.). Still more demonstrable is the gain in weight of LW 9 (Pl. 3), where the extra lead added can easily be seen²¹. It may be that if the standard was increased by degrees from 105, for example, through some intermediate standard or standards to 138 and then to 150, the symbols would take on weight more or less gradually. But with a quick drop from 150 or 138 to the much lower 105 standard, the symbol would be too attached to its heavy weight in people's minds for such a reduction.

That the change in the tortoise's fraction must have come as a result of an increase and subsequent decrease in standard seems clear. The dates of increase and decrease present more difficulties because of the relation between change of symbol and change of fraction. The fact that there are both turtle and tortoise weights marked as one-sixth but that weights marked as one-fourth never have turtles but only tortoises makes it necessary to date the change from turtle to tortoise sometime before the change from one-sixth to one-fourth to account for the tortoises inscribed one-sixth. If the change of symbols came as a result of the Aeginetan change of coin symbols, it must be dated after 446–431 B.C.²² Any increase in standard which was revoked by the decree of Teisamenos in 403 B.C. may have been in force for some time. During the last decade of the century the general economic situation was such as to make an increase in the weight standard a popular and perhaps even necessary measure. Silver had become so scarce that the Athenians were obliged to coin gold and bronze.²³ Rather than decrease the weight of silver in the coinage, which involved international prestige, it may have seemed reasonable to make each coin go farther by increasing weights and controlling prices. In any case, the return to the normal standard in 403 B.C., which is the most likely cause of the tortoise's change of fraction, must have been preceded by the change of symbol, since several of the tortoise weights which are marked as one-sixths belong to the normal standard and so require that the change from turtle to tortoise precede the rise in standard.

If then the change of turtle to tortoise followed directly on the Aeginetan change of coin symbol, there would have been time for tortoises as sixths of the stater on the normal standard to be issued and used before the rise in standard caused them to increase in weight. The rise may have been gradual, but it is likely that it reached at least a mna of 150 coin drachms, since this is the standard on which the two early amphora half-mna pieces (Pernice, nos. 96–97) are based.²⁴ With this increase the tortoises as one-sixth staters will have increased to 218 gr., so that when the return to the 105 (Solonic) standard was voted, they were approximately equal to normal quarter-staters (228.9 gr.). At this time, therefore, it must have seemed better to keep the tortoises at approximately the same weight and change their fraction from one-sixth to one-fourth. This was the only such change since amphoras could readjust by losing a little weight and going back to being one-third of the stater instead of one-half of the mna. The heavy boukranion mna could give way to the normal dolphin, and astragaloi, as units rather than fractions, could return to the normal standard simply by losing weight.

What the change of tortoises to one-fourth chiefly meant was the dropping of the shield-symbol and the extension of the half-symbol system, previously in use with the half-tortoises as one-twelfth, to the amphora, so that half-amphoras now represented the sixth of the stater which had been vacated by the tortoise. The half-tortoise obviously followed the lead of the tortoise and became one-eighth of the stater.

²¹ See also LW 4 (Pl. 3), a stater with astragalos and weight of 1102 gr.; LW 8 (Pl. 3) and LW 10 (Pl. 3), mnas with dolphin and weights of 708 and 624 gr.; LW 34 (Pl. 7), tortoise and weight of 302 gr.

²² E. S. G. Robinson, "A Hoard of Archaic Greek Coins from Anatolia," *Num. Chron.*, ser. 7, I, 1961, pp. 110–112.

²³ Head, *H.N.*, p. 373; Wade-Gery, *Num. Chron.*, XXXVII, 1930, pp. 16–38.

²⁴ Pernice, no. 96 weighs 354.49 gr.; Pernice, no. 97 weighs 335.406 gr. Their respective mnas would weigh 708.98 and 670.812 gr.

Did the tortoise as a quarter stater tie in with the Aeginetan weight system? And was an effort made when the tortoise as one-sixth increased with the increasing standard to keep it in relation to an Aeginetan fraction? We must remember that the Aeginetan weight system was not limited to Aegina so that it would have been perfectly possible for the Athenians to have severed their metrological connections with Aegina by changing turtle to tortoise and still to have kept an equation with the Aeginetan weight system. Thus, if one of the late 5th century B.C. rises in standard was to 138, this would have been not only a rise of almost one-third over the 105 standard of Solon, but also a near duplication of the Aeginetan standard (140 Athenian coin drachms). Instead of the 140 drachms proper to exact equivalence the Athenians used 138, probably because for so long a time their 105 mna had passed as three-quarters of the Aeginetan mna that they thought of the Aeginetan mna as slightly less than it really was. Thus, one-sixth of the Athenian stater on the 138 standard would be 200.56 gr., less than a drachm off from one-third (203.46 gr.) of the Aeginetan mna to which they had related their 105 mna as 3:4 (i.e. 610.4 gr.), but rather more than a drachm off from one-third of the real Aeginetan mna (one-third of 620 gr. equals 207 gr.).

If, as seems likely, the Athenian standard increased still more to 150 at this time, the equation with the Aeginetan weight system would have been less good, but not impossible. That is, the Athenian sixth became 218 gr. and was therefore no more overweight for the Aeginetan third than the sixth on the 138 standard had been underweight. It is also possible that the Aeginetan weight mna may have increased slightly at the same time and from the same causes which affected the Athenian standards.

When Athenian weights returned to normal in 403 B.C., the tortoise as a quarter-stater on the 105 standard weighed 228.9 gr. This can be equated to an Aeginetan weight only if the Aeginetan weight mna had increased in weight, so that 228.9 gr. would be equal to one-third of a mna of 686.7 gr. Did any such Aeginetan mna ever exist? Yes, and hitherto it has put scholars to much trouble to explain it away. Pollux (IX, 76, 86) states that the Aeginetan drachm weighed 10 Athenian obols and that the Aeginetan talent held 10,000 Athenian drachms. This *παχέα δραχμή* (7.26 gr.) is far above the maximum weight of Aeginetan coins and can not be the coin drachm.²⁵ It must rather be a weight drachm and represent the same sort of increase of weight standard over coin standard which Solon initiated in Athens. In this case the weight mna would have to be 115 coin drachms (115 × 6.2 gr. is 713 gr.), and again the Athenians would have equated a slightly smaller weight; one quarter-stater of 915.6 gr. equals 228.9 gr., to be equated with one-third mna of 713 gr. or 238 gr. If the Athenians continued to think of the basic Aeginetan coin mna as 610.4 gr. (i.e., four-thirds of their own 105 weight mna) then the new increase would make the Aeginetan mna only 701.96 gr. and its third 233.9 gr.

The explanation of how the Athenian tortoise weight changed from one-sixth to one-fourth of the stater has led us to assume, not without evidence, a rise in both the Athenian and Aeginetan weight standards. It will perhaps be thought that two changes are excessive, but the times were bad, and the Athenians' war costs and the Aeginetans' struggle to make ends meet on their return home seem reasons enough. When the Aeginetans resumed coinage in 404 B.C., they added a new symbol, perhaps to reassert their claim to sea power: the dolphin, which they may have taken from the Athenian mna. Since the mna as half-stater was double the tortoise quarter-stater, it too equated easily with the Aeginetan weight system. We know too little of the commercial policies of both states to make any definite statement, but the borrowing of symbols might have come about as a sign and token of some trade agreement or treaty.

²⁵ Hultsch, *Metrol.*, pp. 192-196.

Returning now to the general survey of symbols and legends, we should mention in passing the shield symbol, which is present on one of the early bronze weights from the Agora (BW 2, Pl. 1). Both there and on one of the few lead weights with shield symbols in Pernice (nos. 232–239) it is accompanied by the legend “one-fourth.” If the theory of the shield’s displacement by the tortoise outlined above is correct, all these weights must be dated before the end of the 5th century B.C. The origin of the shield as a symbol, as of the other symbols found in the 500 B.C. context, must be sought in the 6th century B.C. Since the shield was used in parallel with symbols of the Wappenmünzen, a source comparable to these early heraldic devices of clans is most likely. It can not therefore be a coincidence that the badge of Salamis was a shield and that after the island’s subjection by Athens in the first half of the 6th century B.C. the Salaminians’ symbol should be used on weights along with other symbols representing various parts of the state.

Two more symbols must be considered from the point of view of origin and with regard to legends and roles in the system: crescent and cornucopia (Pl. 8). Crescents and half-crescents are most likely to have been derived from Athenian coins. Early 4th century B.C. obols have four crescents; the quarter-obol, half-obol and three-quarter obol have respectively one, two and three crescents. It is obvious that as a crescent is a quarter, so four crescents make a full (moon). Hence the first use of crescents on the weights must be for one-quarter of some unit, and it should be dated not long after the first appearance of crescents on the coins.

The crescent weights collected by Pernice are in two ranges:²⁶ 115–106 gr. (nos. 336–344); 88–66 gr. (nos. 345–387). None of the first range has a weight legend; the three examples of the second range with weight-legends read: ἐξῆμ(όριον). Because of the fraction the weights of the second range can not belong to the first use of the crescent, which must have been as one-fourth of some unit. The weights of the first range are eminently suitable as quarters of a mna on the 105 standard (ranging from 460 to 424 gr.). Whether other crescents which do not survive were marked as one-fourth of the mna, we do not know, but we should expect that if the crescent was introduced as a weight symbol at a time not far removed from the crescent obols that fractions would be expressed only in terms of the stater. The stater, of course, already had an eighth at this time in the half-tortoise, but it is possible that after the recent rise in standard when the mna also had its fractions (cf. amphora as “half-mna”), both the crescent quarter-mna and the half-tortoise eighth-stater were in use at the same time. This possibility is strengthened by one half-crescent weight with the legend ΗΜΙΣ (Pernice no. 307), which surely must be read: ἡμισ(σημιτέταρτον) (one-sixteenth of the stater), in view both of its weight (60.94 gr.) and the use of the crescent as a quarter-mna.

The chief difficulty presented by the crescent weights is the change from one-fourth to one-sixth of the mna. This is the more troublesome because the half-crescents, spread over a wide range of weight, which does not however include anything so low as one-half the “one-sixth” crescents, have no weight-legend except ὄγδο(ον). It does seem that whereas there was much use for the half-crescent as an eighth part of the mna (or one-sixteenth of the stater, for which there are very few quarter-tortoises), there was so little need for the crescent as a quarter-mna (or one-eighth stater, for which the half-tortoises are very numerous) that the crescent was switched to the one-sixth mna (or one-twelfth stater, for which there are only a few quarter-amphoras). Such a switch seems to be against all sense both with respect to four rather than six crescents making a moon and in connection with the half-crescent as one-eighth, but one fact may justify it and may have made it seem reasonable: that as one-sixth of the mna the crescent was 105 times the weight of the obol and stood to that coin as the weight-mna stood to the drachm.

²⁶ Pernice, no. 335, which fits neither range, has as its legend ΣΙΚ. It is probably non-Attic.

The cornucopia as a weight symbol is closely tied to the half-crescent, since it seems to take over the latter's role on weights marked as one-eighth of the mna. On weights which are worn or damaged it is very difficult to tell the two apart; this may explain why Pernice did not recognize the symbol at all. Certainly one of the weights listed by him (no. 322) did bear a cornucopia²⁷ because it shows the same peculiar spelling which Agora cornucopia weights have: $\delta\kappa\delta\sigma(\sigma\nu)$. Of three such weights found in the Agora only one may be dated closely enough by context (LW 51, Pl. 8, second half of 2nd century B.C.) to provide a *terminus ante quem*. That the cornucopia was adopted from 3rd century Athenian coins²⁸ seems likely; the reason can only be conjectured, but the use of the crescent as one-sixth may have made the continuance of the half-crescent as one-eighth difficult. All three of the Agora cornucopia-weights belong to mnas on a standard of 138 or more drachms; Pernice no. 322 is not well preserved so that its weight is not meaningful.

WEIGHTS AND STANDARDS

Considered only incidentally in connection with symbols and legends so far, the weights of the various pieces and standards should now receive their full share of attention. The list below gives all the marked lead weights from the Agora, both those belonging to the regular system of symbols and fractions and those of the irregular (Hellenistic) group. The list includes for each weight the symbol, the weight-legend (if any), the weight of the piece and in parentheses the weight of the mna or stater on which it is based. Where the unit is the mna, the weight of the dimnoun is added in the column with the stater-weights for the sake of comparison. On this latter point, there is doubt only with the mna, which may either have been half of the stater-unit or itself the unit. The list is in descending order of unit-weight, based on the stater or dimnoun.

<i>Catalogue Number</i>	<i>Symbol in Relief</i>	<i>Weight Legend</i>	<i>Gram Weight</i>	<i>Gram Weight of mna, if unit</i>	<i>Gram Weight of stater or dimnoun</i>
LW 31	Half-amphora	One-fourth (mna)	196	(784)	(1568)
LW 30	Amphora	Half-mna	375	(750)	(1500)
LW 32	Half-amphora	One-fourth (mna)	183.5	(734)	(1468)
LW 8	Dolphin	Mna	708		(1416)
LW 51	Cornucopia	One-eighth (mna)	88	(704)	(1408)
LW 3	Astragalos	Stater	1378		(1378)
LW 9	Dolphin	Mna	682.5		(1365)
LW 52	Cornucopia	One-eighth (mna)	81	(648)	(1296)
LW 10	Dolphin	Mna	624		(1248)
LW 34	Tortoise	One-fourth	302		(1208)
LW 53	Cornucopia	One-eighth (mna)	75	(600)	(1200)
LW 54	Half-crescent		74	(592)	(1184)
LW 4	Astragalos	Stater	1102		(1102)
LW 17	Amphora	One-third	325		(975)
LW 18	Amphora	One-third	322		(966)
LW 19	Amphora		320		(960)

²⁷ When one knows what to look for, the cornucopia is visible on this weight (now in the National Museum in Athens).

²⁸ Svoronos, pl. 23, 35.

<i>Catalogue Number</i>	<i>Symbol in Relief</i>	<i>Weight Legend</i>	<i>Gram Weight</i>	<i>Gram Weight of mna, if unit</i>	<i>Gram Weight of stater or dimnoun</i>
LW 24	Half-amphora	One-sixth	158.5		(951)
LW 11	Dolphin		475		(950)
LW 35	Tortoise		237.5		(950)
LW 36	Tortoise		236		(944)
LW 55	Half-crescent		59	(472)	(944)
LW 12	Dolphin	Mna	471		(942)
LW 25	Half-amphora	One-sixth	156.5		(939)
LW 37	Tortoise	One-fourth	234.5		(938)
LW 26	Half-amphora	One-sixth	155.5		(933)
LW 27	Half-amphora		155		(930)
LW 38	Tortoise	One-fourth	231		(924)
LW 13	Dolphin	Mna	455		(910)
LW 39	Tortoise		227.5		(910)
LW 40	Tortoise		227		(908)
LW 20	Amphora	One-third	301		(903)
LW 28	Half-amphora	One-sixth	150		(900)
LW 1	Wheel		1792.5		(896)
LW 41	Tortoise		224		(896)
LW 42	Tortoise		224		(896)
LW 21	Amphora		298		(894)
LW 14	Dolphin		445		(890)
LW 43	Tortoise		222.5		(890)
LW 2	Wheel		1779		(889)
LW 56		One-sixteenth	55.5		(888)
LW 45	Half-tortoise	One-eighth	109.5		(876)
LW 44	Tortoise		217		(868)
LW 46	Half-tortoise		108		(864)
LW 5	Astragalos		863		(863)
LW 57	Half-crescent		53.5	(428)	(856)
LW 58	Half-crescent	Twelve drachms	53	(424)	(848)
LW 16	Dolphin	Mna	422		(844)
LW 6	Astragalos	Stater	841.5		(842)
LW 47	Half-tortoise	One-eighth	105		(840)
LW 29	Half-amphora	One-sixth	136		(816)
LW 33*	Half-amphora	One-fourth (mna)	99.5	(398)	(796)
LW 22*	Amphora	One-third	170		(510)

* These can not be included in any statistics since they were obviously tampered with in ancient times. They are merely facades with symbols and are less than half the thickness of normal pieces. Also not included here or in the statistics are the broken pieces (LW 7, 15, 23, 48, 50; Pls. 2, 4, 5, 8), a half-tortoise which is not certainly one-twelfth of a stater (LW 49, Pl. 8) and the drachm-pieces (LW 59, 60, 61; Pl. 8).

Wide as the range appears to be, it is immediately apparent that the greatest concentration is around a stater of about 900 gr. Both this concentration and other lesser ones will show up

best on a distribution-chart, but since the Agora material by itself is not a large enough sample the chart must include as well 352 weights of the same type listed by Pernice. For the sake of homogeneity, the 352 were chosen for their similarity to the Agora weights: they are all rectangular pieces of lead with symbols in relief (wheel, astragalos, boukranion, dolphin, amphora and fractions, tortoise and fractions, crescent and half-crescent, and cornucopia) and with legends as above (pp. 6-7). Although the legends are not present on all weights, one marked piece in a group with similar weights seemed to be a sufficient indication for all. A few pieces which have all these characteristics are omitted because their condition is very bad or because they do not certainly belong to the same series.²⁹

DISTRIBUTION OF ATHENIAN WEIGHTS

*Gram Weight
of Stater*

740-760	xx
760-780	xx
780-800	xxx
800-820	xxxx
820-840	xxxx
840-860	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
860-880	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
880-900	xx
900-920	xx
920-940	xx
940-960	xx
960-980	xxxxxxxxxxxxxxxxxxxxxxxxxxxx
980-1000	xxxxxxxxxxxxxxxxxxxx
1000-1020	xxxxxxxxxxxx
1020-1040	xxx
1040-1060	xxxx
1060-1080	xxx
1080-1100	
1100-1120	x
1120-1140	
1140-1160	x
1160-1180	x

²⁹ Of the 617 weights attributed by Pernice to Athens the following are omitted: 1-4 (early bronze pieces), 13-17 (astragaloi which are not staters and have no legends), 44 (questionable amphora), 45 (badly damaged amphora), 46 (non-conformist half-amphora with illegible legend), 74 (half-amphora in bad condition), 81 (half-amphora as one quarter, but impossible to say whether of stater or of mna), 86-87 (half-amphoras without weight-legends and with unparalleled weights), 88-89 (quarter-amphoras without weight-legends which could be either one-twelfth of stater or one-eighth of mna), 92-95 (quarter-amphoras without weight-legends), 98, 99, 101 (amphoras in bad condition), 104-111 (amphoras without legends and with unparalleled weights), 198-199 and 207-208 (half-tortoises and tortoises in bad condition), 209 (tortoise without legend and with unparalleled weight), 227 (bronze half-tortoise), 228-231 (quarter-tortoises and tortoises without legends and with unparalleled weights), 232-239 (shield symbols which are regular quarter-staters but can not belong to same series in which tortoises are quarters), 240-242 (without symbols), 261 (marble), 264 (dolphin in bad condition), 265-270 (dolphins which are not mnas), 272-273 (without symbols), 275-279 (marble), 281-283 (without symbols), 286-290 (marble), 335 (probably non-Attic), 388-391 (crescents without legends and with unparalleled weights), 392-395 (without symbol, mostly small drachm pieces), 606-609 (without symbols), 611 and 613-617 (without symbols). It will readily be seen that more than 200 of the 265 omitted pieces are without symbol and so not justly comparable. The greatest difficulty is presented by the amphora weights, which are almost alone in changing both the shape of the symbol and the fraction; where no pictures are available and there is no legend, it is impossible to tell whether the weight is a half-mna or one-third of a stater.

*Gram Weight
of Stater*

1180–1200	×
1200–1220	××
1220–1240	
1240–1260	×
1260–1280	××
1280–1300	××××
1300–1320	××
1320–1340	
1340–1360	×
1360–1380	×××××
1380–1400	×
1400–1420	××××
1420–1440	×
1440–1460	×
1460–1480	×
1480–1500	××
1500–1520	
1520–1540	××
1540–1560	×××
1560–1580	×
1580–1600	

The chart above is constructed on stater (or dimnoun) weights for the sake of uniformity, even for weights which are parts of the mna. For example, the five weights which are shown as belonging to the range between 1360 and 1380 gr. are: 1) P 604, a boukranion dimnoun weighing 1360.70 gr.; 2) P 100, a half-amphora, late Panathenaic, one-fourth mna, weighing 172.41 gr.; 3) P 103, a half-amphora, one-fourth mna, weighing 171.8 gr.; 4) LW 3 (Pl. 2), an astragalos stater weighing 1378 gr.; and 5) LW 9 (Pl. 3), a dolphin mna weighing 682.5 gr.

The first reaction to the chart is to ask why there are so few weights which belong to the heavier standards. The scarcity may suggest that the heavier standards were in use for only a short period of time, but one would expect that even for a short period of time the same number of weights would have to be used, since there is no question of their wearing out. The likelihood is rather that, as suggested in the late 2nd century B.C. decree, it was permissible to use makeweights to make up the difference between the 105 standard and the heavier standards. Where the increase was from the 105 standard to the 138 standard, a makeweight which was one-third of the desired unit, fraction or multiple would answer very well. So the 138 series could be made up from the following 105 standard weights:

new stater	–	old astragalos plus amphora
new mna	–	old dolphin plus half-amphora
new third	–	old amphora plus half-tortoise
new quarter	–	old tortoise plus quarter-amphora

Only the new third would be noticeably overweight, since in the absence of an old one-ninth fraction it must use an old one-eighth as makeweight. In general, the increase by one-third of the 105 standard would result in a 140 standard instead of 138, but the difference, especially in the fractional weights, would be very small.

In order to use 105 standard weights for various parts of the 150 standard, the Athenians would have had to assume that the increase was by one-half instead of slightly less than one-half and make the following combinations:

- new stater – old astragalos plus dolphin
- new mna – old dolphin plus tortoise
- new third – old amphora plus half-amphora
- new quarter – old tortoise plus half-tortoise.

But that in both cases some new standard weights were issued is evident from the weights which appear on the lower part of the chart.

The concentration around 900–920 gr. obviously belongs to the 105 standard, which on the basis of a drachm of 4.36 gr. would be 915.6 gr. It is to be noted that of the 302 pieces which make up the main concentration from 840 to 1020 gr. only 160 or somewhat over half of the pieces are within a 7% range (880–940 gr.) around the norm, whereas 74 pieces or almost a quarter fall in a 10–20% range (840–860 gr. and 960–1020 gr.) around the norm. Such a range of variation is perhaps to be expected in view of the variety of losses and accretions which individual pieces may have suffered over two thousand years, since lead can not only lose weight by wear or fracture but it can also gain or lose weight as a result of chemical interaction with its surroundings.³⁰ Where a large enough number of weights is preserved, as in the 105 standard, to strike an average, all is well. But what of the scattering of weights both above and below? Are we to assign all weights to one of the three known standards and then calculate how much increase or decrease of weight they may have suffered? That is equivalent to saying that the weights can contribute nothing. We should perhaps first take the 20% range (840–1020 gr.) which seems to cover the largest number of 105 weights and apply it to the two other known standards in order to see how many weights are left outside.

A 20% range around 1203.36 gr. (138×8.72 gr.), distributed above and below in the same proportion as the 840–1020 gr. range is to the 105 norm of 915.6 gr., gives 1120–1360 gr. Since the upper range here overlaps the lower range of the 150 standard, weights which fall here can only be arbitrarily assigned to one of the two standards. The lower range includes eight pieces (see chart) and leaves out eight pieces which are based on staters ranging from 1040 to 1120 gr. A 20% range similarly distributed around 1308 gr. (150×8.72 gr.) gives 1215–1480 gr., which includes eleven pieces and leaves out eight pieces which are based on staters ranging from 1480 to 1580 gr. The pieces left out of both standards (16) are almost as numerous as those included (19). Therefore, even though in each the number of those left out is absolutely smaller than the number of stragglers on either side of the 840–1020 gr. range of the 105 standard, relatively it is impressive. About the stragglers above 1020 gr. we need say nothing since they are the same pieces which fall below 1120 gr. and so out of the 138 standard. But the 15 stragglers below 840 gr. are insignificant in comparison to the 302 pieces which fall inside the range; with that comparison in mind we can not regard the pieces which are left out of the 20% ranges for the 138 and 150 standards as stragglers. On the contrary, they have sufficient numerical strength to be representatives of two new standards, for which, furthermore, their concentration is favorable. A standard based on 126 didrachms would give a stater of 1098.72 gr., to which the eight pieces ranging from 1040 to 1120 gr. could easily belong with a total variation of less than 7%. A standard based on 175 didrachms would give a stater of 1526 gr., to which the eight pieces ranging from 1480 to 1580 gr. could belong with a total variation of less than 7%.

³⁰ D. M. Robinson, *Excavations at Olynthus, Part X, Metal and Miscellaneous Finds*, Baltimore, 1941, p. 450. G. R. Davidson and D. B. Thompson, *Small Objects from the Pnyx I, Hesperia*, Suppl. VII, 1943, p. 27.

Is there any other evidence which might lend support to standards of 126 and 175? Perhaps the strongest point in favor of a 126 standard is that it would go farther toward explaining the 138 standard than has hitherto been possible. An immediate increase from 105 to 138 must be explained as an increase of almost one-third, but the easy divisibility of 105 by one-third makes that explanation seem rather weak. But if an intermediate standard of 126 is assumed, a 10% increase on 126 will give 138 without difficulty. The rise from 105 to 126 would then have been a simple increase by one-fifth (six-fifths of 105 are 126). Still another possibility should be mentioned: that there were two intermediate steps between the 105 standard and that of 138: 1) a standard of 112 (976.64 gr.), which is an increase by $\frac{1}{15}$ over 105; and 2) a standard of 126, which is an increase of $\frac{1}{8}$ over 112. The chief reason for contemplating a standard around 112 is the large number of weights which are based on staters in the range from 920 to 1040 gr. Not only is this upper range of the 105 standard wider than the lower range (920 to 1040 gr. as opposed to 840 to 900 gr.), but more weights fall into it than into the lower range, despite the fact that though pieces suffering chemical loss and gain should balance each other, those suffering physical damage will all be on the low side.

One other thing may be said in favor of a variety of standards: the shifting price of silver as reflected in the gold-silver ratio is not wholly the result of scarcity or abundance of gold. It must also give some indication of the value of silver in terms of other commodities; when silver became scarcer, silver prices of other commodities would fall, and measures would have to be taken to support the falling market by increasing weights and controlling prices. Certainly the variation in the gold-silver ratio from the 6th to the 2nd centuries B.C. seems to have about the same range as the different weight standards: silver to gold from 15:1 to 10:1.³¹

CHANGES OF STANDARD

If a combination of the weights and literary evidence indicates this variety of standards, some attempt should be made to suggest the history of rises and falls. Any attempt at completeness is obviously impossible since lack of evidence leaves too much room for speculation, but we must at least suggest a historical context for those Agora weights which may be dated either by context or form of symbol. The first change of standard suggested by dated weights must belong to the late 6th-early 5th centuries B.C. **BW 1-3** (Pl. 1), based on a stater ranging from 756 to 795 gr., seem to be in too good condition to have lost the 15% necessary to bring them up to the presumed Solonian standard. The three weights are fairly consistent among themselves; the total variation is 5% between the stater of 795 gr. and the quarter and sixth, which are based on staters of 760 and 756 gr. They can not be false weights since they are quite the most insistently official of all the weights found in the Agora and may well have belonged to the official set stored in the Tholos. They must rather represent a lower standard in which the stater was directed to be made up of perhaps 92 coin didrachms (802.24 gr.) instead of Solon's 105. If such a decrease in standard was ever ordered, it may be connected with the cheapening of silver which must have resulted from the intensive working of the Laureion mines. That the great strike of 483 B.C.,³² which produced 100 talents of silver, was the first attempt at Laureion seems highly unlikely. The more probable interpretation of the ancient sources is that the smaller quantities of silver which had previously been mined were divided up amongst the populace³³ with a very likely result of cheapening silver. If

³¹ M. Rostovtzeff, *The Social and Economic History of the Hellenistic World*, Oxford, 1941, III, p. 1353. G. Glotz, *Ancient Greece at Work* (tr. M. R. Dobie), New York, 1926, pp. 232-233. H. T. Wade-Gery, "The Ratio of Gold to Silver during the Peloponnesian War: *I.G.*, I², 301," *Num. Chron.*, XXXVII, 1930, p. 16.

³² Aristotle, *Ath. Pol.*, 22, 7; Herodotos, VII, 144; Plutarch, *Themistokles*, 4.

³³ Cf. Sandys on Aristotle, *loc. cit.*

cheaper silver had been met with lower weight standards, Themistokles' action in diverting the great sum of 483 B.C. to the building of a navy may have been designed almost as much to lessen the effects of inflation as to prepare for the return of the Persians.

If there was such a decrease in standard in the early 5th century B.C., it seems likely that it was of only short duration, and it may be that the presence of the bronze weights, **BW 1-3**, in a well represents a quick and easy disposal of the outmoded lower standard. The next change in standard for which we have evidence is one in the later 5th century B.C. Up to that time, presumably, the weight system labelled "6th-5th centuries B.C." on pp. 6-7 and embodying the 105 standard prevailed, with only the change from turtle to tortoise perhaps during the 420's. The only Agora weight which may be assigned to this period is **LW 56** (Pl. 8), of late 5th-early 4th centuries B.C. context, which has no symbol but only the weight-legend ἡμισσημιτέ(ταρτον). After the introduction of the half-crescent weights as one-eighth of the mna (one-sixteenth stater), there is no place for such a piece.

The scarcity of silver later in the Peloponnesian War may have motivated the rise in standard which the decree of Teisamenos (Andokides, I, 83) seems to revoke; no weights which can certainly be assigned to this increased standard have been found in the Agora. Of weights listed by Pernice, the early Panathenaic amphora weights marked as half-mnas (P 96, 97) and the boukranion mna (P 610) have already been connected with this increased standard (p. 8). Certain half-tortoises (P 211-219), marked "one-twelfth" and based on staters of 1058.64 gr. to 965.16 gr., must precede the change of tortoise from one-sixth to one-fourth and so must belong to this increase, which their weights suggest was introduced by degrees, perhaps through standards of 112 and 126 (976.64 and 1098.72 gr.). Five amphora weights (P 18-22), marked "one-third," may well represent the first stages of the increase before the amphora became a half-mna in order to keep its approximate weight. That is, these pieces range from 320.97 to 337.94 gr. (based on staters of 962.91 to 1013.82 gr.) and may well exemplify the first increase to the 112 standard. It was at this point, presumably, that the preference for keeping the amphora attached to its particular weight rather than to its fraction came into operation, since the two which are marked "half-mna" (P 96, 97) weigh 354.49 and 335.406 gr. and so belong to the 150 standard.

In the possibly three or four stage increase of standard the system of symbols and legends must have gone through at least the two following phases:

112 standard, in which all weights were increased by one-fifteenth

Stater	Astragalos	976.64 gr.
Mna	Dolphin	488.32 gr.
One-third	Amphora	325.54 gr.
One-fourth	Shield	244.16 gr.
One-sixth	Tortoise	162.77 gr.

150 standard

Stater	Astragalos	1308 gr.
Mna	Boukranion	654 gr.
Half-mna	Amphora	327 gr.
One-sixth	Tortoise	218 gr.

Except where makeweights were used the change to the 150 standard produced several apparently inconsistent changes: the stater, as unit, had to be increased in weight; the mna, as it approached the three-quarter stater boukranion, dropped its dolphin and took the boukranion symbol; the amphora, keeping its weight, changed its fraction; the tortoise apparently continued to gain weight since it was tied to an international weight-system as a specific fraction and so did not have the mobility of the amphora. Those are the two extremes of the increased standard; too few weights which may be dated to this period survive for us to conjecture what the intermediate stages may have been. Besides the weights indicated above

which for special reasons seem to belong to this increase, others of the heavier weights listed by Pernice might also belong.

With the return to the Solonian standard in 403 B.C. came the revision of legends and symbols discussed above (pp. 9–10) which resulted in the dropping of the shield, which had no place in the 150 standard, and the change of tortoise from one-sixth to one-fourth of the stater (see “regular system” on p. 6). It is likely that the crescent came in about this time, when obols were first marked with crescents, as one-quarter of the mna, although there is a possibility that the crescents on the obol and its parts imitated an earlier use of crescents on weights. That is, one Agora weight (LW 55, Pl. 8, half-crescent and presumably one-eighth mna) seems to belong to the 112 standard and so may represent an addition to the system introduced with the rising standard.

Agora weights dated by context to the 4th century B.C. (LW 26, 29, 34, 37, 46, 47; Pls. 6–8) and late 4th-early 3rd centuries B.C. (LW 6, 12, 16, 40; Pls. 2, 4, 7) belong, all except one, to the 105 standard and suggest that there was no change of standard during that time. But the one (LW 34, Pl. 7) must still be accounted for: a tortoise, clearly marked “one-fourth” and weighing 302 gr., so that it is based on a stater of 1208 gr. and must belong to the 138 standard. It cannot be assumed that it belonged to the late 5th century B.C. rise because tortoises were then one-sixth of the stater. Must we assume a rise to 138 in the 4th century B.C.? Four tortoise weights listed by Pernice (P 112–115) are based on staters ranging from 1040.8 to 968.88 gr. and so should belong to some increased standard. As quarters of staters these tortoises can not belong to the 5th century B.C. increase, nor can they belong to the increase of the late 2nd century B.C. when the amphora took over the role of half-mna (quarter-stater). No other evidence is known to me for an increase of standard in the 4th century B.C.

All the other Agora weights which belong to standards heavier than the 105 were found in contexts of the Hellenistic period. A few of these are more narrowly dated to the 1st century B.C. or the late Hellenistic period. In other words, as far as we know, all could belong to the late 2nd century B.C. increase, one stage of which was ordered by *I.G.*, II², 1013, lines 29–36. That this increase too came in several stages is suggested by the spread of these weights from a stater of *ca.* 950 gr. to one of 1568 gr. It also brought with it changes in symbol-legend combinations, notably with the amphora (late Panathenaic type) taking over the tortoise’s role as one-half mna (quarter-stater). That this change did not come immediately with the first increase is suggested by three amphora weights (LW 17–19, Pl. 5) marked “one-third,” which should belong to the 112 standard. That is, only when the amphora weight became one-third of about 964 gr. was it large enough to become one-half of a mna on the 150 standard. It looks very much as if all the weights were increased to 112 and then the standard went up by one-eighth to 126. It is possible that new weights were not made for this increase, except in the case of the stater which as the unit was perhaps especially needed. Hence LW 4 (Pl. 3) with its weight of 1102 gr. Other pieces could be supplemented: the mna by a half-crescent, the quarter-stater by a six-drachm weight like LW 59 (Pl. 8), and so on with drachm weights. When the increase to 138 came, it is likely that the old 105 pieces were used with makeweights of a third, except that new cornucopia weights were made (LW 53, Pl. 8) to take the place of the old half-crescents.

With the increase to 150, however, there seems to have come a revision of the whole system and an issue of new weights. We observe in the decree that among the weights listed as being kept on the Acropolis, in the Tholos, etc., the only fractions included are one-half and one-quarter of the mna. This ties in with the new issue of late Panathenaic amphora and half-amphora weights marked “half-mna” and “one-fourth” (see LW 30–32, Pl. 6), which should represent an even greater increase, perhaps to a 175 standard). Even though the mna (LW

8-10, Pl. 3) was the unit, some staters seem to have been made on the new standard (LW 3, Pl. 2), and cornucopias increased to become one-eighth of the 150 drachm mna (LW 51-52, Pl. 8). But the tortoise was not converted to one-third; it was simply dropped, as was the one-third fraction in the official sets of weights. One pair of weights which may belong to this 150 standard will be discussed further below on this page.

Whether a further rise in the standard can be assumed for this period is difficult to say. That at some time the standard must have approached 175 (increase by one-sixth over 150) seems likely in view of the weights which are based on staters of over 1450 gr. (LW 30-32, Pl. 6). Because these weights have late Panathenaic amphoras as symbols they must belong to this same period. It is also likely that the standard never returned to the Solonian norm after these increases, but that the changeover to the Roman system in the 1st century B.C. came while the mna was equal to, or somewhat more than, two Roman pounds. In this connection one of the closed deposits which produced several weights is particularly interesting; see below, p. 23.

COUNTERMARKS

Before we go on to a brief consideration of weights on the Roman standard found in the Agora, something should be said about countermarks which appear on many of the weights of the Athenian standard. The most striking example, which may shed light on the use of countermarks more generally, occurs on LW 17 (Pl. 5); on the body of the amphora is a rectangular stamp depicting a figure seated right on a high-backed throne and holding a staff upright in front. It is almost certainly the type of the throned Dionysos used as a symbol on an Athenian New Style silver issue (Class IV, Svoronos, pl. 71, 30-32; 90/89 B.C., Thompson, pl. 142, 1269-1270) and as a reverse type on coins of the imperial period (Pl. 5; Svoronos, pl. 92, 8-21).³⁴ The same stamp also appears on Pernice, no. 6, a stater in the National Museum in Athens (Pl. 5). The most likely explanation of the stamp, which has faint traces of letters, reading from bottom to top behind the throne: $\mu\epsilon\tau\rho\lambda\omicron\mu\omega\nu$, is that it represents official inspection and certification of the weight. In any case, we should expect that two weights marked with the same stamp would belong to the same standard, but the amphora, marked "one-third," weighs (325 gr.) almost exactly one-fourth of the astragalos-weight, which is marked "stater" (1301.55 gr.). Here we must have the intermediate step between the amphora as a third of the stater on the 112 standard and the amphora as a half-mna (quarter-stater) on the 150 standard. When the standard increased to 150, new stater weights were issued and stamped by the metronomoi; fractional weights may have been issued at the same time, but provision must also have been made for owners of weights on one or another of the old standards to bring in their weights for validation on the new system. And the fact that amphoras on the 112 standard were so conveniently equal to a quarter-stater on the 150 standard ($\frac{1}{3} \times 112$ equals $37\frac{1}{3}$; $\frac{1}{4} \times 150$ equals $37\frac{1}{2}$) must have resulted in the revision of the legend-symbol system and the issue of amphora weights marked "half-mna."

The only difficulty raised by this pair of weights stamped with the seated Dionysos is chronological. The same type, but not the same stamp, was used to validate the "nut-measure" (DM 66, Pl. 15), the specifications for which were given in the same decree which provided for the increase to the 150 standard.³⁵ The appearance of the same type on the New Style coins must also be dated to the early 1st century B.C. There is strong likelihood, therefore, that these weights belong to the late 2nd century B.C. increase. But we have seen that the

³⁴ The same type appears in the Agora as a sealing on a measure (DM 66, Pl. 15), on a lead token (Lead and Clay Tokens L 86, Pl. 22) and on a handle (Inv. IL 1032). Cf. M. Crosby, "An Athenian Fruit Measure," *Hesperia*, XVIII, 1949, pp. 109-113.

³⁵ *I.G.*, II², 1013, lines 18-29.

new amphora weights, marked "one-half mna," which must have been issued for that rise, show the late Panathenaic type of amphora and are based on the mna as unit. How then does it happen that our stamped amphora weight is of the old Panathenaic type and that a new stater was issued when the unit had changed? Again the evidence points to an intermediate step; only after makeshifts like the present pair of weights had been tried was the complete new system with its new type amphora and mna as unit introduced.

Stamps on other weights both in Pernice and in the Agora may perhaps be explained in this same fashion, but the variety of stamps may be considered excessive. Since only a few of the stamps appear on more than one weight, and since without pictures it is impossible to know whether they are the same, the use of stamps to validate changes from one standard to another can not be explored with the weights in Pernice. And their presence on tortoise weights as well as amphora weights may require another explanation, since quarter-staters on the 105 or 112 standards are not so readily convertible to another fraction of the heavier standards. It may be that there were periodic inspections of weights when all weights in use had to be certified by the metronomoi. This would more readily account for the variety of stamps.

A brief survey of stamps on Agora weights will be useful. These are limited to weights with amphora, half-amphora, half-tortoise, and one without symbol. This seems to be more an accident than an actual limitation, since other symbols in Pernice are also countermarked: one astragal, one dolphin, several tortoises, wheels, crescents and half-crescents. The stamps which appear on Agora weights are: seated Dionysos (LW 17, Pl. 5), double-bodied owl (LW 26, Pl. 6), olive wreath with kalathos (LW 27, 48; Pls. 6, 8), rosette (LW 28, 45; Pls. 6, 8), quarter oval stamp with cornucopia (LW 28, Pl. 6), amphora (LW 33, Pl. 6), helmeted head (?) (LW 46, Pl. 8), and thyrsos (?) (LW 56, Pl. 8). The double-bodied owl is probably the same as that on Pernice no. 411, which is said to be square with a double owl; the type was also used not only on diobols of the 4th century B.C. but also on public measures of the same time.³⁶ The second square stamp on LW 26 (Pl. 6) may also have been the same; its illegibility may be original and have given rise to the double stamping.

The two examples of olive wreath with kalathos occur on weights which certainly belong to the same series; both the half-amphora and the half-tortoise are inscribed with the same letters in the same position and have somewhat larger thinner plaques with smaller chunkier symbols than is usual. No conclusions can be drawn about standards, however, since LW 48 (Pl. 8) is broken.³⁷

The two rosettes are of different sizes: 7 mm. on LW 45 (Pl. 8) and 3 mm. on LW 28 (Pl. 6); neither is so large as rosettes which appear on two lead tokens from the Agora,³⁸ but the form of the larger is the same. The smaller has seven, instead of six, petals and perhaps a stem. The second stamp on LW 28, a quarter oval with a cornucopia, has no parallels in shape, as far as I know; the cornucopia seems to be similar to those on coins and on a lead token from the Agora.³⁹

The stamp on LW 33 (late Panathenaic type amphora weight, Pl. 6) seems to show a late Panathenaic type of amphora inside a circle. The stamp is similar to that on lead tokens from the Agora.⁴⁰ One must suppose that when the new amphora weights on the 150 standard went into use the metronomoi employed a certifying stamp with the same symbol to validate other weights which could be fitted into the series. The two other stamps, a helmeted head (?) on LW 46 (Pl. 8) and a thyrsos (?) on LW 56 (Pl. 8), are very uncertain.

³⁶ DM 44, 45, 48, 51 (Pl. 14); LM 21-24 (Pl. 18).

³⁷ Pernice, no. 398, which I was able to examine in the National Museum in Athens, has the same stamp, but since it has no weight-legend it can only be assumed to be one-eighth of a mna.

³⁸ Below, L 219, L 220 (Pl. 27).

³⁹ I, 177 (Pl. 25).

⁴⁰ L 157, L 158 (Pl. 25).

CLOSED DEPOSITS

One final source of information on the Athenian weights remains to be considered. Three of the closed deposits in which Agora weights were found produced two or more pieces which should have had the same environment. Therefore, any differences of weight should be original and give some idea of what in ancient times was considered allowable variation. But there are difficulties inherent in this test, since the deposits were often built up over decades so that in a period of changing standards weights of various standards may appear together. Thus the variations may be between different standards rather than between different pieces on the same standard. In E 14:3, a cistern of the 1st century B.C., six weights were found: four marked (LW 30, 32, 69, 73; Pls. 6, 9), one unmarked (LW 99), and one mutilated (LW 23, Pl. 5). Two of the four marked pieces (LW 30, 32; Pl. 6) surely belong to the same standard: amphora and half-amphora as half and quarter mnas of 750 and 734 gr. respectively, with a variation of about 2%. The other two marked weights are fractions of the Roman pound and show a variation of almost 7%.

Another deposit (G 14:2) yielded four weights, three of which are marked (LW 19, 20, 39; Pls. 5, 7), and the fourth of which (LW 89) is unmarked but probably a mna. The variation between the staters on which these pieces are based is less than 3% for three of them, but somewhat more than 7% for all four. The aberrant piece is LW 19 (Pl. 5), which may have been on the 112 standard. The third deposit (F 3:1) yielded two marked weights (LW 12, 16; Pl. 4): mnas of 471 and 421 gr., with a more than 11% variation. Here too there is a possibility of different standards; the date of this deposit (*ca.* 300 B.C.) would provide another bit of evidence for a change of standard in the 4th century B.C.

WEIGHTS ON THE ROMAN STANDARD

The weight of the Roman pound has long been established as 327.45 gr. (Hultsch, *Metrol.*, pp. 155–161). The ounce is therefore 27.29 gr. For other weights from Athens on the Roman standard see Pernice, nos. 618–655. For these as well as for those found in the Agora there seems to be considerable variation and far less concentration at the norm than is the case with Athenian weights on the 105 standard.

DISTRIBUTION OF WEIGHTS ON THE ROMAN STANDARD⁴¹*Gram Weight of Pound*

200–210	×	300–310	×××××
210–220		310–320	×××××
220–230		320–330	×××××××××
230–240		330–340	××××
240–250		340–350	×××
250–260	×	350–360	×
260–270		360–370	××××
270–280		370–380	××
280–290	×	380–390	
290–300	××	390–400	×××

⁴¹ Omitted from the chart are: LW 65 (Pl. 9), 71, 76 (broken or in very poor condition); Pernice, nos. 625, 637, 638, 645 (poor condition) and 629 and 631 (no real indication that they belong to this standard). On the chart all weights, whether multiples or fractions of the pound, are translated into pound-weights for the sake of comparison.

The three weights (**LW 63–65**, Pl. 9) stamped $\Delta \cdot \Lambda \cdot \Sigma$ obviously belong to one system. Although none of the pieces is dated by context and no parallel is known to me except from near modern times, it is possible from their weight that they belong to the Roman period and represent either the Roman pound or the Athenian mna of that period (341 gr.).

The thin plaque with monogram stamps (**LW 66**, Pl. 9) may also belong either to the pound or the late mna, but the other pieces which indicate numbers of ounces are surely parts of the pound.

OTHER LEAD WEIGHTS

Little can be said concerning the other lead weights as a group. The eight (**LW 77–84**, Pls. 10, 11) which are variously marked can in some cases be securely attributed to the Athenian or Roman system by a combination of weight and inscription. Others are not so amenable. The twenty-five weights (**LW 84–109**, Pl. 11) which are not marked but which have the form of weights in both systems can not be definitely assigned to either. At the end of the catalogue are included two pieces which may or may not be weights.

BRONZE WEIGHTS

Aside from the three official weights marked as public property of the Athenian people (**BW 1–3**, Pl. 1), which may have belonged to the set in the Tholos, the bronze weights from the Agora are not particularly notable. They are more like the lead weights, but do not form any group which requires consideration here. They can best be dealt with individually in the catalogue.

CATALOGUE

The two series of weights are numbered separately with the prefixed letters indicating the material: **BW** for bronze weights; **LW** for lead weights. The Agora inventory numbers follow in parentheses. Finding places are generally indicated by the square or squares of the Agora grid, with a context date where available; for dated deposits the grid designation is followed by the number of the deposit within the square. Dimensions are given in millimeters; the thickness (last number) is total thickness including the relief symbol.

The arrangement of the catalogue is as follows: seven bronze weights on the Athenian system in order of weight, from heaviest to lightest; two marked bronze weights on the Roman system; other bronze pieces which may be weights in order of weight; 61 lead weights on the Athenian system, in order of symbols and weights; 15 lead weights on the Roman system; nine marked lead weights not certainly to be included in either system; 24 unmarked lead weights in order of weight; and two possible lead weights.

Unless otherwise indicated all weights are square or rectangular plaques. The description refers to the top surface except where noted. Most of the pieces differ so much in dimensions, symbols and legends that they can not have come from the same moulds, but where there is sufficient likeness to indicate either the same mould or very similar ones a note is added to each of the catalogue items concerned. A few general remarks will not be amiss here. Differences in dimensions are the least reliable indication of different moulds, since measurements are maximum and the handling to which the weights were apparently subjected while still malleable resulted in splaying, bulging, or pinching in of the edges. The blurring of the relief design through wear makes it impossible to determine whether the same mould or closely similar moulds were used for two apparently identical weights. "Same mould" as it is used here and in the catalogue, therefore, is to be interpreted as same or closely similar. From the chronological point of view this probably amounts to the same thing.

The two four-mna weights are completely different (**LW 1–2**, Pl. 2). Of four complete stater weights two (**LW 3–4**, Pls. 2, 3) seem to come from the same mould, as does also Pernice, no. 6 (Pl. 5). Their considerable variety in weights is to be noted: 1378 gr., 1102 gr., 1302 gr. Of nine dolphin (mna) weights three are from one mould (**LW 8, 9, 16**; Pls. 3, 4), and three are from another (**LW 12, 13, 14**; Pl. 4); the other three are unique. The difference between the first two groups is not so much in the shape of the dolphin as in the arrangement of letters. In both groups there is a weight from a deposit (E 3:1) of *ca.* 300 B.C., so that it is not possible to establish priority. Except for the obviously underweight **LW 16**, the first group apparently belongs to a time of the heaviest standards. But the way in which the weight of **LW 9** has been increased by the addition of lead

underneath suggests that the same mould could be used for all standards. Perhaps the mould had an open back; if its weight was known, lead could be poured in as it rested on scales until the desired weight was reached.

Of seven amphora weights which are thirds of the stater, four are similar enough to come from the same mould: **LW 17, 18, 22, 23** (Pl. 5). Two (**LW 17, 23**) are from contexts dated to the 1st century B.C., and the stamp on **LW 17** seems to belong to the end of the 2nd century B.C. The general shape of the amphora is still basically the early Panathenaic type, but the upper attachment of the handles near the lip seems to indicate the last phase before the change to the full-blown late type, as on **LW 30** (Pl. 6). This form, which also occurs on two half-amphora weights (**LW 24, 28**; Pl. 6) from Hellenistic contexts, seems to have been used on weights long after it had given way to the late type both in the actual amphora and in coin representations. Very close to these four weights both in shape of amphora and arrangement of legend are the following pieces listed by Pernice, which I was able to see in the National Museum in Athens: P 18, 21, 22, 37. Because it seems to be preceded by two other forms of early Panathenaic type amphoras (or half-amphoras) on the weights, we shall refer to it as early Panathenaic type III. Many of these weights will be seen to be on the 112 standard.

Early Panathenaic type I amphoras appear on **LW 20, 21** (Pl. 5) and half-amphoras on **LW 26, 27** (Pl. 6). The same mould was not used for either of these two pairs, but it is likely that an amphora weight from the Pnyx⁴² was from the same mould as **LW 20**. Both the Pnyx piece and **LW 26** can not be later than their 4th century B.C. contexts, so that it is likely that this is the earliest amphora-shape preserved on lead weights. The stamps on both **LW 26** and **27**, double-bodied owl and kalathos in olive wreath, have their closest parallels on coins of the 4th century B.C.⁴³

Of the other amphora and half-amphora weights, **LW 19** (Pl. 5) is unlike all others, and **LW 25** and **29** (Pl. 6) may be called early Panathenaic type II, partly because the latter comes from a context dated 340–310 B.C. and partly because the arrangement of the handles seems to be midway between types I and III. Most of the pieces with amphoras of types I and II are based on the 105 standard.

The late Panathenaic type amphora occurs on only one Agora weight (**LW 30**; Pl. 6), but Pernice no. 19 in the National Museum seems to have come from the same mould. Of the three half-amphoras of this type **LW 31** and **32** (Pl. 6) come from the same mould. All late Panathenaic type amphora-weights come from the latest 2nd or 1st centuries B.C. and belong to the heaviest standards.

Unfortunately, for the development of tortoises we have no other evidence than the weights themselves. From the same mould come **LW 34, 40, and 42** (Pl. 7) although the legends on the two latter are no longer visible. The 4th century B.C. context of **LW 34** and the 4th–3rd centuries B.C. context of **LW 40** seem to make this the earliest form of quarter-stater tortoise in the Agora. What is probably an earlier form appears on a weight from the Pnyx.⁴⁴ Three other tortoise weights (**LW 37, 39, 44**; Pl. 7) come from one mould, although again the legends on the latter two are no longer visible. The form of this group of tortoises is very close to that of the 4th century B.C. group above, so that it is not surprising to find that **LW 37** also comes from a 4th century B.C. context. Of the remaining five tortoises, all of which are strikingly different from these two groups, two (**LW 36, 43**; Pl. 7) are from one mould; the others are unique. All come from contexts of Hellenistic times or later. Unlike the amphora weights, the tortoises' variation in weight is not reflected in the shape of the symbol.

All five half-tortoises come from different moulds, and none is particularly close to any of the whole tortoises in shape or style. Context dates give the following order (Pl. 8): **LW 47** (mid 4th century B.C.), **LW 46** (4th century B.C.), **LW 45** (3rd century B.C.), **LW 49** (Hellenistic), and **LW 48** (none). Three cornucopia weights all seem to be from the same mould (**LW 51–53**; Pl. 8); four half-crescents are all unique.

BRONZE WEIGHTS

BW 1 (B 495) Stater. D 15:1. <i>Ca.</i> 500 B.C. <i>Hesperia</i> , VII, 1938, p. 362. Square corners and edges. Bronze with high lead content. Added in relief, an astragalos; incised letters: $\sigma\tau\alpha\tau\acute{\epsilon}\rho$. Incised around two of the sides: $\delta\epsilon\mu\acute{o}\sigma\iota\omicron\nu$ Ἀθηναίων. Good condition. 64 × 63 × 34 mm. Weight: 795 gr.	Pl. 1.	BW 2 (B 492) One-fourth Stater. D 15:1. <i>Ca.</i> 500 B.C. <i>Hesperia</i> , VII, 1938, p. 362. Square corners and edges. Bronze with high lead content. Added in relief an oval shield; incised letters: $\tau\epsilon\tau\alpha\rho\tau\epsilon(\mu\acute{o}\rho\iota\omicron\nu)$. Incised around two of the sides: $\delta\epsilon\mu\acute{o}\sigma\iota\omicron\nu$ Ἀθηναίων. Good condition. 39 × 39 × 22 mm. Weight: 190 gr. (stater of 760 gr.).	Pl. 1.
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⁴² *Hesperia*, Suppl. VII, p. 28, no. 2.

⁴³ Svoronos, pl. 17.

⁴⁴ *Hesperia*, Suppl. VII, p. 28, no. 3.

- BW 3** (B 497) One-sixth Stater. Pl. 1.
D 15:1. *Ca.* 500 B.C. *Hesperia*, VII, 1938, p. 362.
Square corners and edges. Bronze with high lead content. Added in relief, a sea-turtle; incised letters: *ἡμιτρίτον*. Incised around two of the sides: *δεμόσιον Ἀθηναίων*. Good condition.
34 × 33 × 21 mm. Weight: 126 gr. (stater of 756 gr.).
- BW 4** (B 786) One-sixth Stater. Pl. 1.
C 16. Hellenistic.
In relief, upper half of amphora (early Panathenaic type II) and letters: *δημό(σιον)*. Traces of two small round stamps, illegible, on either side of amphora, and perhaps one on body of amphora. Poor condition.
44 × 46 × 12 mm. Weight: 112 gr.
This piece has lost too much weight to be assigned to any standard, especially since there is no weight-legend. Presumably it was, like other half-amphoras, one-sixth of a normal stater and originally weighed *ca.* 150 gr.
- BW 5** (B 152) One-sixth Mna (?). Pl. 1.
K-N 12-14. *Hesperia*, IV, 1935, p. 347.
Incised: an owl, standing left with head facing. Scooped out hollow on underside. Good condition.
35 × 35 × 7 mm. Weight: 69.9 gr.
Cf. relief owl-weight (Pernice, no. 4, p. 82, pl. 1; weight: 71.42 gr.). What part of a stater or mna or what multiple of drachma these two weights represent is not certain, but if the use of the owl as a symbol indicates a coin-weight instead of a trade-weight, they might be one-sixth of the coin mna, which should weigh 436 gr.: 428.52 and 419.4 gr.
- BW 6** (B 808) Six Drachms. Pl. 1.
B 15. Incised letters on both faces: a) *μνᾶ <φ> ασιμη*; b) *ΠΗΧ*, which must be interpreted as six drachms, one obol and one chalkous. Apparently the word *mna* was first incised in the same backward way it often appears on dolphin relief weights, perhaps for actual deception, perhaps for a joke. Underneath was added in smaller letters the adjective meaning "denounced, informed against"; on the use of *pi* for *phi* cf. Kretschmer, *Vaseninschriften*, p. 81 and *Hesperia*, XVIII, 1949, p. 117. Since the adjective is in smaller letters and more faintly incised than the noun, it may have been added later by the victim of deception or joke. The inscription on the other side gives the actual weight of the piece: 6 drachms, 1 obol and 1 chalkous will be 26.97 gr. by coin weights. Good condition.
23 × 23 × 5 mm. Weight: 27 gr.
- BW 7** (B 784) Four Drachms. Pl. 1.
B 19. Hellenistic.
Incised: *ΠΠΠΠ*, i.e. 4 drachms. Poor condition, much worn and corroded.
19 × 20 × 5 mm. Weight: 16 gr. (drachm of 4 gr.).
- BW 8** (B 910) Four Nomismata. Pl. 1.
Carefully incised letters: *νο(μισματα) δ'*, with a monogram above (see illustration). Good condition.
24 × 24 × 4 mm. Weight: 18 gr. (nomisma of 4.5 gr.).
Nomisma was Greek for *solidus* (*Metrol. Script.* II, 113) or *sextula*, one-sixth of an ounce (i.e. 4.55 gr.). For form and inscription, cf. weights listed by K. Pink, *Römische und Byzantinische Gewichte in Österreichischen Sammlungen*, Wien, 1938, p. 96.
- BW 9** (B 270) Small Rectangle. Pl. 1.
F 9. Incised on one face: monogram or Christian symbol. Good condition.
10 × 11 × 4 mm. Weight: 3 gr.
Perhaps a token or counter rather than a weight.
- BW 10** (B 688) Truncated Pyramid.
E-H 17-20. Bronze with high lead content; the stub of a projecting pin (for handle or attachment?) on underside. Fair condition.
H. 24 mm.; D. 34 mm. Weight: 152.5 gr.
This may not be a weight but some sort of boss or attachment. Cf. **BW 13**.
- BW 11** (B 752) Mushroom Cylinder. Pl. 1.
A 20. First half 5th century B.C.
Solid bronze cylinder below, shelving out into wider domed top, on which a round loop with ring. Good condition.
H. 39 mm.; D. 36 mm. Weight: 117 gr.
This and the following may not be weights, but stoppers of some sort. Similar bronze pieces were found at Olynthus (D. M. Robinson, *Excavations at Olynthus*, Part X, *Metal and Minor Miscellaneous Finds*, nos. 2505 ff).
- BW 12** (B 669) Mushroom Cylinder. Pl. 1.
H 18. 5th century B.C.
Small bronze cylinder, tapered toward bottom and with domed top, on which a loop handle. Fair condition.
H. 31 mm.; D. 31 mm. Weight: 84 gr. Cf. **BW 11**.
- BW 13** (B 787) Truncated Pyramid. Pl. 1.
B 19. 5th-4th centuries B.C. Good condition.
14 × 12 × 11 mm. Weight: 14.5 gr. Cf. **BW 10**.
- BW 14** (B 1204) Disk. Pl. 1.
S 24-26. Spirals on the two flat surfaces. Good condition.
D. 21 mm.; Th. 12 mm. Weight: 31 gr. Perhaps not a weight.

LEAD WEIGHTS

- LW 1** (IL 6) Four Mnas. Pl. 2. 56 × 56 × 25 mm.; original thickness 15 mm.
G 6:2. *Ca.* 200 B.C. *Hesperia*, II, 1933, p. 473.
Four spokes of wheel in relief; four letters in lower relief in the corners: δεμό(σιον). Good condition.
93 × 88 × 28 mm. Weight: 1792.5 gr. (stater of 896.2 gr.).
- LW 2** (IL 755) Four Mnas. Pl. 2.
B 20. Hellenistic.
Top surface much worn so that relief is barely visible: four spokes of wheel with traces of letters in corners, δε[ε]μό(σιον). Fair condition.
110 × 113 × 16 mm. Weight: 1779 gr. (stater of 889 gr.). Turned one quarter to right on plate.
- LW 3** (IL 756) Stater. Pl. 2.
B 20. Hellenistic.
Astragalos and letters in relief: στᾶτήρ. Same mould as **LW 4** and Pernice, no. 6. Good condition.
67 × 69 × 36 mm. Weight: 1378 gr.
- LW 4** (IL 316) Stater. Pl. 3.
E 15. Late Hellenistic.
Astragalos and letters in relief: σῆτᾶτήρ. Same mould as **LW 3** and Pernice, no. 6. Good condition, surface worn.
70 × 71 × 30 mm. Weight: 1102 gr.
- LW 5** (IL 545) Stater. Pl. 3.
E 5.
Astragalos and letters in relief: [δ]εμ[ό](σιον). Surface much worn and gouged; fair condition.
72 × 70 × 16 mm. Weight: 863 gr.
- LW 6** (IL 195) Stater. Pl. 2.
H 12. Late 4th–early 3rd centuries B.C.
Astragalos and letters in relief: σῆτᾶτήρ. Fair condition.
62 × 62 × 34 mm. Weight: 841.5 gr.
- LW 7** (IL 1401) Stater. Pl. 2.
Raised edges; astragalos in relief, placed diagonally. No trace of letters. Much damaged, with two corners broken away.
75 × 40 × 25 mm. Weight: 456 gr. Not included in charts.
- LW 8** (IL 131) Mna. Pl. 3.
E 14. Hellenistic. *Hesperia*, IV, 1935, p. 347.
Raised edges; in relief, dolphin, diagonally to left, and letters: μνᾶ. Same mould as **LW 9, 16**. Good condition.
59 × 59 × 25 mm. Weight: 708 gr.
- LW 9** (IL 1018) Mna. Pl. 3.
D 16. Late Hellenistic.
Raised edges; in relief, dolphin, diagonally to left, and letters: μνᾶ. Same mould as **LW 8, 16**. On underside a large amount of lead has been added to the original weight, but so unevenly that one original corner is visible. Good condition.
- LW 10** (IL 972) Mna. Pl. 3.
B 20. Hellenistic.
Raised edges; in relief, dolphin, diagonally to left, and letters: μνᾶ μετρο(νόμων). Good condition.
58 × 55 × 17 mm. Weight: 624 gr.
- LW 11** (IL 1268) Mna. Pl. 3.
Q 17. Hellenistic.
In relief, dolphin, diagonally to right. No trace of letters. Underside slightly hollowed. Good condition.
66 × 66 × 14 mm. Weight: 475 gr.
- LW 12** (IL 358) Mna. Pl. 4.
E 3:1. *Ca.* 300 B.C.
Raised edges; in relief, dolphin, diagonally to left, and letters: μνᾶ. A symbol between mu and nu may be a star or the delta-epsilon ligature for *demosion*. Same mould as **LW 13, 14**. Underside somewhat hollowed. Fair condition.
60 × 60 × 17 mm. Weight: 471 gr.
- LW 13** (IL 827) Mna. Pl. 4.
A 20. Late Hellenistic.
Raised edges; in relief, dolphin, diagonally to left, and letters: μνᾶ. Same mould as **LW 12, 14**, with traces of same symbol between mu and nu. Good condition.
55 × 55 × 18 mm. Weight: 455 gr.
- LW 14** (IL 865) Mna. Pl. 4.
D 16. Hellenistic.
Raised edges; in relief, dolphin, diagonally to left, and traces of letters. Apparently same mould as **LW 12, 13**. Fair condition; surface much worn and gouges on underside.
57 × 60 × 13 mm. Weight: 445 gr.
- LW 15** (IL 347) Mna. Pl. 4.
D 11:4. Late 2nd century–early 1st century B.C.
In relief, dolphin, diagonally to left. Poor condition, with holes and break at lower left.
82 × 77 × 15 mm. Weight: 424 gr.
- LW 16** (IL 361) Mna. Pl. 4.
E 3:1. *Ca.* 300 B.C.
Raised edges; in relief, dolphin, diagonally to left, and letters: μνᾶ. Same mould as **LW 8, 9**. Sides pushed in; reverse hollowed. Fair condition.
57 × 57 × 18 mm. Weight: 422 gr.
- LW 17** (IL 315) One-third Stater. Pl. 5.
E 15. Late Hellenistic. *Hesperia*, XVIII, 1949, p. 109, note 5.
Raised edges; in relief, early Panathenaic type III amphora and letters: τριτη(μόριον). Same mould

as **LW 18, 22, 23**. On body of amphora, a rectangular stamp with draped bearded figure seated right in high-backed throne; in his left hand a staff; behind throne traces of letters: με[τρο]γόμεων. For the stamp see above pp. 21–22. Good condition.

46 × 45 × 16 mm. Weight: 325 gr. (stater of 975 gr.).

LW 18 (IL 1041) One-third Stater. Pl. 5.

B 17. Raised edges; in relief, early Panathenaic type III amphora and letters: τριτη(μόριον). Same mould as **LW 17, 22, 23**. Good condition.

47 × 45 × 16 mm. Weight: 322 gr. (stater of 966 gr.).

LW 19 (IL 37) One-third Stater. Pl. 5.

G 14:2. 4th, 3rd, 2nd centuries B.C.

Rounded corners and raised edges folding down over design; in relief, plump amphora. Underside slightly hollowed. Good condition.

50 × 50 × 15 mm. Weight: 320 gr. (stater of 960 gr.).

LW 20 (IL 33) One-third Stater. Pl. 5.

G 14:2. 4th, 3rd, 2nd centuries B.C.

Raised edges; in relief, early Panathenaic type I amphora and letters (at left): τρι(τημόριον). Good condition.

50 × 49 × 15 mm. Weight: 301 gr. (stater of 903 gr.).

LW 21 (IL 769) One-third Stater. Pl. 5.

G 18. In relief, early Panathenaic type I amphora and letters: δεμό(σιον). Fair condition; few gouges and holes.

47 × 47 × 13 mm. Weight: 298 gr. (stater of 894 gr.).

LW 22 (IL 1069) One-third Stater: False Weight.

Pl. 5.

In relief, early Panathenaic type III amphora and letters: τριτη(μόριον). Same mould as **LW 17, 18, 23**. Apparently good condition, but much thinner than **LW 17** and **18**; perhaps made as false weight or tampered with in antiquity.

45 × 45 × 11 mm. Weight: 170 gr. (stater of 510 gr.).

Not included in charts.

LW 23 (IL 319) One-third Stater: False Weight.

Pl. 5.

E 14:3. 1st century B.C.

Raised edges; in relief, early Panathenaic type III amphora and letters: τρι[τη](μόριον). Same mould as **LW 17, 18, 22**. Part of left side missing; like **LW 22**, much thinner than **LW 17** and **18**; perhaps tampered with in antiquity.

50 × 50 × 8 mm. Weight: 121 gr.

Not included in charts.

LW 24 (IL 359) One-sixth Stater. Pl. 6.

C 13. Hellenistic.

Raised edges; in relief, upper half of early Panathenaic type III amphora, and letters (retrograde from lower right corner): ἡμίτ(ριτον). Same mould as **LW 28**. On underside, edges bevelled. Good condition.

41 × 41 × 10 mm. Weight: 158.5 gr. (stater of 951 gr.).

LW 25 (IL 884) One-sixth Stater. Pl. 6.

A–B 19–20:1. Hellenistic.

In relief, upper half of early Panathenaic type II amphora and letters (clockwise from upper left corner): ἡμίτ(ριτον). Same mould as **LW 29**, so presumably 4th century B.C. in date. On underside, one edge bevelled. Good condition.

43 × 39 × 10 mm. Weight: 156.5 gr. (stater of 939 gr.).

LW 26 (IL 10) One-sixth Stater. Pl. 6.

F 16:1. Second half 4th century B.C.

Raised edges; in relief, upper half of early Panathenaic type I amphora and letters (counter-clockwise from upper left corner): ἡμίτ(ριτον). Square stamp (8 × 8 mm.) with unrecognizable device impressed over part of mu; another square stamp (8 × 8 mm.) with double-bodied owl upside down on body of amphora. On underside, three bevelled edges; fourth is cut off straight and incised: EV, presumably a mark of ownership. Good condition.

39 × 36 × 16 mm. Weight: 155.5 gr. (stater of 933 gr.).

LW 27 (IL 1054) One-sixth Stater. Pl. 6.

C 17. Late Hellenistic.

In relief, upper half of early Panathenaic type I amphora and letters (counter-clockwise from upper right corner): δεμό(σιον). On body of amphora a round stamp: olive wreath with small kalathos in center. Edges bevelled on underside. Good condition.

45 × 43 × 13 mm. Weight: 155 gr. (stater of 930 gr.).

LW 28 (IL 298) One-sixth Stater. Pl. 6.

K–M 13. Hellenistic to mid 2nd century B.C.

Raised edges; in relief, upper half of early Panathenaic type III amphora and letters (counter-clockwise from lower right corner): ἡμίτ(ριτον). Same mould as **LW 24**. Tiny (3 mm.) round stamp with rosette at right; below amphora a quarter oval stamp (8 × 5 mm.) with cornucopia. Good condition.

43 × 43 × 12 mm. Weight: 150 gr. (stater of 900 gr.).

LW 29 (IL 60) One-sixth Stater. Pl. 6.

G 13:4. Ca. 340–310 B.C.

Raised edges; in relief, upper half of early Panathenaic type II amphora and letters, almost all illegi-

ble, but same mould as **L 25**: ἡμίτριτον. Fair condition, surface much worn.

42 × 39 × 9 mm. Weight: 136 gr. (stater of 816 gr.).

LW 30 (IL 176) One-half Mna. Pl. 6.
E 14:3. 1st century B.C.

In relief, late Panathenaic type amphora, and letters: ἡμιμν(αῖον). Good condition.

44 × 44 × 22 mm. Weight: 375 gr. (mna of 750 gr.).

LW 31 (IL 999) One-quarter Mna. Pl. 6.
D 17:11. Late Hellenistic.

Raised edges; in relief, upper half of late Panathenaic type amphora and letters: above, τ[έρ]αρ(τον); below, μετρο(νόμων). Same mould as **LW 32**. Underside bevelled on three edges. Good condition.

39 × 39 × 14 mm. Weight: 196 gr. (mna of 784 gr.).

LW 32 (IL 182) One-quarter Mna. Pl. 6.
E 14:3. 1st century B.C.

Raised edges; in relief, upper half of late Panathenaic type amphora and letters: above, τ[έρ]αρ(τον); below, traces. Same mould as **LW 31**. Good condition.

39 × 39 × 17 mm. Weight: 183.5 gr. (mna of 734 gr.).

LW 33 (IL 771) One-quarter Mna: False Weight. Pl. 6.

C 21. Raised edges; in relief, upper half of late Panathenaic type amphora and letters (below): τέτ[αρτο]ν. Part of round stamp (11 mm.) on body of amphora; very worn, but perhaps amphora of late Panathenaic type. Large chip along lower edge; fair condition but unusually thin for this type, as if tampered with in ancient times.

39 × 30 × 7 mm. Weight: 99.5 gr.
Not included in chart.

LW 34 (IL 63) One-quarter Stater. Pl. 7.
Q 13-14:1. Second quarter 4th century B.C.

Raised edges folded in; in relief, a tortoise and letters: τεταρτη(μόριον). Letters mostly obscured by the folding over of soft lead from the edges. Same mould as **LW 40, 42**. Good condition.

49 × 48 × 17 mm. Weight: 302 gr. (stater of 1208 gr.).

LW 35 (IL 580) One-quarter Stater. Pl. 7.
E 5:2. 3rd-2nd centuries B.C.

In relief, tortoise almost completely obscured by wear and folding in of edges. Rounded corners. Fair condition.

40 × 38 × 17 mm. Weight: 237.5 gr. (stater of 950 gr.).

LW 36 (IL 848) One-quarter Stater. Pl. 7.

D 15. Raised edges; in relief, tortoise with circular body and splaying limbs. No trace of letters. Same mould as **LW 43**. Good condition.

48 × 44 × 12 mm. Weight: 236 gr. (stater of 944 gr.).

LW 37 (IL 1023) One-quarter Stater. Pl. 7.
D 17. 4th century B.C.

Raised edges folded in; in relief, tortoise and letters (counter-clockwise from upper left corner): τεταρτη(μόριον). Letters somewhat obscured by folding over of raised edges. Same mould as **LW 39, 44**. Good condition.

42 × 42 × 13 mm. Weight: 234.5 gr. (stater of 938 gr.).

LW 38 (IL 739) One-quarter Stater. Pl. 7.
E 15. Hellenistic. *Hesperia*, IX, 1940, p. 307, fig. 47.

Slightly raised edges; in relief, tortoise and letters (at left and right): τεταρτ(ημόριον). Good condition.

47 × 45 × 12 mm. Weight: 231 gr. (stater of 924 gr.).

LW 39 (IL 38) One-quarter Stater. Pl. 7.
G 14:2. 4th, 3rd and 2nd centuries B.C.

Edges folded in; in relief, tortoise. Letters obscured by edges, but same mould as **LW 37, 44**. Good condition.

46 × 41 × 12 mm. Weight: 227.5 gr. (stater of 910 gr.).

LW 40 (IL 1014) One-quarter Stater. Pl. 7.
D 16. 4th-3rd centuries B.C.

Edges folded in; in relief, indistinct tortoise. Letters obscured by edges, but same mould as **LW 34, 42**. Good condition.

48 × 47 × 14 mm. Weight: 227 gr. (stater of 908 gr.).

LW 41 (IL 124) One-quarter Stater. Pl. 7.
F 10. In relief, tortoise; surface very worn; no letters visible. Fair condition.

47 × 44 × 16 mm. Weight: 224 gr. (stater of 896 gr.).

LW 42 (IL 1019) One-quarter Stater. Pl. 7.
D 16. Late Hellenistic.

Raised edges folded in; in relief, tortoise. All trace of letters obscured by folding in of edges, but same mould as **LW 34, 40**. Fair condition.

48 × 47 × 12 mm. Weight: 224 gr. (stater of 896 gr.).

LW 43 (IL 862) One-quarter Stater. Pl. 7.
D 16. Hellenistic.

Raised edges; in relief, tortoise with circular body and splaying limbs. No trace of letters. Same mould as **LW 36**. Good condition.

- 52 × 45 × 10 mm. Weight: 222.5 gr. (stater of 890 gr.).
- LW 44** (IL 371) One-quarter Stater. Pl. 7.
F 6. Hellenistic.
Rounded corners and raised edges folded down over sunken area around indistinct tortoise in relief. No letters visible but same mould as **LW 37, 39**. Underside slightly hollowed. Fair condition.
46 × 45 × 10 mm. Weight: 217 gr. (stater of 868 gr.).
- LW 45** (IL 296) One-eighth Stater. Pl. 8.
E 14:1. 3rd century B.C.
High raised edges; in relief, small square half-tortoise and letters (above and below): ἡμιτέ(ταρτον). On body of tortoise a small round stamp (7 mm.) with rosette. Poor condition; hole bored through.
40 × 40 × 7 mm. Weight: 109.5 gr. (stater of 876 gr.).
- LW 46** (IL 1046) One-eighth Stater. Pl. 8.
C 17. 4th century B.C.
In relief, half-tortoise and letters: δημό(σιον). A five-pointed star in relief below tortoise. Small round stamp (9 mm.) on body of tortoise: helmeted head(?). Good condition.
34 × 34 × 9 mm. Weight: 108 gr. (stater of 864 gr.).
- LW 47** (IL 734) One-eighth Stater. Pl. 8.
F 19:2. Mid 4th century B.C.
In relief, half-tortoise and letters (counter-clockwise from lower left corner): ἡμιτέταρτον. Surface is much worn; fair condition.
26 × 26 × 12 mm. Weight: 105 gr. (stater of 840 gr.).
- LW 48** (IL 746) One-eighth Stater. Pl. 8.
Q-R 13. In relief, half-tortoise and letters (counter-clockwise from upper right corner): δημό(σιον). Much worn round stamp (11 mm.) with kalathos in olive wreath. Cf. **LW 27**. Upper right corner broken off. Poor condition.
37 × 37 × 9 mm. Weight: 95 gr. The broken corner would bring the weight up to the normal 114 gr., but because of its present state this piece has not been included in charts.
- LW 49** (IL 863) One-twelfth Stater. Pl. 8.
D 16. Hellenistic.
Raised edges; in relief, half-tortoise. No trace of letters. Fair condition.
31 × 31 × 10 mm. Weight: 67.5 gr. (stater of 810 gr.). Since this piece has been assigned a fractional denomination only on the basis of its weight, it is not included in charts.
- LW 50** (IL 703) Crescent Weight. Pl. 8.
E-G 2-4. Raised edges; in relief, a crescent. Poor condition.
- 28 × 25 × 6 mm. Weight: 46 gr. The loss of weight is so great that this piece has not been included in charts.
- LW 51** (IL 1039) One-eighth Mna. Pl. 8.
D 17:5. Second half of 2nd century B.C.
Slightly raised edges; in relief, cornucopia and letters: ὄκδο(ον). Same mould as **LW 52, 53**. Good condition.
27 × 27 × 10 mm. Weight: 88 gr. (mna of 704 gr.).
- LW 52** (IL 304) One-eighth Mna. Pl. 8.
E 15. Hellenistic.
Slightly raised edges; in relief, cornucopia and letters: ὄκδο(ον). Same mould as **LW 51, 53**. Surface much worn; fair condition.
27 × 27 × 9 mm. Weight: 81 gr. (mna of 648 gr.).
- LW 53** (IL 758) One-eighth Mna. Pl. 8.
B 20. Hellenistic.
Slightly raised edges; in relief, cornucopia and letters: ὄκδο(ον). Same mould as **LW 51, 52**. Good condition; small gouges on underside.
27 × 27 × 8 mm. Weight: 75 gr. (mna of 600 gr.).
- LW 54** (IL 147) One-eighth Mna. Pl. 8.
F 14. Hellenistic. *Hesperia*, IV, 1935, p. 347.
Raised edges; in relief, half-crescent. Good condition.
25 × 25 × 10 mm. Weight: 74 gr. (mna of 592 gr.).
- LW 55** (IL 1070) One-eighth Mna. Pl. 8.
Q 8. 5th-4th centuries B.C.
Raised edges; in relief, half-crescent and star. Edges of underside bevelled. Good condition.
22 × 20 × 13 mm. Weight: 59 gr. (mna of 472 gr.).
- LW 56** (IL 1) One-sixteenth Stater. Pl. 8.
H 6. Late 5th-early 4th centuries B.C.
Letters in relief covered the whole face: ἡμισυ-
μιτέ(ταρτον). A circular stamp (9 mm.) with thyrsos (?). A circular stamp (9 mm.) with thyrsos (?). Good condition.
26 × 25 × 7 mm. Weight: 55.5 gr. (stater of 888 gr.).
- LW 57** (IL 364) One-eighth Mna. Pl. 8.
D 6. Raised edges; in relief, half-crescent. Some-
what worn, but fair condition.
26 × 25 × 7 mm. Weight: 53.5 gr. (mna of 428 gr.).
- LW 58** (IL 900) One-eighth Mna. Pl. 8.
B 19. Hellenistic.
Almost square block, cut down from a larger one: chopped straight off where crescent is halved; pared on one adjacent side. In relief, half-crescent. Incised on underside: Δ†, i.e. 12 drachms. Good condition.
26 × 26 × 9 mm. Weight: 53 gr. (mna of 424 gr. by symbol; drachm of 4.42 gr. by inscription).

If the weight was pared down to reduce it to 12 drachms, it is no longer a true one-eighth mna and so should belong to a mna of 442 gr.

LW 59 (IL 902) Six Drachms. Pl. 8.
B 19. Late Hellenistic.

Circular plaque, smoothly finished on upper face and incised: $\Gamma\text{†}$, i.e. six drachms. Good condition.

25 × 4 mm. Weight: 26.5 gr. (drachm of 4.58 gr.). Not included in charts.

LW 60 (IL 1274) Drachm. Pl. 8.

P 15. Thin square with drachm sign (†) incised on one face. Good condition.

20 × 20 × 2 mm. Weight: 4.9 gr. Not included in charts.

LW 61 (IL 1044) Drachm or Token. Pl. 8.
C-D 16-17. Hellenistic.

Thin square with circular stamp of owl facing front and illegible traces of letters to left. Poor condition.

14 × 14 × 2 mm. Weight: 2.8 gr. Not included in charts.

WEIGHTS ON ROMAN STANDARD

LW 62 (IL 856) Stamped Weight: Pound. Pl. 8.
M 20:2. 3rd century A.D.

Five circular stamps, one in each corner and one in the center. All the stamps have the same monogram, with crescent and star (see plate). Good condition, but two of the corners are bent.

77 × 74 × 8 mm. Weight: 324 gr.

Found in the same well was another plain rectangular plaque of lead (Agora inv. IL 857) weighing 310 gr. A monogram very similar to this appears on a lead token from the Agora (below, **L 33**, Pl. 20). Other weights with stamps similarly arranged are listed by Pernice (nos. 623, 628).

LW 63 (IL 357) Stamped Weight: Pound (?). Pl. 9.

D 6. Flat cylinder with small rectangular stamp impressed on top. Letters in stamp: $\Delta\cdot\text{A}\cdot\Sigma$, perhaps $\delta(\acute{\eta}\mu\omicron\nu)\cdot\text{A}(\theta\eta\nu\alpha\acute{\iota}\omega\nu)\cdot\sigma(\tau\alpha\theta\mu\acute{\omicron}\varsigma)$. Good condition.

47 × 18 mm. Weight: 318 gr.

LW 64 (IL 349) Stamped Weight: Half-pound (?).

Pl. 9.

K-N 6-9. Flat cylinder with small rectangular stamp impressed on top. Letters in stamp same as on **LW 63**. Good condition.

38 × 14 mm. Weight: 173.2 gr. (pound of 346.4 gr.).

LW 65 (IL 4) Stamped Weight: Nine Ounces. Pl. 9.

Thin circular disk with circular hole in center. Slightly raised rim, grooved in center. Other concentric grooves on upper surface and small rectangular

stamp like that on **LW 63, 64**. Six holes punched in two rows of three each, spaced so that a third row must be assumed about the middle of the missing half. The use of punched holes for the counting of ounces may be seen on **LW 66** and following pieces. Slightly less than half is preserved; good condition.

85 × 3 mm. Weight: 91 gr. (complete piece should weigh 245 gr.).

LW 66 (IL 1435) Seven Ounces. Pl. 9.

O 17. Large circular stamp with helmeted head of Athena, right, in low relief. Seven small holes arranged at sides of circular stamp. On underside, a punched inscription: $\omicron\upsilon(\gamma\kappa\acute{\iota}\alpha)\cdot\text{Ζ}$. Good condition.

57 × 57 × 5 mm. Weight: 187 gr. (ounce of 26.7 gr.; pound of 320.4 gr.).

LW 67 (IL 1027) Four Ounces. Pl. 9.

C 16. Late Hellenistic.

Four long deeply incised lines on one face. Good condition.

30 × 30 × 10 mm. Weight: 105 gr. (ounce of 26.2 gr.).

LW 68 (IL 711) Three Ounces. Pl. 9.

G 20. Roman.

Raised edges; in relief, large gamma. Good condition.

31 × 33 × 11 mm. Weight: 91 gr. (ounce of 30.3 gr.).

LW 69 (IL 184) Three Ounces. Pl. 9.

E 14:3. 1st century B.C.

Roughly circular lead disk with convex upper surface on which are three small protuberances. Good condition.

40 × 11 mm. Weight: 91 gr. (ounce of 30.3 gr.).

LW 70 (IL 531) Three Ounces. Pl. 9.

N 18:3. 3rd century B.C.

In relief, large gamma. Between the arms of the gamma, small incised circle, perhaps to use the letter not only for "three" but also for the abbreviation for ounce. Fair condition.

32 × 35 × 9 mm. Weight: 90 gr. (ounce of 30 gr.). The appearance of this weight on the Roman standard in so early a context is interesting.

LW 71 (IL 725) Three Ounces. Pl. 9.

H 18. Three punch marks on one face seem to form a gamma. Poor condition.

28 × 25 × 7 mm. Weight: 53 gr. (ounce of 17.6 gr.).

LW 72 (IL 1048) Two Ounces. Pl. 9.

B 17. Late Roman.

Two small round punch marks on one face. One hole pierced through, as if for suspension. Good condition.

37 × 35 × 5 mm. Weight: 66 gr. (ounce of 33 gr.).

Cf. G. R. Davidson and D. B. Thompson, *Small Objects from the Pnyx I, Hesperia*, Suppl. VII, p. 29, no. 7: a lead disk with two small depressions and a weight of 63.5 gr.

LW 73 (IL 189) Two Ounces. Pl. 9.
E 14:3. 1st century B.C.
Punched beta on one face. Good condition.
24 × 21 × 12 mm. Weight: 65 gr. (ounce of 32.5 gr.).

LW 74 (IL 652) Two Ounces. Pl. 10.
O 19:2.
Two punchmarks. Good condition.
37 × 37 × 4 mm. Weight: 64.5 gr. (ounce of 32.5 gr.).

LW 75 (IL 764) Two Ounces. Pl. 9.
R 14. 3rd century A.D.
Two lines incised on one face. Fair condition.
26 × 25 × 11 mm. Weight: 51 gr. (ounce of 25.5 gr.).

LW 76 (IL 254) Two Ounces. Pl. 10.
D 10. Two small round punchmarks on one face.
Poor condition.
32 × 29 × 5 mm. Weight: 29 gr. (ounce of 14.5 gr.).

MARKED WEIGHTS OF UNCERTAIN STANDARD

LW 77 (IL 1363) Two Mnas (?). Pl. 10.
Q 7. Hellenistic.
Square plaque cut down from larger sheet. Two incised strokes on one face. Good condition.
80 × 80 × 15 mm. Weight: 890 gr. (mna of 445 gr.).

LW 78 (IL 1050) Inscribed Weight. Pl. 10.
B 17. Late Roman.
Thin square plaque. Inscribed on one face: Ζωπύ-
πος, perhaps the owner's name. Good condition, but
somewhat bent and with a hole bored through in
one corner.
82 × 82 × 6 mm. Weight: 452.5 gr. Perhaps a
mna.

LW 79 (IL 516) One Hundred Drachms. Pl. 10.
M 20:1. Early 1st century B.C. *Hesperia*, XVIII,
1949, p. 112, note 18.
Small rho incised with dots on one face. Good
condition.
60 × 60 × 12 mm. Weight: 419.5 gr.

LW 80 (IL 965) Inscribed Weight. Pl. 10.
C 18. Late Hellenistic-early Roman.
Two letters incised on one side: ΔΗ, i.e. δη
(μόσιον). Also two light strokes. Good condition.
52 × 48 × 15 mm. Weight: 358 gr.

LW 81 (IL 729) Inscribed Weight. Pl. 10.
S 21:1. Late 1st century B.C. to early 1st centu-
ry A.D. One face somewhat concave. Small pi incised
on one side. Good condition.

48 × 44 × 16 mm. Weight: 344 gr.

If pi is a number, the weight is probably 80
drachms, based on a drachm of about 4.3 gr.

LW 82 (IL 998) Inscribed Weight. Pl. 10.
F 17:1. Late 3rd-early 4th centuries A.D.

Thin square plaque; a central hole seems to have
been plugged with lead, on which a pine tree is in-
cised. One corner broken off.

77 × 77 × 6 mm. Weight: 300 gr. Probably a
pound, originally.

LW 83 (IL 1272) Inscribed Weight. Pl. 11.
P 15. Hellenistic.

Deep circular depression on one side, apparently
not a stamp, and a large gamma or lambda incised in
one corner. Good condition.

56 × 51 × 9 mm. Weight: 233.5 gr.

If the weight is one-quarter stater or two-thirds
of a pound, the letter is presumably not a number.

LW 84 (IL 168) Stamped Weight (?). Pl. 11.

N 10. Roughly circular disk with convex top, in
the center of which a stamp: caduceus with letters
above and below, ΤΥΟΚΡΕΤΟΥ. Carelessly incised pi on
underside. Good condition.

55 × 10 mm. Weight: 217 gr. Perhaps half a
mna.

LW 85 (IL 642) Inscribed Weight. Pl. 11.

R 19. Late Roman.

Large delta incised on one face. Good condition.
45 × 44 × 7 mm. Weight: 166 gr.

UNMARKED WEIGHTS

LW 86 (IL 947) Rectangular Plaque.
C 18. Late Hellenistic. Good condition.
70 × 66 × 15 mm. Weight: 598 gr. Perhaps a
mna on the 138 standard.

LW 87 (IL 138) Rectangular Plaque.
F 14. Late Hellenistic. Good condition.
57 × 55 × 15 mm. Weight: 525.5 gr.

LW 88 (IL 872) Rectangular Plaque.
D 16. Hellenistic. Sunken panel on one face;
rounded corners. Good condition.
57 × 53 × 20 mm. Weight: 446.5 gr. Probably a
mna.

LW 89 (IL 39) Rectangular Plaque.
G 14:2. 4th, 3rd and 2nd centuries B.C.

Slightly pinched in sides, rounded corners, ir-
regular sunken panel in upper surface, and small hol-
low in lower. Good condition.

- 51 × 49 × 19 mm. Weight: 442 gr. Probably a mna.
- LW 90** (IL 1042) Rectangular Plaque.
A 20. 5th century B.C. Rounded corners. Good condition.
52 × 48 × 18 mm. Weight: 430 gr. Probably a mna.
- LW 91** (IL 694) Rectangular Block.
O 18:2. *Ca.* 350–320 B.C. Rounded corners and sunken panel on both faces. Fair condition.
60 × 58 × 21 mm. Weight: 429.5 gr. Probably a mna.
- LW 92** (IL 627) Rectangular Block.
B 14:3. Second half of 1st century A.D.
Rounded corners, pinched in sides, and circular depressions in upper and lower surfaces. Good condition.
56 × 54 × 16 mm. Weight: 412 gr. Perhaps a mna.
- LW 93** (IL 913) Rectangular Plaque.
C 18. Late Hellenistic. Fair condition.
62 × 53 × 14 mm. Weight: 404 gr. Perhaps a mna.
- LW 94** (IL 763) Rectangular Block.
R 14. Late Roman.
Remains of raised edges; possibly part of a relief design on upper surface; traces of incised letters on underside. One edge may be pared. Poor condition.
48 × 32 × 18 mm. Weight: 292 gr.
- LW 95** (IL 1362) Rectangular Plaque.
Q 15:2. *Ca.* 400 B.C.
Rounded corners. Fair condition.
63 × 60 × 10 mm. Weight: 280.5 gr.
- LW 96** (IL 942) Rectangular Plaque.
C 18. Hellenistic.
Raised edges around one face. Much worn, so that an original relief design may be obliterated.
56 × 56 × 8 mm. Weight: 270 gr.
- LW 97** (IL 1278) Block with Iron Handle.
O 16. 2nd century B.C.
Iron loop set in top of lead block. Iron corroded; otherwise good condition.
45 × 47 × 14 mm. Total height: 35 mm. Weight: 241 gr.
- LW 98** (IL 42) Rectangular Plaque.
H 16:4. *Ca.* 150 B.C.
Deep square punch on one face. Poor condition.
46 × 45 × 10 mm. Weight: 192 gr.
- LW 99** (IL 180) Square Block.
E 14:3. 1st century B.C.
Shallow square depression on one surface. Good condition.
41 × 41 × 10 mm. Weight: 177.5 gr.
- LW 100** (IL 757) Rectangular Plaque.
B 20. Hellenistic.
Heavy raised edges on upper surface. Fair condition.
39 × 34 × 11 mm. Weight: 140 gr.
- LW 101** (IL 5) Square Block.
F 17. Slightly raised edges on upper surface and traces of some obliterated relief. Fair condition.
36 × 36 × 8 mm. Weight: 103.5 gr.
- LW 102** (IL 293) Square Block.
D 11. Hellenistic. Good condition.
34 × 34 × 8 mm. Weight: 98 gr.
- LW 103** (IL 18) Rectangular Block.
G 17. Good condition.
37 × 36 × 7 mm. Weight 97 gr.
- LW 104** (IL 1043) Square Block.
D 17. Late Hellenistic. Fair condition.
29 × 29 × 5 mm. Weight: 52 gr.
- LW 105** (IL 159) Circular Disk.
F 14. Hellenistic.
Deep scratches on one face. Fair condition.
28 × 8 mm. Weight: 49 gr.
- LW 106** (IL 514) Rectangular Block.
M 20:1. Early 1st century B.C. *Hesperia*, XVIII, 1949, p. 112, note 18.
Slight depression on one side. Fair condition.
22 × 20 × 7 mm. Weight: 37 gr.
- LW 107** (IL 871) Square Block.
D 16. Hellenistic. Fair condition.
24 × 24 × 6 mm. Weight: 35.5 gr.
- LW 108** (IL 759) Rectangular Block.
B 20. Hellenistic. Good condition.
21 × 20 × 5 mm. Weight: 29 gr.
- LW 109** (IL 1457) Square Block.
R 16. Slight depression on one face.
16 × 16 × 6 mm. Weight: 22 gr.

POSSIBLE WEIGHTS

- LW 110** (IL 432) Square Block.
E 6:3. 4th century B.C.
Square cutting beneath as if for attachment; rounded on top with traces of iron handle or hook. Good condition.
46 × 46 × 32 mm. Weight: 538 gr.
- LW 111** (IL 522) Circular Disk.
P 12. Good condition.
15 × 5 mm. Weight: 12.75 gr.

STONE WEIGHTS

Among the stone weights found in the Athenian Agora the largest and most important group is that of the mastoid weights, i.e. marble bricks with two bosses or breasts in relief. The breasts are variously depicted, sometimes realistically, sometimes simply as two half-spheres; in some examples the two bosses are joined by a bar which may have served as a handle, or traces of a broken bar remain, but others certainly had no such bar. These mastoid marbles have long been interpreted as weights,¹ and their use as such is guaranteed by the inscriptions indicating weight which occur on a few of them. The very smooth, almost worn surfaces which look as if the marbles had been used as some sort of tool were surely given them in the final process of making them conform to the standard. That is, the weight of the stone as originally cut and roughed out would have been excessive; the exact weight desired would then have been achieved by polishing.

The variously battered condition of most of these marble mastoid weights makes difficult any exact determination of their original weights. But in one respect, at least, they are easier to deal with than lead or bronze weights, the weight of which may have either increased or decreased since antiquity, depending on the chemical properties of the soil or water in which they were preserved. The stone weights will always be underweight, since any chance original excess is more than compensated for by wear, chipping and gouges.

The marble mastoid weights are undatable in themselves and for the most part undated by context. Most of those from the Agora were found in modern or surface fill, a few in late Roman levels, and one (SW 5, Pl. 11) in a late Hellenistic cistern. The relative chronology of the weights can not, therefore, be invoked as an aid to the identification of their original weights and standard. Only the few inscribed specimens can shed light on the standards to be expected. Of these, Pernice, no. 275 is marked H (i.e. 8 mnas) and weighs 3556.6 gr., pointing to a unit of somewhat more than 444.8 gr. It seems most likely that this is the regular Attic weight mna of 105 coin drachms; if the coin drachm may be assumed to be 4.36 gr., the weight-mna will be 457.8 gr. Thus the original weight of Pernice, no. 275 will have been 3662.4 gr., and the percentage of loss less than three.

Of the Agora marble mastoid weights, three are inscribed. SW 7 (Pl. 11) is marked as $7\frac{1}{2}$ pounds and weighs 2310 gr. but is damaged and chipped enough to make likely an original weight of $7\frac{1}{2}$ Roman pounds² or 2453 gr. SW 13 (Pl. 12) is marked as $4\frac{1}{2}$ pounds and weighs 1162.5 gr. but is sufficiently chipped to allow an original weight of $4\frac{1}{2}$ pounds or 1472 gr. SW 1 (Pl. 11) is marked as 11 pounds and weighs 3443 gr., but is sufficiently damaged to allow an original weight of 11 pounds or 3597 gr. Because none of these weights represents a round number of pounds or even what might be thought to be a convenient number, it is tempting to suppose that the inscriptions belong to a secondary use of the weights and that some multiple of the Attic mna was converted to the Roman weight system³ by an inscription defining the

¹ Pernice, p. 40, nos. 275ff. W. Deonna, *Délos*, XVIII, *Le Mobilier Délien*, pp. 144-145. Examples from Corinth appear in G. R. Davidson, *Corinth*, XII, *The Minor Objects*, Princeton, 1952, pp. 213-214.

² For the weight of the pound, see above p. 23.

³ That this Roman weight system was widely used in Athens we know from the numbers of lead weights inscribed with the units and fractions of the Roman pound. Cf. also Pernice, nos. 618ff.

weight to the nearest half-pound. Both Pernice, no. 275 with its weight of eight Attic mnas and the certainly late Hellenistic mastoid weight from the Agora (SW 5, Pl. 11) lend color to this possibility, since they suggest that the mastoid form was not necessarily Roman in origin.

It will be necessary to ask what multiples of Attic mnas might have been converted to these particular poundweights, i.e. $7\frac{1}{2}$, $4\frac{1}{2}$ and 11. It will be the estimated original weight which must be matched in the Attic system, that is, $7\frac{1}{2}$ pounds or 2453 gr., $4\frac{1}{2}$ pounds or 1472 gr., and 11 pounds or 3597 gr. Only the eleven pound weight comes within possible conversion-range of a multiple of the Attic 105 drachm weight mna; eight such mnas weigh 3662.4 gr. and might be used in a secondhand worn condition as 11 pounds (3597 gr.). But in order to take the other two weights as converted mna-weights, we shall have to look at another Athenian mna. Two are known from *I.G.*, II², 1013, lines 29–36: one of 138 coin drachms (601 gr.) and one of 150 coin drachms.⁴ Of these the latter is equal to two pounds and so the two systems are interchangeable, but the former provides multiples which would allow conversion into all three of the inscribed mastoid marbles:

$7\frac{1}{2}$ pounds (2453 gr.) — 4 mnas of 138 drachms (2404 gr.)
 $4\frac{1}{2}$ pounds (1472 gr.) — $2\frac{1}{2}$ mnas of 138 drachms (1503 gr.)
 11 pounds (3597 gr.) — 6 mnas of 138 drachms (3606 gr.)

The 4 mna piece is admittedly somewhat light to have been re-used as $7\frac{1}{2}$ pounds. The $2\frac{1}{2}$ mna piece does not provide a round number, but it is half of a good and useful round number.

Since this conversion is not completely satisfactory, it is worth considering the possibility that the use of stone weights was such that odd multiples and fractions of the basic unit might make sense. That is, the expense of large lead weights was probably prohibitive for ordinary use. It would be convenient for small shopkeepers who had to weigh quantities ranging from an ounce up to 20 or 30 pounds to have a set of lead weights for the smaller units (perhaps a weight of two pounds, two of one pound, one of six ounces, one of three and several of one ounce) and also several heavy stone weights ranging from two to ten pounds. These latter could be used singly or in combination for the bulk of larger weights while the smaller lead weights would be added to achieve exact equivalence. Stone weights for such a purpose would have to be accurate to whatever multiple and fraction they represented, but the multiple and fraction would not be meaningful, since they would always be supplemented by smaller weights.

For the most part the uninscribed mastoid weights can be fitted into the two systems already considered: mnas of 105 coin drachms and pounds of the Roman system. With these, however, the problem of how the original users distinguished one from another arises. It is necessary, I think, to assume painted inscriptions which have disappeared. For although it is possible, by picking up the stones and weighing them in the hand, to put in order eight marbles weighing from two to 11 pounds, to pick up any individual weight and know whether it is, for example, four or five pounds requires much care and practice. Dimensions do not help in this matter, since, although the heavier weights are obviously larger, the increase is not constant in any one dimension. Perhaps the weights of one series might have shown a constant and relevant change in dimensions, but the group from the Agora is for the most part made up of stones from completely unrelated circumstances. Only two (SW 4, 6, Pl. 11) come from the same context and are sufficiently alike in appearance to belong to the same set. The heavier of these is noticeably wider than the lighter, but only if the two are viewed together. Their weights, moreover, do not lend themselves to conformity with any one system unless there is the possibility of fractions. These two, then, confirm the likelihood that stone weights were used as cheap substitutes for metal in weighing relatively large quantities and so need not be meaningful multiples.

⁴ For a discussion of these heavy mnas see above, pp. 2–4, 20–21.

Other stone weights found in the Agora include five which are inscribed: one (SW 16, Pl. 12) is from an early context and employs the Athenian standard; the other four (SW 17–20, Pl. 12) are based on the Roman pound. A few uninscribed marble bricks, which may once have had painted inscriptions, were probably also used as weights, both those with sculptured relief representations (SW 21–23, Pl. 12) and those which are completely plain (SW 24–28, Pl. 12). The identification of these pieces as weights is suggested by the similarity of size and shape to inscribed pieces. The case for the carved pieces is strengthened by the list of representational weights dedicated by P. Memmius Agathocles (Tegea, *I.G.*, V, 2, 125).

The use of only slightly worked fieldstones as weights (SW 16–17, Pl. 12) seems to be confirmation of our hypothesis that stone weights were more casual than the official weights of lead and bronze. Just as it was possible to take a selection of fieldstones to be weighed and marked with their weights, so it must have seemed desirable to produce regular marble bricks which embodied various multiples and fractions to form the basis in bulkier transactions.

CATALOGUE

The catalogue is arranged in descending order of weight in five categories: mastoid, inscribed Athenian, inscribed Roman, sculptured, and plain. The finding places are noted only when the pieces belong to dated contexts; the location is given by squares on the Agora grid. Dimensions are given in millimeters, in the order of length, width and thickness; thickness is overall, including projections on top.

- SW 1** (ST 54) Mastoid Weight: Pentelic. Pl. 11.
Complete save for chips; no traces of bar. Roughly inscribed on underside: AI.
185 × 107 × 80 mm. Weight: 3443 gr.
The inscription presumably gives the number of Roman pounds, i.e., 11. The original weight would therefore have been 3597 gr., and the presumed loss about three per cent.
- SW 2** (ST 129) Mastoid Weight: Pentelic. Pl. 11.
Corners much worn; traces of bar broken off.
193 × 105 × 88 mm. Weight: 2868 gr.
The loss of weight from wear and chipping may be as much as ten per cent, so that the original weight must have been between 3100 and 3200 gr., most probably seven mnas (3199 gr.) or nine and a half pounds (3107 gr.).
- SW 3** (ST 303) Mastoid Weight: Pentelic. Pl. 11.
Complete except for chips; no traces of bar.
170 × 100 × 90 mm. Weight: 2798 gr.
The loss of weight may be as much as 5 per cent, so that the original weight must have been somewhat over 2900 gr., most probably nine pounds (2943 gr.).
- SW 4** (ST 312) Mastoid Weight: Pentelic. Pl. 11.
R 14:2. Herulian destruction, A.D. 267. *Hesperia*, IX, 1940, p. 306, fig. 46.
Slightly chipped; bar preserved.
180 × 95 × 96 mm. Weight: 2685 gr.
The loss of weight appears to be almost negligible, so that the original weight was probably six mnas of 457 gr. (2742 gr.) or possibly eight and one-half pounds (2780 gr.).
- SW 5** (ST 113) Mastoid Weight: Hymettian. Pl. 11.
D 12:2. Late 2nd century–early 1st century B.C.
Edges chipped; part of lower part broken away; only traces of bar.
208 × 97 × 77 mm. Weight: 2633 gr.
Breaks may account for about 300 gr., so that the original weight may have been six and a half mnas of 457 gr. (2971 gr.) or possibly nine pounds (2943 gr.).
- SW 6** (ST 311) Mastoid Weight: Pentelic. Pl. 11.
R 14:2. Herulian destruction, A.D. 267. *Hesperia*, IX, 1940, p. 306, fig. 46.
Slightly chipped; bar preserved.
170 × 86 × 84 mm. Weight: 2454 gr.
If, as seems likely from finding-place and similarity of appearance, this weight belongs to the same set as SW 4, it must be based on the same unit. The slight loss of weight suggests an original weight of four and one-half mnas of 457 gr. (2513 gr.) or possibly seven and one-half pounds (2453 gr.).
- SW 7** (I 5196) Mastoid Weight: Pentelic. Pl. 11.
Somewhat chipped and worn; no trace of handle. Inscribed on one of the long sides: λ Z <, i.e. λ Ι(τραί) $7\frac{1}{2}$.
175 × 95 × 95 mm. Weight: 2310 gr.
Seven and one-half pounds are 2453 gr., which the present state of the weight makes reasonable.
- SW 8** (ST 53) Mastoid Weight: Pentelic. Pl. 11.
Corners chipped and broken; traces of bar broken off.
164 × 89 × 90 mm. Weight: 2086 gr.

It seems likely that the original weight was either five mnas of 457 gr. (2285 gr.) or seven pounds (2289 gr.).

SW 9 (ST 26) Mastoid Weight: Island Marble. Pl. 12.
Somewhat worn; no trace of bar.

162 × 72 × 74 mm. Weight: 1796 gr.

The original weight may have been four mnas of 457 gr. (1828 gr.) or possibly five and a half or six pounds (1799 or 1962 gr.).

SW 10 (ST 11) Mastoid Weight: Island Marble. Pl. 12.
Somewhat chipped; traces of bar broken off.

163 × 85 × 70 mm. Weight: 1795 gr.

Since the loss of weight must amount to somewhat more than 100 gr., it is likely that the original weight was six pounds (1962 gr.).

SW 11 (ST 74) Mastoid Weight: Pentelic. Pl. 12.
One corner broken off; no trace of bar.

168 × 90 × 65 mm. Weight: 1743 gr.

The loss of weight may be about one-eighth, so that the original weight may have been six pounds (1962 gr.).

SW 12 (ST 23) Mastoid Weight: Island Marble. Pl. 12.
Chipped and much worn; no traces of bar.

173 × 75 × 64 mm. Weight: 1737 gr.

The original weight is likely to have been six pounds (1962 gr.).

SW 13 (I 5356) Mastoid Weight: Pentelic. Pl. 12.
Much chipped and worn; no trace of handle. Inscribed on one of the long sides: $\lambda\Delta<$, i.e. $\lambda(\tau\rho\alpha\iota)$ $4\frac{1}{2}$.

145 × 80 × 65 mm. Weight: 1162.5 gr.

The loss of weight is sufficient to allow an original weight of four and one-half pounds (1472 gr.).

SW 14 (ST 27) Half Mastoid Weight: Pentelic. Pl. 12.
Cut in half obliquely; cut surface slightly less finished than others; slightly chipped; no trace of bar.

100 × 90 × 77 mm. Weight: 1081 gr.

The original weight of this half must have been either two and one-half mnas of 457 gr. (1138 gr.) or three and one-half pounds (1145 gr.). If the division was accurate, the whole weight would thus have been five mnas or seven pounds.

SW 15 (ST 126) Mastoid Weight: Pentelic. Pl. 12.
Chipped and worn; trace of bar broken off.

118 × 62 × 50 mm. Weight: 681 gr.

The original weight must have been two and one-half pounds (818 gr.).

SW 16 (I 5499) Inscribed Weight: Two Staters. Pl. 12.

T 24:3. *Ca.* 500 B.C.

Slab of fieldstone, apparently uncut, but much polished or worn. Letters roughly cut: $\Delta\iota\sigma\tau\alpha$, i.e. $\delta\iota\sigma\tau\acute{\alpha}(\tau\rho\epsilon\upsilon\omicron\nu)$.

140 × 167 × 50 mm. Weight: 1737.5 gr.

If no weight has been lost the standard on which this weight was based must be a stater of 868.7 gr., made up of two mnas of 434.3 gr.

SW 17 (ST 687) Inscribed Weight: Twelve Pounds. Pl. 12.

Rough fieldstone, much battered. Letters incised: IB, i.e. twelve (pounds).

187 × 132 × 105 mm. Weight: 3515 gr.

The considerable loss of weight allows for an original weight of 12 pounds (3924 gr.).

SW 18 (ST 386) Inscribed Weight: Island Marble. Pl. 12.

C 17. Late Roman.

Plain rectangular block, somewhat chipped and worn. Inscribed on one of the large faces: stigma and two dots above, i.e. six (pounds), two (ounces).

150 × 90 × 60 mm. Weight: 1940 gr.

The original weight must have been 2016 gr. (six pounds and two ounces).

SW 19 (I 6110) Inscribed Weight: Pentelic. Pl. 12.
C 16. Late Roman.

Worn at corners. Inscribed on one of the narrow faces: $\Lambda\epsilon\iota\ E<$ i.e., $\lambda\epsilon\iota(\tau\rho\alpha\iota)$ $5\frac{1}{2}$.

115 × 105 × 55 mm. Weight: 1820 gr.

The original weight should have been 1799 gr. The slight excess of weight (less than a Roman ounce) may represent original inaccuracy; the wear at the corners may represent original polishing to reduce weight.

SW 20 (ST 477) Inscribed Weight: Pentelic. Pl. 12.
Circular disk, of which somewhat more than half is preserved, but with a large chip missing. Inscribed on upper surface: $\lambda\ \Gamma<$, i.e., $\lambda\iota(\tau\rho\alpha\iota)$ $3\frac{1}{2}$.

125 × 45 mm. Weight: 630 gr.

The original weight must have been 1145 gr.

SW 21 (S 1929) Weight with Relief: Pentelic. Pl. 12.

B 16. Late Roman.

Rectangular block much worn, with one corner badly chipped. Relief: two figures preparing to embrace.

200 × 103 × 87 mm. Weight: 3640 gr. The original weight was perhaps twelve pounds (3924 gr.).

SW 22 (ST 600) Weight with Relief: Pentelic. Pl. 12.

About half of the rectangular block is preserved, except for chips. Relief: roughly carved figure of sleeping Eros, upper part only preserved.

70 × 90 × 84 mm. Weight: 1055 gr. The original weight may have been six pounds (1962 gr.)

For weights employing representations of this sort see the dedication made by P. Memmius Agathocles of bronze weights in the form of a hind, an Atalante, and an Eros (Tegea, *I.G.*, V, 2, 125).

SW 23 (S 1624) Weight with Relief: Pentelic. Pl. 12.
Less than half of the rectangular brick is preserved, with chips missing. Relief: figure of sleeping Eros, lower part only preserved.

90 × 90 × 75 mm. Weight: 1030 gr. The original weight may have been seven pounds (2289 gr.). Cf. **SW 22**.

SW 24 (ST 92) Rectangular Weight: Pentelic.

Chips missing.

160 × 95 × 55 mm. Weight: 2526 gr. The original weight may have been eight pounds (2616 gr.).

SW 25 (ST 611) Rectangular Weight: Pentelic.

Large chip missing from one side.

150 × 100 × 65 mm. Weight: 2450 gr. The original weight may have been eight pounds (2616 gr.).

SW 26 (ST 612) Rectangular Weight: Pentelic.
Chipped at corners; surface battered.

140 × 90 × 53 mm. Weight: 1460 gr. The original weight was probably five pounds (1635 gr.).

SW 27 (ST 647) Rectangular Weight: Pentelic.
Slightly chipped.

175 × 105 × 65 mm. Weight: 3035 gr. The original weight was perhaps ten pounds (3270 gr.).

SW 28 (ST 100) Rectangular Weight (?): Hymettian. Pl. 12.

Abraded and chipped. Diamond-shaped sinking in center of one large face, and small L-shaped sinkings in the corners, perhaps for metal attachments.

105 × 75 × 76 mm. Weight: 2503 gr. Without knowledge of what was set into the cuttings, it is impossible to suggest the original weight.

DRY MEASURES

The general type of the official Athenian dry measure has long been known; the first such vessel (Athens, National Museum, Pls. 14, 18) was published by A. Dumont in 1872.¹ In 1937 a slightly different type of official measure was found in a well of the 5th century B.C. on the North Slope of the Acropolis (Pls. 13, 33).² Four more complete measures in addition to many significant fragments have come to light in the Agora excavations. Since many of these pieces come from dated deposits, it is possible to arrange them in chronological order and see the changes and development in this simple functional cylinder over a period of four centuries. Such a chronological arrangement will be useful not only in dating pieces from late or disturbed fills but also in dealing with any question of changes in standards.

FORM AND DEVELOPMENT

For the period before the 5th century B.C. only one vessel which may be identified as a dry measure has been found (**DM 1**, Pls. 13, 33).³ Although this piece has neither the official inscription nor the stamps of later measures, its cylindrical shape, black-glazed interior and single groove make it a convincing forerunner.

The 5th century B.C. type of official dry measure is exemplified in the North Slope Measure and in several fragments (**DM 2–24**, Pls. 13, 33) from, for the most part, closed 5th century B.C. deposits in the Agora. It may be described as follows: a cylinder with plain rim, flat on top, straight side-walls (slightly concave outside) with varying numbers of shallow grooves (earlier) or low tori (later) around the upper and lower wall, and a broad low ring base. Set into notches cut in the rim are the ends of the three-barred internal “handle” the bars of which are flat on top and almost triangular in section. It is most likely that the primary function of these bars, which would be useless as a handle when the vessel was full, was to facilitate levelling of the contents. The ends of the bars after being fixed in the notches with soft clay are most frequently stamped with an official seal depicting an owl standing right. The clay is very fine and either pinkish buff or brownish buff. The exterior is self-slipped; firm black glaze covers the whole interior including all surfaces of the “handle” except in a few cases where on the top surface of the “handle” only the ends near the rim are glazed. The top of the rim is also glazed. Small letters painted in black glaze on the upper wall are spaced around the vessel: *δεμόσιον*.

Closely related to the 5th century B.C. type are four fragments (**DM 25–28**, Pls. 13, 33), only one of which comes from a certain 5th century B.C. context. All four are black glazed

¹ *Rev. Arch.*, XXIV, 1872, pp. 297–303.

² *Hesperia*, VII, 1938, pp. 222–224. Similar to the Athenian measures of this type and presumably influenced by them is a Thasian measure of the early 4th century B.C. (L. Ghali-Kahil, *Études Thasiennes*, VII, *La céramique grecque*, Paris, 1960, p. 135, no. 35, pl. LXL, 35, pl. G). The Thasian vessel is closest in form to the late variants of the 5th century B.C. type, since the ridges above and below are picked out with glaze. Differences are that the ring foot is cut out to form three broad low legs as in the Athenian 4th century B.C. type and that it is stamped with a kantharos rather than the owl or Athena. Its estimated capacity is about 245 cc., which is in the same ratio to the Attic kotyle of 273 cc. as the Chian standard Thasian didrachm of 7.87 is to the Attic didrachm of 8.72 gr.

³ Found later was another similar piece (Agora P 27043), which has the same flat reserved bottom and good black glaze inside and out.

on the inside, reserved on the outside and marked with ridges or grooves below the rim and above the base. The fragments differ from the 5th century B.C. type in the nature and combination of these grooves or ridges, but since the similarities seem to outweigh the differences and since a similar variation of grooves can be seen in indubitable early 5th century B.C. pieces (**DM 2, DM 5**), it seems best to consider these four as early variants of the 5th century B.C. type.

Late variants of the 5th century B.C. type may also be identified (**DM 29–36**, Pls. 13, 33). Only three of these are surely dated by context to the late 5th-early 4th centuries B.C., but they have so much in common that they must be treated as a group. The chief similarities to the 5th century B.C. type are the glazed interiors and the ridges and grooves above and below. The chief difference is the use of glaze on the outside of the vessels to pick out ridges and grooves.

Five pieces must be regarded as transitional from the 5th century B.C. type to the 4th century B.C. type (**DM 37–41**, Pls. 13, 14, 33). These come from deposits of the latest 5th century and first half of the 4th century and share in various ways the chief differentiating characteristics of the two types. Two of the pieces have the black-glazed interiors of the 5th century B.C. type but instead of the 5th century zones of ridges they have the collars of the 4th century type above and below. Two others have no glaze inside or out; one is a perfectly plain, flat-bottomed cylinder of the fine clay characteristic of public measures; the other has a collar of 4th century type. The last has a reserved collar and glazed outside wall.

The 4th century B.C. type, based on two vessels which could be restored complete (**DM 44, 45**; Pls. 14, 34) and several other fragments from closed 4th century B.C. deposits, may be described as follows: cylinder with plain flat rim, straight side-walls with slightly raised collar both at top and bottom, and a low base ring cut out to form a broad low tripod. Vestigial ridges appearing below the upper collar on **DM 44** make clear the lineage of these 4th century B.C. measures. Applied to the inside wall at the top are the ends of the three-barred "handle," flat on top and almost triangular in section, which is in some cases supported in the center by a column rising from the floor. The clay is like that of the 5th century B.C. type. Thin black glaze, sometimes fired red, covers the upper collar outside, the triple bars of the "handle" and the upper part of the interior. The rest of the outside is self-slipped or covered with a thin glaze wash. Large letters in black glaze are spaced around the upper wall: $\delta\eta\mu\acute{o}\sigma\iota\omicron\nu$. Between the first and last letters there is one stamp; another appears on the opposite side of the vessel. The two stamps are: 1) the double-bodied owl, larger in scale but similar to that which occurs on the early 4th century B.C. diobol; and 2) the helmeted head of Athena. The measure published by Dumont, which is now in the National Museum in Athens (Pls. 14, 18), is of this same 4th century B.C. type. The probable prototype of these clay vessels may be seen in the two bronze standard measures (**DM 42, 43**; Pls. 14, 33) found in a well of the latest 5th century B.C. These small bronze vessels do not, however, have the three-barred internal "handle."

Official measures of the 4th century B.C. type may have continued into the 3rd century, but the absence of such readily recognizable fragments in the masses of Hellenistic material makes it seem more likely that the clay measures, at least, were replaced by vessels which are not so readily identifiable. No cylindrical pottery vessels which might have served as measures appear until the middle of the 2nd century B.C. These pieces (**DM 66–69**, Pls. 15, 34) are obviously of a different fabric and manufacture from the 5th and 4th century B.C. types. The clay is not so fine and the surface is very flaky. Where glaze occurs it is thin and fugitive. There are no inscriptions and no stamps except for the lead seal in the wall of **DM 66**. The shapes are no longer uniform. Three of these four vessels were found in one well outside of the market square to the south. It seems likely that they were part of the equipment of a shop and are not official to the same extent as the measures of the 5th and 4th century types.

Not only the inscriptions and stamps of the earlier measures seem to set them apart as official measures, but also their provenience. More than 70% of the official measure fragments found in the Agora come either from the Tholos itself or from within 15 meters of the Tholos. This circumstance, combined with the statement in *I.G.*, II², 1013, lines 56–57 that standard weights and measures were kept in the Tholos (as well as in Piraeus, Eleusis and on the Acropolis) seems to indicate that these clay vessels were the standards. The number of fragments may at first seem excessive, but it is necessary to remember that our fragments range over two hundred years and that the standards were not kept in glass cases but used for comparison and so were subject to breakage and renewal. This very possibility of breakage, however, makes standards of clay far less satisfactory than metal vessels. Furthermore, the very shapes of both 5th and 4th century B.C. types, with their crisp ridges and offset collars, suggest that they had metal prototypes. Bronze measures of very similar form, even including the three-barred internal “handle,” are known from the Roman period.⁴

The two bronze measures (DM 42, 43) are proof enough that metal vessels of this sort were used in Athens; they come, however, not from the Tholos, but from a well not far from the Mint, where they were perhaps used, if not actually manufactured or certified. If then we make the logical assumption that the standard measures deposited in the Tholos, Eleusis, Piraeus and on the Acropolis were of bronze, how can we explain the concentration of fragments of the clay measures in and near the Tholos? Since they are presumably official replicas of the standard, guaranteed by official stamps, we can not think that these are fragments of false measures convicted and broken on the spot. We must rather assume that clay replicas of the official standards were kept in some office close by the Tholos which may have housed the *Metronomoi*. Whether the replicas were made available to shopkeepers or only to officials we can not know, but if large numbers were stored here, some were bound to be broken and remain on the spot.

CAPACITY

Concerning the capacity of these measures there are many questions. How much do they hold? What units of capacity are thereby represented? How accurate are they? How was such accuracy as exists achieved? Beginning with the last in this series of questions, we can find much evidence in the measures themselves. In the North Slope measure O. Broneer detected “small pock-marks in the glazed surface of the bottom and about half-way up the sides.”⁵ He concluded that the vessel was measured before it was fired “by pouring into it a known quantity of grain and that the size was then adjusted with due allowance for shrinkage.” Pock-marks are visible also on many of the Agora fragments of the 5th century B.C. type and it is possible on some pieces to see even through the glaze that clay was added to the original wall and carefully smoothed, presumably to adjust the capacity.

This adjustment is much easier to see in vessels of the 4th century B.C. type where there is very little glaze on the inside. These cylinders like those of the 5th century were obviously turned on the wheel, since there are turning marks on the outside. On a few pieces there are also very obvious turning marks on the inside, so deep that it seems as if the walls had been pared. That this represents an adjustment of the capacity is confirmed by the opposite treatment of other interiors, where a thick clay slip has been brushed on so that the brushmarks are still visible. This added layer, up to a millimeter and a half in thickness, tends to flake off at breaks and so almost certainly was added when the vessel was leather hard. Presumably, it was at this stage that the vessel was tried for capacity; adjustments were then made by

⁴ *Not. Sc.*, 1922, p. 465, fig. 5; Cagnat et Chapot, *Man. d'arch. rom.* II, p. 267, fig. 499.

⁵ *Hesperia*, VII, 1938, pp. 222–224.

adding clay or paring. We may wonder whether these adjustments had to be made because the potter had not fairly approximated the desired size or because the shrinkage during drying had not been as calculated. How the further shrinkage induced by the firing was estimated we do not know. The fact that more vessels have clay added than clay pared away suggests that the potter found it more sensible to err on the side of excess.

How did the potter produce a vessel of such a size that it might be turned into a standard measure with only minor adjustments? If we say that he copied the metal standard, we only push the question back one more stage. We should logically expect that both were made in accordance with specified dimensions. Such an expectation is more than adequately fulfilled not only by the specifications for a nut measure given in the late 2nd century B.C. decree concerning weights and measures (*I.G.*, II², 1013, lines 21–25) but also by the remarkable uniformity of dimensions in the actual pieces. Since so many of our pieces are fragments, often the only meaningful dimension preserved is enough of the circumference to give the inside diameter; fortunately this is also the most important dimension. In the table below the diameters of all known Athenian official dry measures (bronze and clay) are chronologically arranged; where the depth is known it is added in parentheses. One note of explanation is necessary: where only part of the circumference is preserved, the diameter has been taken by fitting cardboard circles against the inside wall. Complete accuracy is impossible, so that where the figure is given, for example, as 0.14 m. a circle of 14 centimeters in diameter fits inside but one of 14.5 centimeters is too big. Therefore dimensions expressed in whole centimeters may be slightly low.

TABLE I

<i>Diam.</i> <i>in cm.</i>	<i>Late 6th</i> <i>cent.</i>	<i>5th cent.</i> <i>type</i>	<i>Early 5th</i> <i>cent.</i> <i>variants</i>	<i>Late 5th</i> <i>cent.</i> <i>variants</i>	<i>Transi-</i> <i>tionals</i>	<i>4th cent.</i> <i>type</i>	<i>Later</i>
16		3, 9, 12, 13, 15, 16, 17, 20		30, 31, 32, 33, 36	40		
15–14.5		NSlope (19.7)					
14		4, 6, 7, 8, 11, 18, 21	25, 27, 28	29		46, 47, 48, 54, 55, 56, 59, 60, 61, 62, 63	66 (9.8–10.2) 68
13.9						44 (12.7) 45 (12.7)	
11.5		19			37		
11		14		34			
10.6							67
10			26		41		(11.2)
9.9						Nat.Mus. (11.4)	
9	1						69
8.3					39 (8.1)		
8.2					38		

Diam. in cm.	Late 6th cent.	5th cent. type	Early 5th cent. variants	Late 5th cent. variants	Transi- tionals	4th cent. type	Later
8						53	
7		2, 5				42, 50, 51 58	
6.8		10					
6				35		49	
5.7						52, 57	
5.1						43 (6.1)	

The heavy concentration of diameters at 0.14 m. and 0.16 m. makes these figures very important not only in themselves but also as an indication that a few diameters may have been used with varying depths to achieve various sizes of measures. Certainly the specifications given in *I.G.*, II², 1013, lines 21–25 for the nut measure seem to take for granted a constant diameter for which the depth must be specified. For the significance of these particular diameters we may look to the vessel which so strikingly embodies the specifications of the decree. The nut measure⁶ has a depth of 0.098–0.102 to fulfil the decree’s specification of five fingers. Averaging out the slight difference, we see that for this measure at least the metric equivalent of a finger is 0.02 m.⁷ That the same finger is used in our earlier series of official measures is suggested by the inevitable rightness of the resulting 7-finger and 8-finger (one-half foot) diameters. So readily do both of these numbers of fingers lend themselves to calculation of capacity by the formula which must have been in use throughout this period: $11/14 d^2 h$.

Although geometrical works earlier than those attributed to Hero Mechanikos do not spell out simple formulas of this sort, it is obvious that the geometry of the 6th century B.C. already presumes such knowledge. Furthermore, that Thales was known to have such a basis in practical geometry is suggested by the tradition preserved in Proklos⁸ that he went to Egypt and brought geometry to Greece from there. Egyptian geometry, as we can see from the Rhind Papyrus (ca. 1650 B.C.), was largely concerned with simple rules for measuring area and volume. It was the Greeks who made geometry mathematical by attempting proofs of such simple rules.

Hero’s formula for the volume of a cylinder is simply the height (or depth) times the area of its circle (*Stereometrica*, I, 21). For the area of a circle he gives several formulas (*Geometrica*, 87) where either diameter (d) or circumference (c) or both are known:

- 1) $\frac{1}{4}cd$
- 2) $(\frac{1}{2}d)(\frac{1}{2}c)$
- 3) $1/88(7c^2)$
- 4) $11/14 d^2$
- 5) $d^2-3/14 d^2$

Since the potter could most conveniently work with the diameter alone, he must have used either (4) or (5). Since the two are essentially the same we may use (4) as being a simpler calculation.

⁶ **DM 66.** Cf. *Hesperia*, XVIII, 1949, pp. 108–113.

⁷ If, as seems probable, the Parthenon and many other buildings of 5th century Athens were built on the foot defined by W. B. Dinsmoor as 0.326–0.327 m. (*The Architecture of Ancient Greece*,³ New York, 1950, p. 161, note 1, p. 175, note 1, p. 199, note 3), official measures should also have employed this foot. For ease of division into fingers the foot has been taken here as 0.3264 m. and the finger as 0.0204 m.

⁸ *Commentary on Euclid*, ed. G. Friedlein, Leipzig, 1873, p. 65.

What is most interesting about Hero's presentation of these formulas is that he most often uses a diameter of 7 and consequently a circumference of 22. What he did for ease of calculation is most likely to have been done for the same reason by those who made up specifications for measures. The frequency of the 7-finger diameter in actual measures is a strong indication of their dependence on specifications derived from formulas. And since larger measures were needed and the height could not either aesthetically or practicably be increased much beyond the ten fingers of the North Slope measure, a somewhat larger diameter had also to be specified. And here the makers of specifications seem to have taken advantage of the fact that eight fingers are a half foot, which is also easy to use in the formulas.

Before going on to the way in which the various units of capacity were expressed in linear dimensions we should perhaps consider in what terms the ancient Athenians thought of these units other than as multiples and fractions of one another. Their systems, as almost universally attested by ancient sources, are as follows:

DRY					WET						
medimnos	1				metretes	1					
hektes	6	1			chous	12	1				
hemihekt	12	2	1		kotyle	144	12	1			
choinix	48	8	4	1	oxybaph	576	48	4	1		
kotyle	192	32	16	4	1	kyathos	864	72	6	1½	1

(The fractional parts of the kotyle are common to both systems, but probably on account of the commodities measured are far less frequent in the dry system). Since the kotyle is obviously basic to both systems, it is the logical one to be defined in other terms. The only other term by which this unit is defined by the metrological writers is weight: the kotyle weighs 60 drachms. In order, therefore, to make a vessel which would hold a kotyle, it must have been necessary first to learn how much space was filled by pouring a quantity weighing 60 drachms⁹ into a hollow cube with known internal dimensions. Since this calculation is for the sake of example, it will be most convenient to use the weight drachm of *ca.* 4.55 gr., which is calculated from the Roman pound of 327 gr. on the basis of 72 drachms to the pound.¹⁰ Sixty such drachms will have a cubic content of 273 cc.¹¹ On the basis of a cubic finger of 8.5 cc. (0.0204 m.³ is 8.489 cc.),¹² this cubic content of 273 cc. will be 32 cubic fingers.

Ignoring for the moment these modern equivalents, let us go back to work only with fingers, as the original devisers of the measures must have done. If the kotyle overflows a three-finger cube (27 cubic fingers) but exactly half-fills a four-finger cube, the number of cubic fingers in a kotyle may be established as 32 (i.e., half of 64). The setting of specifications for a cylindrical vessel which will hold 32 cubic fingers becomes then a simple matter. For ease of calculation with eleven-fourteenths, it will be sensible to use either a diameter or depth which involves the number seven. For our 32 cubic-finger kotyle the formula most convenient will be: $\frac{1}{4} \times (\frac{7}{4})^2 \times (\frac{7}{4}) = 33\frac{1}{4}$. Since the excess will be taken up by the internal "handle" we need not worry very much about the difference.

Let us turn now to the dimensions preserved in the ancient measures, taking up first the one most often used: 0.14 m. or *ca.* seven fingers. Four vessels (North Slope, **DM 44, 45, 66;**

⁹ The standard commodity for such purposes was water or, more usually, wine. For heavier or lighter commodities (like honey and oil) the metrological writers give tables showing how the weights of various measures differ from that of wine.

¹⁰ *Metrolog. Script.*, p. 208, par. 4. This drachm is for all practical purposes identical with the weight drachm (4.57 gr.) which is one one-hundredth of the Solonian weight mna of 105 coin drachms of 4.36 gr. See above, p. 4.

¹¹ This kotyle of 273 cc. is the one called Attic (*Metrolog. Script.*, p. 208, par. 3). It weighs ten ounces of the Roman pound.

¹² See note 7 above for the metric equivalent of the finger.

Pls. 13, 14, 15, 33, 34) which preserve depth as well as a diameter very close to seven fingers give us three possible depths. The formulas will be: $\frac{1}{4} \times 7^2 \times 10$ (North Slope) gives 385 cubic fingers; $\frac{1}{4} \times 7^2 \times 6$ (DM 44, 45) equals 231 cubic fingers; $\frac{1}{4} \times 7^2 \times 5$ (DM 66) gives $192\frac{1}{2}$ cubic fingers. It may easily be seen that the vessel with a depth of five fingers must be half of that with a ten-finger depth, but what is that with a six-finger depth? The answer must lie in the individual variations which may have been introduced to make up for the three-barred handle and which appear in three of these vessels. In the North Slope measure the diameter was made somewhat excessive (14.5–15 cm.) perhaps for this purpose. In DM 44 and 45 the depth may have been increased from the expected five fingers to something over six fingers (12.7 cm.); in this case the potter apparently discovered that he had overcompensated so that he was obliged slightly to reduce the diameter (now 13.9 cm.) by adding a thin layer of clay to the inside wall. These four vessels give us, then, two sizes of measures; since one of them is the nut measure described by the late 2nd century B.C. decree as holding three half-choinikes of grain levelled off (nuts were to be heaped up by means of the lip specified), it is obvious that the North Slope measure with its 385 cubic fingers is three choinikes.¹³ Three choinikes are made up of twelve kotyles, so that the hypothetical 32 cubic-finger kotyle used above is seen to be actual ($12 \times 32 = 384$).

The next most frequent diameter is 0.16 m. or eight fingers (one-half foot). In this case it is likely that the formula was used as follows: $\frac{1}{4} \times \frac{1}{2}^2 \times h$ (with the height also expressed in terms of the foot) equals $\frac{1}{8} \times h$. Since no vessel with this diameter is preserved to its full height, we must calculate the possibilities. Since the square of seven is to the square of eight very nearly as 3 is to 4, it is likely that the vessels with a diameter of eight fingers were constructed to be four-thirds of the seven-finger vessels, that is, four choinikes or one hemihekt. The same depth of 10 fingers would have been used. The formula will have been $\frac{1}{8} \times \frac{5}{8}$, which in accordance with ancient practice would have been approximated to $\frac{1}{5} \times \frac{5}{8}$ or $\frac{1}{8}$ cubic foot. One-eighth of a cubic foot is 512 cubic fingers, so that the 16 kotyles making up the four choinikes will be 32 cubic fingers each.

Several vessels show an internal diameter of 0.07 m. or $3\frac{1}{2}$ fingers; no depths are preserved. The formula may well be that suggested above for the hypothetical kotyle of 32 cubic fingers: $\frac{1}{4} \times (\frac{7}{2})^2 \times \frac{7}{4}$ equals $33\frac{1}{8}$ cubic fingers. Thus we have specifications for the hemihekt, the three-choinix measure, the three half-choinix measure and the kotyle. We have used up the convenient diameters of seven half-fingers and seven fingers, but we still need specifications for the dikotyton, trikotyton, choinix and perhaps fractions of the kotyle. Here again it seems likely that those who set the specifications made use of approximation in the relationship between the squares of various numbers. In this way the trikotyton, which is one-half the three half-choinix measure, could be made with a diameter the square of which is one-half the square of seven, that is, five (25 is to 49 very nearly as 1 is to 2). The same height of five fingers should be used except that again the presence of the three-barred internal handle will demand an increase, perhaps to $5\frac{1}{2}$. These then are the dimensions of the National Museum measure, which has been identified as a trikotyton:¹⁴ interior diameter 0.099; depth 0.114 m.

The other diameters of known measures could have been arrived at in a similar fashion. The square of $2\frac{1}{2}$ ($6\frac{1}{4}$) is very close to one-half the square of $3\frac{1}{2}$ ($12\frac{1}{4}$), so that a half-kotyle can be made from the kotyle-formula, using a diameter of $2\frac{1}{2}$ fingers and the same depth of $3\frac{1}{2}$ fingers. The square of $5\frac{1}{2}$ ($30\frac{1}{4}$) is almost one-half the square of 8 (64) so that a choinix can be made from the hemihekt formula (hemihekt equals four choinikes) with half the squared diameter

¹³ Of course, Mr. Broneer had so designated it on the basis of the measured capacity and Hultsch's table of equivalents, but our effort here has been to use the ancient measures themselves to arrive at those equivalents.

¹⁴ M. Crosby, *Hesperia*, XVIII, 1949, p. 111, note 15; O. Viedebannt, *Festschrift Oxé*, p. 135, note 1.

($30\frac{1}{4}$) and slightly more than half the depth to compensate for the handle. The square of $4\frac{1}{2}$ ($20\frac{1}{4}$) is very nearly two-thirds of the square of $5\frac{1}{2}$ ($30\frac{1}{4}$) so that a dikotylon can be made from the choinix formula with a diameter of $4\frac{1}{2}$ and a depth of 4 (three-quarters the choinix depth of $5\frac{1}{2}$). Table II gives these hypothetical specifications.

TABLE II

<i>Finger diameter</i>	<i>Finger depth</i>	<i>Capacity calculated to nearest cubic finger</i>	<i>Unit and expected number of cubic fingers</i>
$2\frac{1}{2}$	$3\frac{1}{2}$	17	half-kotyle (16)
$3\frac{1}{2}$	$3\frac{1}{2}$	34	kotyle (32)
$4\frac{1}{2}$	4	64	dikotylon (64)
5	$5\frac{1}{2}$	108	trikotylon (96)
$5\frac{1}{2}$	$5\frac{1}{2}$	131	choinix (128)
7	5	193	three half-choinikes (192)
7	10	385	three choinikes (384)
8	10	512	hemihekt (512)

In Table III an attempt has been made to present all of the relevant statistics and calculations for the actual measures presented in the catalogue below.

TABLE III

<i>Est. actual diam. (mm.)^a</i>	<i>Finger diam. & mm. equiv.^b</i>		<i>Mm. depth & finger equiv.^c</i>		<i>Calculated cc. capacity^d</i>	<i>Calculated cubic finger capacity & cc. equiv.^e</i>	
51	$2\frac{1}{2}$	51	61	3	125	15	127.5
57-60	3	61.2	(71.4	$3\frac{1}{2}$)	182-202	25	212.5
68-70	$3\frac{1}{2}$	71.4	(71.4	$3\frac{1}{2}$)	259-275	34	289
80-83	4	81.6	81	4	410-438	50	425
90	$4\frac{1}{2}$	91.8	(81.6	4)	572	64	544
99-100	5	102	114	$5\frac{1}{2}$	877-895	108	918
106-115 ^f	$5\frac{1}{2}$	112.2	112	$5\frac{1}{2}$	988-1163	131	1114
139 ^g	7	142.8	127.5	6	1934	231	1964
140-143 ^g	7	142.8	(102	5)	1569-1637	193	1641
148	7	142.8	197	10	3387	385	3273
160	8	163.2	(200	10)	4100	512	4346

<i>Est. actual diam. (mm.)^f</i>	<i>Expected cubic. fingers with cc. equiv.</i>		<i>Unit</i>	<i>Cc. capacities according to Hultsch</i>
51	16	135	$\frac{1}{2}$ kotyle ^g	136.8
57-60	24	204	$\frac{3}{4}$ kotyle ^h	205.2
68-70	32	272	1 kotyle	273.6
80-83	48	408	$1\frac{1}{2}$ kotyle ^h	410.4
90	64	544	dikotylon	547.2
99-100	96	815	trikotylon	820.8
106-115	128	1087	choinix	1094.4
139	192	1630	$1\frac{1}{2}$ choinix	1641.6
140-143	192	1630	$1\frac{1}{2}$ choinix	1641.6
148	384	3260	3 choinikes	3283.2
160	512	4346	hemihekt	4377.6

a) For the numbers of vessels with these diameters, see Table I. Where more than one vessel seems to have the same diameter in fingers, the range is given here. Since most of the diameters are estimated from fragments preserving less than half their circumference they are likely to be somewhat low. E. g., if a cardboard circle of 0.14 m. diameter fitted against the inside wall but one of 0.145 m. did not, the diameter is given as 0.14 m.

b) The metric equivalent is based on a finger of 0.0204 m., sixteen of which make a foot of 0.3264 m., for which see note 7 above. Because of the difficulty of either achieving or measuring millimeter accuracy in a clay vessel, there is not exact correspondence. The variations may result from either failure to calculate shrinkage in firing after checking dimensions in the leather hard stage or compensation for internal handles or both.

c) Only a few actual depths are preserved; assumed depths appear in parentheses.

d) The formula used is $\pi r^2 h$, with π as 3.14; anything less than a cubic centimeter is rounded off to the nearest whole number. The extremes of the actual range are given.

e) The cubic finger capacity is calculated by Hero's formula and the result is given to the nearest whole number. The cubic finger is taken as 8.5 cc.

f) Since the Table had to be divided into two parts, this first column is repeated from the first part for ease of reference.

g) This half-kotyle has a depth which is less by half a finger than that given in the table of hypothetical specifications (II). Since it is the bronze measure (DM 43, Pl. 14), which has no internal handles, this depth gives a capacity which is reasonably close to the ideal.

h) No hypothetical specifications were give for the three-quarter kotyle and the $1\frac{1}{2}$ kotyle. It is possible that these were also approximated from other formulas or that they were arrived at experimentally. If they seem at first glance unusual sizes, it should be noted that three-quarters of a kotyle is really three oxybaphs and that vessels of both three and one and one-half units are frequent: trikotylon, trichoinikon, three half-choinikes.

i) The average diameter of DM 67 (Pl. 15) is less than it should be; if the diameter at the rim were the true diameter, it would be a good choinix. Is this unstamped measure perhaps unofficial or somewhat dishonest?

j) Two formulas have been given here because the two measures preserved complete (DM 44, 45, Pl. 14) present a special case of decreased diameter to compensate for a depth made too great in the effort to compensate for the internal handle.

It will readily be seen in Table III that for the most part the calculated capacity in cubic centimeters is lower than the capacity calculated in cubic fingers. That this results from the difficulty of estimating to the millimeter diameters of fragments and the consequent tendency to error on the low side rather than the high side is made obvious by the most striking exception, i.e., the North Slope measure where the diameter can be taken from the whole vessel. The cubic finger calculated capacity is usually higher than the required or expected capacity in cubic fingers presumably as a result of compensation for the internal handle and sometimes the central column.

Calculations aside, we should now consider the actual capacity of the few complete measures. For the sake of comparison, mention should be made first of the klepsydra found in the Agora¹⁵ (Inv. P 2084, Pl. 16) and marked XX for its capacity of two choes. The capacity of the klepsydra was measured as 6400 cc., so that it was based on a chous of 3200 cc. (The chous is the wet measure equivalent to three choinikes in the dry system, since both have twelve kotyles.)

A word should be added here about the method of measuring, since in some instances the present figure differs from a capacity previously published. For the present purposes of comparison it seemed advisable to measure all at the same time with the same material. Rice was used and a glass graduate holding a liter and marked off at 5 cc. intervals; the diameter of the graduate (0.047 m.) was narrower than that of most vessels measured so that the rice might have packed differently.

TABLE IV

<i>Measure</i>	<i>Capacity</i>	<i>Unit</i>	<i>Basic kotyle</i>	<i>% variation from cubic finger calculation</i>
N Slope	3.250 ^a l.	3 choinikes	.271 l.	less than 1% under
Klepsydra	6.400 l.	2 choes	.267 l.	no calculation
DM 43	.126 ^b l.	$\frac{1}{2}$ kotyle	.252 l.	less than 1% under
DM 44	1.790 ^c l.	$1\frac{1}{2}$ choinikes	.298 l.	less than 9% under ^f

¹⁵ *Hesperia*, VIII, 1939, pp. 274-284.

Measure	Capacity	Unit	Basic kotyle	% variation from cubic finger calculation
DM 45	1.800 ^a l.	1½ choinikes	.300 l.	less than 9% under ^f
Nat. Mus.	.865 l.	trikotylon	.288 ^g l.	less than 6% under
DM 66	1.675 ^e l.	1½ choinikes	.279 l.	less than 7% over
DM 67	.980 l.	choinix or trikotylon?	.245 l. .327 l.	about 12% under

a) The published figure (*Hesperia*, VII, 1938, p. 223) was 3.175 l.

b) Some incrustation on the floor of this vessel can not be removed; it may take up the space of to 20 cc. Therefore the actual capacity of .111 l. has been augmented by 15 cc. for the figure above.

c) The actual present capacity is 1.850 l., but since the three-barred handle has been broken away, 60 cc. have been subtracted. Not enough of the original floor has been preserved to indicate whether or not there was a central column.

d) The three-barred handle was restored in plaster on this measure. The center of the floor is preserved and shows that there was no central column.

e) The presence of the slightly ascending lip makes it very difficult to level off the contents. This figure is slightly lower than the published capacity of 1.700 l. (*Hesperia*, XVIII, 1949, p. 111).

f) The reduction of the diameter by the application of clay on the inside walls makes the use of a seven-finger diameter unrealistic.

g) It is to be presumed from this figure that the National Museum measure had internal handles; not enough of the rim survives to give any indication. If we subtract 40–50 cc. for the handles, this measure would be nearer the 273 cc. norm.

Except for the small bronze measure of *ca.* 400 B.C. (DM 43, Pl. 14) and the plain cylinder of the later 2nd century B.C. (DM 67, Pl. 15), it seems most satisfactory to assume a single standard, even though the variation amounts to 10% (basic kotyle ranging from 267 to 300 cc.). Our material is too scanty to allow the introduction of changing standards; this is not, however, to say that they did not change. But the bronze measure and the plain cylinder present special problems. The survival of the bronze measure is perhaps significant here since it is unlikely either that so much bronze as the two small measures represent would have been discarded or that official vessels would have been used in sufficient proximity to the well to have fallen in. One possibility is that they are failures thrown out because they did not come up to the standard, although the usual thing surely would have been for them to be melted down and refashioned into proper measures. But if we may be permitted to imagine a careless workman eager to get rid of the evidence of his error, we have an explanation both for the wrongness of the measure and its presence in the well. This hypothesis is strengthened by the fact that the Mint is the most likely place of manufacture for metal measures.

The plain cylinder (DM 67, Pl. 15), as noted above, may hold three kotyles of 327 cc. or four of 245 cc. Since from both provenience and style it should belong to the same set of measures as DM 66, it may be some new measure introduced at the same time. The first part of *I.G.*, II², 1013 does not survive, but where our text begins standards are apparently being provided for in the usual places as if what went before concerned something which had to be exemplified. Just so, after the provisions for the nut measure and the commercial *mna* the location of standards is made clear. Some other special commodity like nuts may have required a measure of different capacity, so that the basic kotyle seems confused.

In addition to the more or less uniform series of dry measures dealt with above, a few fragments (DM 70–75, Pl. 15) from the Agora should be included here as possible official measures. Since they have no strong characteristics in common, they can best be dealt with individually in the catalogue.

CATALOGUE

The pieces are grouped under chronological types. The order within the groups is by parts of the vessels since most of the pieces do not have context dates and are for the most part too fragmentary to provide evidence for development within the chronological group. This order is: whole, part of whole, rim, base, wall, handle. Finding places are generally indicated by the square or squares of the Agora grid, with a context date where available; for dated deposits which are also groups the grid designation is followed by the number of the deposit within the square.

Abbreviations used: H. – Height; P.H. – Preserved Height; diam. – outside diameter; in. diam. – inside diameter. In the case of fragments all diameters are estimated (see above, p. 42).

The probable name of the measure is added; from this the reader may go to Table III for the formula and probable capacity and thence to Table I for other vessels with similar dimensions.

LATE 6TH CENTURY B.C.

DM 1 (P 6487) Cylindrical measure. Pls. 13, 33.
F 12. Late 6th–early 5th centuries B.C.

Two fragments preserve part of the flat bottom and vertical side wall (a), and part of the plain rim with traces of outside handle attachment (b). Black glaze inside; red glaze outside. Incised line running around 0.014 m. above bottom. Graffito on underside: ἐμ[.

a) P.H. 0.066 m.; diam. 0.095 m.; in. diam. 0.09;
b) P.H. 0.057; diam. 0.095 m.; in. diam. 0.09 m.

5TH CENTURY B.C.

In order to avoid repetition in the description of individual pieces, it may be said here once and for all that glaze appears on the inside, on top of flat rim and on all surfaces of the handlebars, except where noted. The rest of the surface is covered with a self-slip. The clay is very fine and compact. All rims are flat on top; all base fragments have broad base rings. The zones of grooves or ridges below the rim and above the base are of three general kinds, with a few borderline cases: (1) broad *shallow grooves* which leave broad blunted ridges between; (2) *deeper wedge-shaped grooves* which leave fairly high trapezoidal ridges; (3) *low rounded tori* built onto the wall. The terms in italics will be used in the catalogue.

DM 2 (P 10783) Rim and wall fragments. Pl. 33.
G 11. First half 5th century B.C.

a) Rim fragment with three shallow grooves below. b) Lower wall fragment with at least three shallow grooves toward the bottom; inscribed in black glaze: [δεμόσιον]v. Thin fabric; pinkish buff clay.

a) P.H. 0.026 m.; in. diam. 0.07 m.; b) P.H. 0.037 m.; in. diam. 0.07 m. Probably a kotyle.

DM 3 (P 13619) Rim, wall and base fragments. Pl. 33.

G 10. Early 5th century B.C.

Three non-joining pieces preserve part of high base ring and lower wall with six low tori (a), part of

side wall (b), and part of plain rim with three tori below and traces of internal handle (c).

a) P.H. 0.05 m.; in. diam. 0.16 m.; b) P.H. 0.067 m.; in. diam. 0.16 m.; c) P.H. 0.02 m. Probably a hemihekt.

DM 4 (P 5900a, b) Rim and base fragments. Pls. 13, 18, 33.

F 11. (a) Part of rim and upper wall with at least six deep grooves. At the right, part of the end of a handle bar is preserved, with a small stamp probably identical with that of **DM 5, 23**: owl standing right. (b) Part of low broad base ring and six low tori. The two pieces may not belong to the same vessel.

a) P.H. 0.032 m.; diam. 0.162 m.; in. diam. 0.14 m.; b) P.H. 0.036 m.; diam. 0.162 m.; in. diam. 0.14 m. Three half-choinikes or three choinikes.

DM 5 (P 25898) Rim fragment. Pls. 18, 33.
M 17:7. To third quarter 5th century B.C.

Piece of rim and upper wall with four shallow grooves. Impressed in clay applied over grooves, presumably to fasten in handle, is a stamp of owl standing right, probably the same as **DM 4, 23**; below grooves, inscribed in flaked black glaze: δεμόσιον]. No trace of handle. Thin fabric; pinkish buff clay.

P.H. 0.032 m.; in. diam. 0.07 m. Kotyle.

DM 6 (P 12375) Rim fragment. Pl. 33.
H 12:6. Last quarter 5th century B.C.

Part of rim with seven deep grooves running around just below. Brownish buff clay.

P.H. 0.054 m.; diam. 0.16 m.; in. diam. 0.14 m. Three half-choinikes or three choinikes.

DM 7 (P 12376) Rim fragment. Pl. 33.
H 12:6. Last quarter 5th century B.C.

Part of rim with seven deep grooves running around just below. A notch is cut in the rim for the attachment of a handle bar. Pinkish buff clay.

P.H. 0.045 m.; diam. 0.17 m.; in. diam. 0.14 m. Three half-choinikes or three choinikes.

DM 8 (P 3505, 5899, 5901) Rim fragment. Pl. 33.

G 11. Three joining fragments preserve part of rim, five deep grooves and part of vertical side

- wall, on which are parts of two letters in black glaze: [δ]ε[ύ]σ[ι]ο[ν]. Pinkish buff clay.
P.H. 0.077 m.; diam. 0.16 m.; in. diam. 0.14 m.
Probably three half-choinikes, since the wall is thinner than on the North Slope measure.
- DM 9** (P 13301) Rim fragment. Pls. 13, 33.
G 12. Part of rim, with side of notch cut for bar of handle; six low tori running around top of wall. Brownish buff clay.
P.H. 0.036 m.; diam. 0.175 m.; in. diam. 0.16 m. Hemihekt.
- DM 10** (P 10840) Base fragment. Pls. 13, 33.
H 12. 5th century B.C.
Four joining pieces preserve most of base with low base ring and lower part of side walls with three low tori around bottom. Brownish buff clay.
P.H. 0.047 m.; in. diam. 0.068 m. Kotyle.
- DM 11** (P 12532) Base fragment. Pl. 33.
G 10. Early 5th century B.C.
Part of low base ring and lower wall with ten low tori. Graffito on inside of base ring: μ[. Brownish buff clay.
P.H. 0.045 m.; diam. 0.16 m.; in. diam. 0.14 m.
Probably three choinikes.
- DM 12** (P 7300) Base fragment. Pl. 33.
B 12:4. Second half 5th century B.C.
Part of low broad ring base and side wall with six low tori at the bottom. Pinkish buff clay.
P.H. 0.052 m.; in. diam. 0.16 m. Hemihekt.
- DM 13** (P 6061) Base fragment. Pl. 33.
F 11:2. Second half 4th century B.C.
Part of broad low base ring; low torus running around outside of base, a plain band above and then four low tori. Pinkish buff clay.
P.H. 0.074 m.; diam. 0.18 m.; in. diam. 0.16 m. Hemihekt.
- DM 14** (P 10210) Base fragment. Pl. 33.
I 12. Part of low base ring; six low tori around lower side wall. Pinkish buff clay.
P.H. 0.085 m.; diam. 0.14 m.; in. diam. 0.11 m. Choinix.
- DM 15** (P 10211) Base fragment. Pl. 33.
I 12. Part of low base ring; seven low tori around lower side wall. Pinkish buff clay.
P.H. 0.045 m.; diam. 0.185 m.; in. diam. 0.16 m. Hemihekt.
- DM 16** (P 12201) Base fragment. Pl. 33.
G 12. Part of broad low base ring; heavy torus around bottom with at least seven slighter tori above. Pinkish buff clay.
P.H. 0.042 m.; diam. 0.19 m.; in. diam. 0.16 m. Hemihekt.
- DM 17** (P 13302) Base fragment. Pl. 33.
G 12. Broad low base ring; at least seven low tori around lower wall. Brownish buff clay.
P.H. 0.04 m.; diam. 0.19 m.; in. diam. 0.16 m. Hemihekt.
- DM 18** (P 22868) Base fragment. Pl. 33.
I 12. Part of low broad base ring; six low tori around lower wall. Pinkish buff clay.
P.H. 0.031 m.; in. diam. 0.14 m. Probably three choinikes.
- DM 19** (P 10510) Wall fragment.
H 11. Part of upper wall with parts of two letters in black glaze: [δ]ε[ύ]σ[ι]ο[ν]. Brownish buff clay.
P.H. 0.08 m.; diam. 0.125 m.; in. diam. 0.115 m. Choinix.
- DM 20** (P 12207) Wall fragment.
H 11. Part of side wall with part of one letter in black glaze: δ[ε]μ[ό]σ[ι]ο[ν]. Brownish buff clay.
P.H. 0.054 m.; diam. 0.175 m.; in. diam. 0.16 m. Hemihekt.
- DM 21** (P 12228) Bar of handle. Pl. 13.
H 12. First half 5th century B.C.
Part of three bar internal handle preserving most of one bar and the beginning of the other two. Pinkish buff clay.
Length 0.09 m.; H. at junction of bars 0.022 m.; estimated in. diam. of measure 0.14 m. Probably three choinikes.
- DM 22** (P 10841) Bar of handle. Pl. 13.
H 12. 5th century B.C.
At one end the bar is broken off just before the junction with the other two bars; at the other, a tenon is cut to fit into the notched rim; this end preserves what was the outside wall of the vessel. It was not stamped. Brownish buff clay; black glaze on the sides of the bar; the top surface, except near the rim, and the outer end are reserved.
P.L. 0.078 m. Estimated in. diam. of measure 0.14 m. The length of the tenon, which should be equivalent to the wall thickness, is 0.01 m. Probably three half-choinikes.
- DM 23** (P 10842) Bar of handle. Pl. 18.
H 12. At one end the bar is broken off some distance from the junction with the other two bars; at the other, a tenon is cut to fit the notched rim; this end preserves what was the outside wall of the vessel. On this end is a small five-sided stamp with owl standing right, not identical with but very close to that on the North Slope measure. Cf. **DM 4, 5**. Brownish buff clay; black glaze on all surfaces except the outer end and the joining surfaces of the tenon.
P.L. 0.076 m. Estimated diam. of the measure 0.14 m. The length of the tenon, which should be

equivalent to the wall thickness, is 0.013 m. Probably three half-choinikes.

DM 24 (P 10843) Bar of handle. Pl. 13.

H 12. At the inner end the central junction is preserved with the stumps of the other two bars. At the outer end part of the tenon is preserved. Pinkish buff clay.

P.L. 0.096 m.; estimated in. diam. of measure 0.14 m. Probably three choinikes or three half-choinikes.

EARLY VARIANTS OF 5TH CENTURY B.C. TYPE

DM 25 (P 17294) Rim fragment. Pls. 13, 33.

H 12. Part of plain rim, flat on top, and upper wall with two bands of four ridges each separated by a plain band. At right, clay applied over ridges shows handle attachment point. Pinkish buff clay; black glaze inside and on top of rim.

P.H. 0.064 m.; diam. 0.15 m.; in. diam. 0.14 m. Probably three half-choinikes.

DM 26 (P 15150) Wall fragment. Pls. 13, 33.

N 21. Late 5th-early 4th centuries B.C.

Part of lower wall with raised band around on which deep grooves from ridges alternately broad and narrow. Pinkish buff clay; black glaze inside.

P.H. 0.049 m.; diam. 0.11 m.; in. diam. 0.1 m. Probably trikotylon.

DM 27 (P 13303) Rim fragment. Pl. 33.

G 12. Part of plain rim and upper wall with at least four shallow grooves. Brownish buff clay; black glaze inside and on top of rim.

P.H. 0.025 m.; diam. 0.15 m.; in. diam. 0.14 m. Probably three half-choinikes.

DM 28 (P 23143) Base fragment. Pl. 33.

I 12. Part of base ring with lower wall, marked with one low torus at base and another at level of floor. Pinkish buff clay; once glazed black inside.

P.H. 0.054 m.; diam. 0.17 m.; in. diam. 0.14 m. Three choinikes or three half-choinikes.

LATE VARIANTS OF 5TH CENTURY B.C. TYPE

DM 29 (P 23776) Base fragment. Pl. 33.

H 14. Part of broad low base ring and lower wall with five low tori. Pinkish buff clay; black glaze inside and on lowest torus outside.

P.H. 0.046 m.; diam. 0.15 m.; in. diam. 0.14 m. Probably three half-choinikes.

DM 30 (P 14276) Base fragment. Pls. 13, 33.

H 12:11. Beginning of 4th century B.C.

Part of broad low base ring and lower wall with four grooves separating three flat bands. Pinkish buff clay; black glaze inside and on the flat bands outside.

P.H. 0.04 m.; diam. 0.19 m.; in. diam. 0.16 m. Hemihekt.

DM 31 (P 10205) Base fragment. Pl. 33.

H 11. Part of broad base ring and lower wall with four deep grooves. Pinkish buff clay; black glaze inside and in two bands outside, one on three lower grooves, the other above.

P.H. 0.05 m.; diam. 0.175 m.; in. diam. 0.16 m. Hemihekt.

DM 32 (P 8098) Base fragment. Pls. 13, 33.

G 11. 5th-4th centuries B.C.

Part of high base ring and lower wall with three grooves below and one above. Pinkish buff clay; black glaze inside and in two bands outside, one below on band of grooves and one on groove above; two lower grooves reserved.

P.H. 0.065 m.; diam. 0.19 m.; in. diam. 0.16 m. Hemihekt.

DM 33 (P 23799) Base and handle fragments. Pl. 33.

H 14. (a) Part of broad low base ring and lower wall with a pair of grooves outlining a ridge, and part of another groove at the break above. Pinkish buff clay; black glaze inside and in two bands outside, one below double groove and one above. (b) Part of handle bar, splayed at one end to fit against inside wall. Pinkish buff clay; black glaze on all surfaces.

a) P.H. 0.057 m.; diam. 0.18 m.; in. diam. 0.16 m.; b) P.L. 0.057 m. Hemihekt.

DM 34 (P 21000) Base fragment. Pl. 33.

I 14. Part of flat bottom and lower wall with five shallow grooves. Pinkish buff clay; thin black glaze inside; two bands of reddish brown glaze outside. Mending hole at right.

P.H. 0.05 m.; diam. 0.12 m.; in. diam. 0.11 m. Choinix.

DM 35 (P 17286) Base fragment. Pl. 33.

K 6:2. Second half 4th century B.C.

Part of base and lower wall with single groove near bottom. Pinkish buff clay; black glaze inside and single band of thin glaze outside above groove.

P.H. 0.021 m.; diam. 0.07 m.; in. diam. 0.06 m. Three-quarter kotyle.

DM 36 (P 17295) Base fragment. Pls. 13, 33.

H 12. Part of high base ring and lower wall with narrow groove below, a pair of deep grooves isolating a ridge above and beginning of another in the break. Brownish buff clay; black glaze over pored and gouged surface inside; thin brown glaze outside on band above two lower grooves. (Drawing on Pl. 33 upside down.)

P.H. 0.05 m.; diam. 0.17 m.; in. diam. 0.16 m. Hemihekt.

TRANSITIONAL PIECES

DM 37 (P 22569) Rim fragment. Pl. 33.

E 2:3. Second quarter 4th century B.C.

Almost half the rim and upper wall; rim flat on top; raised collar at top of wall with broad shallow groove around its middle. Pinkish buff clay; black glaze inside and on collar outside; top of rim and walls reserved. No trace of handle attachment.

P.H. 0.043 m.; diam. 0.134 m.; in. diam. 0.115 m. Choinix.

DM 38 (P 19214) Rim fragment. Pl. 33.
D 19:1. Late 5th century B.C.

Part of plain rim and upper wall with raised collar. Pinkish buff clay with polished surface. A small fleck of red glaze at the broken edge below may be part of a letter.

P.H. 0.036 m.; diam. 0.095 m.; in. diam. 0.082 m. One and a half kotyle.

DM 39 (P 19309) Cylindrical measure fragment. Pls. 13, 33.

D 5:1. First half 4th century B.C.

Four joining fragments make up more than one-third of the vessel. Plain rim, flat on top, side walls slightly concave, flat base. Pinkish buff clay; no trace of glaze.

H. 0.09 m.; depth 0.081 m.; diam. 0.11 m.; in. diam. 0.083 m. One and a half kotyle.

DM 40 (P 26738) Base fragment. Pls. 14, 33.
G 11. Late 4th century B.C.

Part of broad low ring base and lower wall with wide raised collar. Brownish buff clay; black glaze inside.

P.H. 0.058 m.; diam. 0.18 m.; in. diam. 0.16 m. Hemihekt.

DM 41 (P 17296) Rim fragment. Pls. 14, 33.

H 12. Flaring rim with flat top, raised collar and side wall. Trace of handle attachment against inner face of rim. Brownish buff clay; black glaze on wall and top of rim; collar reserved.

P.H. 0.036 m.; diam. 0.11 m.; in. diam. 0.10 m. Trikotylon.

4TH CENTURY B.C. TYPE

DM 42 (B 1082) Bronze measure. Pls. 14, 33.

Q 15:2. *Ca.* 400 B.C. *Hesperia*, XXIV, 1955, p. 69, pl. 31, a. Bronze cylinder with slightly raised collar at top and bottom and with slightly concave side walls. The wall extends below the floor and is cut out to form three broad feet. On the upper collar is engraved in letters made by dots: $\delta\epsilon\mu\sigma\acute{\iota}\alpha$ 'Αθ ϵ ναίων, followed by one certain and two possible stamps, none of which is identifiable.

H. 0.087 m.; diam. 0.08 m.; in. diam. 0.07 m.

DM 43 was found upside down in **DM 42**, and the two were welded together by corrosion. In the cleaning process **DM 42** disintegrated, so that it has not been possible to measure its capacity. The gender

of $\delta\epsilon\mu\sigma\acute{\iota}\alpha$, however, points almost certainly, as do its dimensions, to a kotyle.

DM 43 (B 1082 *bis*) Bronze measure. Pls. 14, 33.

Q 15:2. *Ca.* 400 B.C. *Hesperia*, XXIV, 1955, p. 69, pl. 31, a.

Bronze cylinder with slightly raised collar at top and bottom. The wall extends below the floor and was cut out to form three broad feet. Below the upper collar is engraved in letters made by dots: $\delta\epsilon\mu\sigma\acute{\iota}\alpha$ [v] 'Αθ ϵ ναίων. There is no trace of stamps.

H. 0.064 m.; depth 0.061 m.; diam. 0.059 m.; in. diam. 0.051 m. Capacity 126 cc. See **DM 42** for original state; the feet of **DM 43** disintegrated in cleaning. As the gender of $\delta\epsilon\mu\sigma\acute{\iota}\alpha$ suggests, this is a $\eta\mu\kappa\omicron\sigma\tau\acute{\upsilon}\lambda\iota\omicron\nu$. The capacity has been adjusted from 111 cc. to 126 cc. to make up for the incrustation within.

DM 44 (P 3559) Cylindrical measure. Pls. 14, 18, 34.

F 11:2. Second half 4th century B.C. *Hesperia*, IV, 1935, p. 346; VI, 1937, p. 165.

Mended from many pieces and restored in plaster. Plain rim, flat on top; two fine ridges on upper wall; on lower wall slightly raised collar separated from foot by three fine ridges. Low base ring cut out to form three shallow feet. On upper wall large letters spaced around the vessel and painted in dilute glaze: $\delta\eta\mu\sigma\acute{\iota}\alpha$. Between the first and last letters a stamp with the head of Athena; between M and O a stamp with double-bodied owl and ΑΘΕ (diobol coin type of early 4th century B.C., but much larger here). Inside the rim three marks of attachment for a three-barred handle; inside walls show brush marks where the wall was thickened by adding clay. The center of the floor is not preserved, so it is not known whether there was a central column. Pinkish buff clay; glaze fired black to red on outside upper collar and around top of inside, spattering down walls. Transparent glaze wash outside.

H. 0.132 m.; depth 0.1275 m.; diam. 0.151 m.; in. diam. 0.139 m. Capacity 1850 cc.; 60 cc. should be subtracted for the handle. The gender of *demosion* probably requires *metron* to be understood. Three half-choinikes.

DM 45 (P 3562) Cylindrical measure. Pls. 14, 18, 34.

F 11:2. Second half 4th century B.C.

Mended from many pieces and restored in plaster with three-barred handle. Plain rim, one fine ridge on upper wall marking lower edge of upper collar; on lower wall a raised collar without ridges. Low base ring cut away to form three shallow feet. On middle wall large letters spaced around the vessel and painted in dilute glaze: $\delta\eta$ [μύ]σι[α]v]. Between the first and last letters a stamp with double-bodied owl and ΑΘΕ (cf. **DM 44**). The opposite wall is not preserved. Inside the rim only one mark of attachment for three-barred

handle is preserved. The inside walls show brushmarks where the wall was thickened by adding clay. The center of the floor is preserved and shows no trace of a central column. Pinkish buff clay; dull black glaze on outside upper collar and around top of inside wall. Transparent glaze wash outside.

H. 0.135 m.; depth 0.1275 m.; diam. 0.151 m.; in. diam. 0.139 m. Capacity (with three-barred handle restored) 1790 cc. Three half-choinikes.

DM 46 (P 3497) Rim fragment. Pl. 34.
F 11:2. Second half 4th century B.C.

About one-third of rim with upper wall. Shallow groove sets off upper collar. On upper wall in large letters painted in glaze: $\delta\eta[\mu\acute{o}\sigma\iota\omicron\nu]$. In break in front of delta part of stamp with Athena head. On inside appear mark of handle attachment and brushmarks in added clay. Pinkish buff clay; black glaze carelessly applied around the top inside and out.

P.H. 0.082 m.; diam. 0.155 m.; in. diam. 0.14 m. Probably three half-choinikes.

DM 47 (P 3232) Rim fragment. Pl. 34.

G 10. Part of plain rim with upper collar marked off by fine groove. Large letters painted in glaze on upper wall: $\delta\eta[\mu\acute{o}\sigma\iota\omicron\nu]$. Mark of handle attachment on inside rim; brushmarks in added clay. Pinkish buff clay; glaze, fired black to red, on upper part inside and out.

P.H. 0.065 m.; diam. 0.151 m.; in. diam. 0.14 m. Probably three half-choinikes.

DM 48 (P 10722) Rim fragment. Pls. 18, 34.

H 12. Part of rim and upper wall with slightly raised collar above and large letters painted in glaze below: $\delta\eta[\mu\acute{o}\sigma\iota\omicron\nu]$. Before the first letter a stamp with double-bodied owl and AΘE (cf. **DM 44**). Inside, an added layer of clay is very apparent both at the breaks and in the brushmarks. Pinkish buff clay; black glaze on collar outside and around upper part inside.

P.H. 0.097 m.; diam. 0.155 m.; in. diam. 0.14 m. Three half-choinikes.

DM 49 (P 10415) Rim fragment. Pls. 14, 34.

G 11. Second half 4th century B.C.

Part of rim and upper wall with a fine groove defining the collar and large letters painted in glaze below: $\delta\eta\mu\acute{o}\sigma\iota\omicron\nu$. Pinkish buff clay; brownish glaze on upper part inside and out.

P.H. 0.04 m.; diam. 0.065 m.; in. diam. 0.06 m. Three-quarters kotyle.

DM 50 (P 10490) Rim and wall fragments Pl. 34.

G 11. Late 5th–early 4th centuries B.C.

(a) Part of rim and upper wall with top part marked off as collar by a ridge; fine groove in middle of collar. (b) Part of wall preserving upper edge of lower collar and letters painted in glaze above: $[\delta\eta\mu\acute{o}\sigma\iota\omicron\nu]$, a splash of glaze down from the omicron.

Pinkish buff clay; glaze, fired red to black, around top, inside and out.

(a) P.H. 0.019 m.; diam. 0.085 m.; in. diam. 0.07 m.; (b) P.H. 0.052 m.; diam. 0.085 m.; in. diam. 0.07 m. Kotyle.

DM 51 (P 23134) Rim fragment. Pls. 14, 18, 34.
I 12. 4th century B.C.

One-third of rim and upper wall with fine ridge setting off collar; letters painted in black glaze (mostly flaked away): $[\delta\eta]\mu\acute{o}\sigma\iota\omicron\nu$; between the first two letters preserved half a stamp with double-bodied owl and AΘE. Inside, no trace of handle attachments, so that there could have been no three-barred handle. Pinkish buff clay; black glaze on top of rim and on the very top of the wall inside and out.

P.H. 0.045 m.; diam. 0.085 m.; in. diam. 0.07 m. Kotyle.

DM 52 (P 5886) Rim fragment. Pl. 34.

F 11. Part of rim and upper wall with raised collar around top. Pinkish buff clay; glaze, fired reddish brown, around top, inside and out.

P.H. 0.032 m.; diam. 0.065 m.; in. diam. 0.057 m. Three-quarters kotyle.

DM 53 (P 3719) Rim fragment. Pl. 34.

H 7:3. Second quarter 4th century B.C. *Hesperia*, Suppl. IV, p. 134, note 112.

Part of rim, flat on top, and upper wall with slightly raised collar. Pinkish buff clay, slipped inside; covered outside with a thin red glaze, save for the rim, which has black glaze.

P.H. 0.05 m.; diam. 0.10 m.; in. diam. 0.08 m. One and a half kotyle.

DM 54 (P 22242) Rim fragment. Pl. 34.

H 5. Part of rim and upper wall with slightly raised collar and the top of a letter in glaze below: $[\delta\eta\mu\acute{o}\sigma\iota\omicron\nu]$. Pinkish buff clay; flaky glaze fired red to brown on upper part inside and collar outside.

P.H. 0.04 m.; diam. 0.16 m.; in. diam. 0.14 m. Three half-choinikes.

DM 55 (P 24026) Rim fragment. Pl. 34.

H 14. Part of plain rim, flat on top. Pinkish buff clay; black glaze inside and out for about two and a half centimeters below rim.

P.H. 0.029 m.; diam. 0.16 m.; in. diam. 0.14 m. Three half-choinikes.

DM 56 (P 10837) Base fragment. Pl. 34.

H 12. Late 4th–early 3rd centuries B.C.

Part of low base ring, cut out to form broad feet, and lower wall with slightly raised collar. Inside, parts of two deep grooves as if wall had been pared. Pinkish buff clay; unglazed.

P.H. 0.037 m.; diam. 0.155 m.; in. diam. 0.14 m. Three half-choinikes.

- DM 57** (P 6060) Base fragment. Pls. 14, 34.
F 11:2. Second half 4th century B.C.
Most of bottom with low base ring cut away to form three broad feet. A collar around lower wall with a deep groove just above base. Inside from center of floor rises a round column, of which only the stump remains.
P.H. 0.027 m.; diam. 0.068 m.; in. diam. 0.057 m. Although by formula this should be three-quarters kotyle, the relative amount of space taken by the central column and the three-barred handle which it must support makes a half-kotyle seem more likely.
- DM 58** (P 22024) Base fragment. Pl. 34.
F 12:3. Late 4th–early 3rd centuries B.C.
Part of base ring, cut away to form three broad shallow feet, and lower wall with raised collar and deep groove just above base. Inside, traces of paring on the wheel. Graffito on bottom: $\alpha\kappa\rho$. Pinkish buff clay, unglazed.
P.H. 0.027 m.; diam. 0.09 m.; in. diam. 0.07 m. Kotyle.
- DM 59** (P 496) Wall fragment. Pl. 18.
I 8. *Hesperia*, III, 1934, p. 297.
Part of mid wall with letters painted in glaze: $N\Delta$ (i.e., $\delta[\eta\mu\acute{o}\sigma\iota\omicron]v$); a streak of glaze above the nu, perhaps from the collar above. Between the preserved letters a stamp with the helmeted head of Athena. Pinkish buff clay; red glaze inside at top.
P.H. 0.05 m.; diam. 0.15 m.; in. diam. 0.14 m. Three half-choinikes.
- DM 60** (P 5883) Wall fragment.
F 11. Part of mid wall with one letter painted in glaze: $[\delta\eta\mu\acute{o}\sigma\iota\omicron]v$. Brownish buff clay; black glaze inside at top.
P.H. 0.063 m.; diam. 0.15 m.; in. diam. 0.14 m. Three half-choinikes.
- DM 61** (P 5898) Wall fragment. Pl. 18.
F 11. Part of mid wall with edge of upper collar and large letter in glaze: $[\delta\eta\mu\acute{o}\sigma\iota\omicron]v$. Below the letter (to the left in the photograph on Pl. 18 which shows the stamp upright), part of a stamp with double-bodied owl is preserved. Brownish buff clay; brownish glaze on upper part of wall inside.
P.H. 0.057 m.; diam. 0.15 m.; in. diam. 0.14 m. Three half-choinikes.
- DM 62** (P 10212) Wall fragment.
I 12. Part of mid wall with bit of collar above and a letter painted in black glaze: $[\delta]v[\eta\mu\acute{o}\sigma\iota\omicron]v$. Inside, thick layer of added clay with brushmarks. Brownish buff clay; thin glaze inside at top.
P.H. 0.06 m.; diam. 0.15 m.; in. diam. 0.14 m. Three half-choinikes.
- DM 63** (P 23419) Wall fragment. Pl. 18.
I 8. Part of mid wall with parts of two letters painted in glaze: $\delta[\eta\mu\acute{o}\sigma\iota\omicron]v$. Between the letters,
- part of a stamp with helmeted Athena head. Pinkish buff clay; thin black glaze inside at top.
P.H. 0.033 m.; diam. 0.15 m.; in. diam. 0.14 m. Three half-choinikes.
- DM 64** (P 6209) Handle fragment. Pl. 14.
G 11:4. End of 4th century B.C.
One complete bar, flat on top, pointed below, with the stumps of the other two and the beginning of a central column below. Inscribed on side, upside down to pot, with a ligature made up of pi and epsilon. Pinkish buff clay; glaze, fired red to black, on all surfaces.
Length (to center of handle) 0.068 m.; H. 0.02 m. Probably three half-choinikes.
- DM 65** (P 5902) Column. Pl. 15.
F 11. A solid rod tapering toward the top where a tenon of truncated cone-shape rises from the splayed out clay to fit into the socket in a three-barred handle. The surface of the column is irregular and marked with spiral striations. Pinkish buff clay; daubs of thin glaze at upper end.
P.H. 0.097 m.; max. diam. 0.024 m. Perhaps three choinikes or three half-choinikes.
- DM 66** (P 14431) Nut measure. Pls. 15, 18, 34.
M 20:1. Early 1st century B.C. *Hesperia*, XVIII, 1949, pp. 108–113.
Mended from many pieces and restored in plaster. Flat-topped projecting rim canting slightly upward; straight side walls; flat bottom. On side wall just below rim a lead seal (Agora Inv. IL 701) rivetted through the clay: seated figure facing right, very close to coin-type of Alkamenēs' Dionysos. Cf. **LW 17** above. Orange-buff clay; light slip.
H. 0.102 m.; depth 0.098–0.102 m.; diam. 0.20 m.; in. diam. 0.16 m. at top, 0.13 m. at bottom. Capacity: 1650 cc. Three half-choinikes. For a full discussion of the measure and its relation to *I. G.*, II², 1013, see publication reference above. A handle of what may also have been a measure with a closely similar lead seal was also found in the Agora (Inv. IL 1032).
- DM 67** (P 8932) Cylindrical measure. Pls. 15, 34.
M 20:1. Early 1st century B.C. *Hesperia*, XVIII, 1949, p. 112, pl. 5, 5b.
Plain rim, straight side walls with two broad grooves around top and two on lower wall; slightly inset flat base, grooved on bottom near its outer edge. Large piece missing from one side, now restored in plaster, where a lead seal may have been. Gritty red clay; traces of thin black glaze on outside.
H. 0.12 m.; depth 0.113–0.116 m.; diam. 0.128 m.; in. diam. 0.112 m. at top, 0.098 at bottom. Capacity: 980 cc. Choinix or trikotylon; see above, p. 48.
- DM 68** (P 14430) Fragmentary cylindrical measure. Pls. 15, 34,

M 20:1. Early 1st century B.C. *Hesperia*, XVIII, 1949, p. 112, pl. 5, 5c.

Complete base and part of side walls. Flat, slightly projecting base, roughly finished; shallow wheel ridges around lower walls. Buff clay; unglazed.

P.H. 0.09 m.; diam. 0.16 m.; in. diam. 0.14 m. Probably three choinikes.

DM 69 (P 19568) Base fragment. Pls. 15, 34.
C 20:2. 1st century B.C.

Almost half of the flat base and part of the lower wall with two broad grooves just above base. Pinkish buff clay; unglazed.

P.H. 0.03 m.; diam. 0.10 m.; in. diam. 0.09 m. Dikotylon.

MISCELLANEOUS AND POSSIBLE MEASURES

The three following fragments (**DM 70–72**) come from similar large vessels which must have had wide mouths, no necks, rounded shoulders, and perhaps straight sides. They are marked out as official measures by their fabric, a very fine pinkish buff clay, by their ridges around the rim, like those on the 5th century type of measure, and by their inscriptions in added clay over black glaze. The large scale of the vessels makes it likely that they were measures of the large units like the medimnos (i.e., 48 choinikes). The largest of the three pieces (**DM 70**) allows estimates of diameter as follows: inside at rim 0.34–0.40 m.; inside at shoulder 0.48–0.56 m. Since a vessel with an average diameter of 0.449 m. (one and three-eighths feet) and a depth of 0.326 m. (one foot) gives a capacity of about one and one-half cubic feet (51.969 l.) we see that the magnitude is about right for the medimnos (52.416 l. on the basis of a kotyle of 0.273 l.).

Of the other three pieces, only **DM 73** is certainly from a cylindrical vessel. Its outside handle keeps it out of the uniform series above, although its diameter corresponds.

The lekane fragments perhaps do not belong here, but the fabric is very like that of official measures; both its glaze pattern and its provenience point in the same direction.

DM 70 (P 18996) Rim fragment. Pls. 15, 34.

Part of triple-ridged incurving rim and shoulder of large vessel with wide mouth and rounded shoulders. A thickening of the outside wall at the left of the fragment indicates a lug or handle attachment. Below rim are large letters in added clay: [αντ]. Pinkish buff clay; good black glaze outside except on rim, which is reserved; thin glaze inside, not reaching to top.

P.H. 0.062 m.; diam. at shoulder 0.48–0.56 m.; diam. at rim 0.34–0.40 m.

Perhaps the inscription may be restored as διτόλαντον μέτρον since the water-weight of a

medimnos is exactly two talents. Perhaps this is the meaning of Hesychius' gloss: *ταλανταίων. μεδίωνων και σταθμίων*. It is also perhaps possible to think of Ἄντιοχίδος and compare the klepsydra of the tribe Antiochis (Pl. 16; above, p. 47, note 15). In this case the vessel might have been used as a receptacle into which the klepsydra flowed and out of which water could be taken to refill the klepsydra.

DM 71 (P 5697) Rim fragment. Pls. 15, 34.
F 13:3. 2nd century B.C.

Part of triple-ridged incurving rim and shoulder of a large vessel with wide mouth and rounded shoulders. Below rim are large letters in added clay: [ου]. Pinkish buff clay; good black glaze outside except on rim, which is reserved; thin glaze inside, below and on top of rim.

P.H. 0.07 m.; diam. at shoulder 0.48–0.56 m.; diam. at rim 0.34–0.40 m. Perhaps the inscription may be restored as [μέτρ]ον.

DM 72 (P 22122) Shoulder fragment. Pl. 15.

K 9. Most of the ridged rim is broken away. On the shoulder, large letters in added clay: [ΕΣ]. Pinkish buff clay; black glaze inside and out except on ridged rim which is reserved.

P.H. 0.064 m.; diam. comparable to **DM 70, 71**. If the inscription may be completed as [μετρ]ές this shape may also have been used as a liquid measure.

DM 73 (P 24286) Rim fragment. Pls. 15, 34.
H 11. Second half 4th century B.C.

Plain rim, straight side wall of cylindrical vessel. Trace of handle attachment outside. Pinkish buff clay; glaze, fired reddish brown, inside and outside in band around top and vertical band at handle.

P.H. 0.03 m.; diam. 0.15 m.; in. diam. 0.14 m. Three half-choinikes.

DM 74 (P 25301) Rim and wall fragments. Pls. 15, 34.

G 11:4. End of 4th century B.C.

Two fragments of lekane with almost straight sides. (a) Rim, slightly flaring on outside but almost straight inside, offset from wall outside. (b) Part of wall just below rim with handle attachment. Pinkish buff clay; streaky glaze, inside and on outside rim and handle; dilute wash on reserved areas.

(a) P.H. 0.065 m.; diam. 0.35 m.; in. diam. 0.33 m.; (b) P.H. 0.09 m.

DM 75 (P 23764) Wall fragment. Pl. 15.

H 12. Small fragment from thin walled vessel. Parts of two letters in black glaze (see plate). Pinkish buff clay; black glaze in band above; reserved zone washed with dilute glaze.

P.H. 0.025 m.; diam. 0.125 m.; in. diam. 0.12 m.

LIQUID MEASURES

Official liquid measures are less well represented than dry measures not only in the Agora, but also elsewhere. Apart from one small black glazed olpe marked $\delta\eta\mu\acute{o}\sigma\iota\omicron\nu$ in the Berlin Museum (Pl. 16),¹ official liquid measures seem not to exist, or have not been recognized, outside of the Agora. The fact that for the most part they occur even in the Agora only in small fragments may help to explain the scarcity.

The Agora material may be divided into the following shapes: olpai, oinochoai, amphoras and shallow bowls with conical feet. All are identified as official measures either by their inscriptions or stamps or by their close similarity to inscribed or stamped pieces. Since only a few of the small measures are sufficiently complete to be tested for capacity and since handles without amphoras have little in common with fragmentary oinochoai, the discussion below will be largely non-metrological and limited to general description of each type.

OLPAI

The small olpai which are marked as official measures are all of the same general shape, with round mouth, gently rounding wall and flat base. There are two glaze patterns: 1) black glazed overall with the possible but not invariable addition of one or two thin bands of purple at the level of the lower handle attachment; 2) brownish glaze wash overall with black glaze bands at bottom of wall, at shoulder and around mouth (inside and out). Many uninscribed olpai of both sorts have been found in many parts of the Agora; the closed deposits in which they are found range in date from the late 6th century to the late 5th century B.C. but the great majority seem to belong to the earliest 5th century B.C. One well (Q 12:3), under the gutter of the Stoa of Attalos, produced more than eight uninscribed examples in addition to the two marked as official (LM 2, 3; Pls. 16, 35). The contents of this well, including so much pottery of all sorts, so many vases of particular kinds and several vases by each of several painters, seem to have been the entire stock of a near-by pottery shop which suffered in the Persian sack of 480 B.C.²

The presence of official measures in a pottery shop brings up the general question of why these liquid measures seem to have been so much more widespread than the dry measures, of which more than 70% come from the general Tholos area. Of the seven inscribed olpai or fragments (LM 1-7, Pls. 16, 35), only one (LM 5) is from the Tholos area. If these olpai were clay replicas of a metal standard, they might perhaps be sold in pottery shops both for private and commercial use. The difficulties involved in such an explanation are two; that the dry measure replicas do not seem to have been so widespread either in place of finding or in use; and that there are so many uninscribed olpai which are in every other way similar to the replicas. For the difference between the liquid and dry replicas the only answer seems to be

¹ A. Furtwängler, *Beschreibung der Vasensammlung*, Berlin, 1885, no. 2669; facsimile of inscription, pl. III. I am indebted to Professor Blümel for permission to use the photograph on Plate 16 below. The "hemikotylion" in the British Museum and the other vessels inscribed as kotylai are neither Athenian nor official measures. See J. C. Rolfe, "An Inscribed Kotylos from Boeotia," *Harv. St. Cl. Phil.*, II, 1891, pp. 89-102.

² *Hesperia*, XXIV, 1955, pp. 62-66.

that the cylindrical shape of the dry measure was inconvenient for carrying (when the vessel is full the handle is of no use), storing (the vessel is not fitted for a lid) and serving; it was useful only for measuring. Most private persons would prefer therefore to determine the capacity of various useful vessels and mark them to that effect.³ The standard liquid measure, however, was a shape in such general use and so generally useful that many people might wish to have actual replicas of the standard measure not only to save measuring another vessel at home but also to use in determining the capacity of larger vessels. The *olpe* is convenient to carry and very good for pouring. To explain why there are so many uninscribed *olpai* of this type we must consider the capacity of both inscribed and uninscribed pieces.

Four of the *olpai* (LM 1, 2, 3, 6; Pl. 16) are sufficiently complete to be tested for capacity. Three have been restored with plaster, so that in two cases the presence of extra plaster inside makes the capacity low; the other one, which is lacking part of the neck and mouth, has not been restored, so that its capacity is also low. The capacities are: 270 cc., 240 cc. (plaster inside), 210 cc. (mouth missing), 220 cc. (plaster inside). It seems likely that all originally held about 270 cc. or a *kotyle* (see above, p. 44). These then represented the basic small unit of both wet and dry systems; their shape is such that both wet and dry materials can be easily poured in and out. They would have been useful in the same way as is the ubiquitous measuring cup of the modern world.

What are the capacities of the uninscribed *olpai* of the same type? Seven complete or restored examples were chosen at random but to include two from the "pottery shop in the well" (Q 12:3). The capacities of three intact *olpai* were 260 cc., 235 cc., and 225 cc.; the capacities of four *olpai*, each with a small amount of plaster thickening the restored parts, were 235 cc., 220 cc., 220 cc., and 205 cc. It is not certain whether the difference between the capacities of the uninscribed *olpai* and those of the inscribed is great enough to suggest that potters tested all of them and marked as official only those which held enough more than a *kotyle* in the leather hard state to allow for shrinkage. Certainly the inscription was put on before firing. And it seems unlikely that the *metronomoi* would have allowed to circulate vessels marked as official which had not been tested for capacity. It is possible, of course, that there was no bronze standard *olpe* of which the clay examples were replicas; they do not, like the dry measures of clay, have stamps. In this case, the clay *olpai* would be convenient semi-official vessels, some of which were guaranteed by the potter (by inscription, but not by the government by stamp) to hold an official *kotyle*.

The inscribed *olpai* have uniform dimensions (H. 0.14 m.; max. diam. 0.07 m.) as do most of the uninscribed of this general size. There are uninscribed *olpai* of other sizes, both smaller and larger, which approximate reasonable fractions and multiples of the *kotyle*, but these are surely irrelevant to the study of official measures, since none of them is inscribed. The uniformity of dimensions suggests that here too, as with the dry measures, specifications may have been provided, even though the *olpe* shape does not readily lend itself to the simplest formulaic expression of capacity. Taking Hero's formula for *pithoi*⁴ and using outside height and maximum diameter but inside diameter of mouth as the minimum diameter, we have eleven-fourteenths times one-half of the sum of $3\frac{1}{2}$ and $1\frac{1}{2}$ fingers squared times 7 fingers. The formula is easy to work because of the seven-finger height, and the answer is 34 and three-eighths cubic fingers or enough more than the 32 cubic fingers of the *kotyle* (see p. 44 above) to allow for the thickness of walls and base.

A word should be said about the inscriptions. The ligature of delta-epsilon on LM 1 (Pl. 16) appears also as an incised mark, presumably of ownership, on many pots found near the

³ *Hesperia*, XXV, 1956, pp. 1-24.

⁴ *Stereometrika*, II, 26: eleven-fourteenths of one-half the sum of maximum and minimum diameters squared times height.

official buildings on the west side of the Agora.⁵ This is the only example of a painted ligature of this sort which I know. In **LM 3** and **LM 6** (Pl. 16) the adjective *demosios* appears in the masculine gender, in contrast to the neuter both on the Berlin Museum olpe and on the official dry measures. With the neuter we must supply *metron*, but the masculine requires the name of the particular measure. It is to be noted that both *kotulos* and *kotule* are used in the 5th century B.C. for this measure. We have already seen that the bronze standard kotyle (**DM 42**) was marked with a feminine *demosia*. Perhaps the use of the masculine here is another straw indicating that the clay olpai were not so much replicas of an official bronze standard as semi-official adaptations.

OINOCHOAI

Only two fragmentary examples of officially inscribed oinochoai have been preserved in the Athenian Agora. One is not sufficiently complete even to provide a profile, so their shapes can not be compared. In decoration, however, they are each similar to one of the two types of olpai: one is black-glazed overall with letters in purple; the other is reserved with a brownish glaze wash and with black glaze bands at base, shoulder and mouth, and letters in black glaze. The capacity of the second, which has a complete profile but is largely a plaster restoration, is 875 cc. up to the neck. Whether the original capacity to rim was three kotyles (819 cc.) or four (1092 cc.) depends on the accuracy of the restoration. The dimensions, applied to Hero's formula, suggest a capacity of four kotyles: $\frac{11}{4} \times \frac{1}{2} (6 + 14)^2 \times 14 = 1100$ cc.

In places of finding the two oinochoai are, like the olpai, not linked to the Tholos area. Their number is too small to allow of any conjectures regarding their use, whether as replicas of official standards or as semi-official adaptations, but it is likely that their function was the same as that of the olpai.

AMPHORAS

No complete amphora is preserved, but the fragments are of several different kinds: black glazed neck fragments with an applied white band; unglazed shoulder fragments with black figure representations of helmeted Athena head or owl; unglazed handles with coin-type stamps. The white-on-black amphoras belong by context to the 5th century B.C. With one exception (**LM 20**, Pl. 17) the other two groups should be dated on the basis of context as well as coin-types to the 4th century B.C. **LM 20** is exceptional also in having its inscription vertical instead of horizontal; unfortunately, it does not preserve enough of the black-figure decoration to show whether the owl was of a different type from the later pieces. The fact that **LM 20** uses epsilon for eta can not be used here, both because none of the later pieces preserves this part of the inscription and because the old letter forms continued to be used in guarantees of this sort long after 403 B.C. (cf. lead weights above, p. 5).

The rim profile of one white-on-black fragment (**LM 11**, Pls. 16, 35) is that of Amphora Type B.⁶ In size it seems comparable to two Agora examples of the 5th century B.C.: P 21859⁷ and P 9486.⁸ The dimensions of both of these suggest that their capacity may have been about a metretes (12 choes of 3.276 l. are 39.312 l.). Both their average diameters (half of the sum of inside mouth diameter and outside maximum diameter) are almost exactly a foot of 0.326 m. (see above, p. 43, note 7). Their depths are 0.50 m. and 0.49 m. or very nearly one and one-half feet. Hero's formula gives them a capacity of thirty-three twenty-eighths cubic feet or 40.825 l.

⁵ *Hesperia*, V, 1936, pp. 353-354.

⁶ Sir John Beazley, *Attic Red-Figure Vase-Painters*, Oxford, 1942, p. viii.

⁷ Mid 5th century B.C. *Hesperia*, XXII, 1953, p. 62, pl. 21.

⁸ 440-430 B.C. *Hesperia*, VII, 1938, p. 345, fig. 28.

The shoulder fragments with black-figure representations belong to amphoras with a ridge between neck and body and with a comparatively narrow neck. No other indication of their shape is preserved, but both their official nature and the use of so old-fashioned a method of decoration point to Panathenaic amphoras as the nearest parallel. The relationship between Panathenaic amphoras and official measures is strengthened by the use of the former as apparently standard containers for various amounts of oil specified as prizes for the various contests (*I.G.*, II², 2311).

The testing of Panathenaic amphoras for capacity is, however, no easy matter, since few are preserved in a condition which allows a test to be made. Recorded capacities for six amphoras ranging in date from 566 to 403 B.C. range from 39.983 l. to 38.100 l. (to brim).⁹ Their general outside dimensions and shape are also fairly close, most of the gradual increase in height going into base and neck, which are comparatively unimportant for capacity. Maximum diameter ranges about 0.40 m., height about 0.63 m.¹⁰ If because of the difficulties of measuring internal diameters the specifications were given for outside diameter and internal height or depth, the formula would have to allow for the space taken by the walls and might be something like this: $\frac{1}{4} \times \frac{3}{4}$ max. diam. \times depth equals $\frac{1}{4} \times \frac{3}{4}$ 20 fingers (0.408 m.) \times 28 fingers (0.5712 m.) equals 4950 cubic fingers (42.025 liters). There is no evidence for this formula, but for particular shapes like the narrow-necked, full-bodied amphora, particular formulas may well have been arrived at after experimentation.

This digression into the standard of the Panathenaic amphora may serve to justify the connection suggested above between our official measure fragments and the Panathenaic jars. Certainly the fragments themselves are too small to provide evidence for capacity. That the potters adjusted the size, presumably after trial of their capacity in the leather hard state, is suggested, however, by the appearance of both paring and added clay on the inside, although both of these might have resulted from building up the amphora from two pieces which were joined at the shoulder. It is even probable that the body of the amphora was so tested before the neck was set in; certainly both adding clay and paring on the inside upper shoulder could be more easily accomplished before the neck was in place. Furthermore, two pieces (**LM 18, 20**) show that the body might be glazed on the inside.

The decoration on these fragments deserves comment. The conjunction of helmeted Athena heads, owls and the inscription *demosion* immediately puts the official amphoras in the same class with the official 4th century B.C. dry measures, which have the same inscription, written in the same way, and the same Athenian symbols, not painted but impressed as stamps. It might be objected that on the standard amphoras, as on the Panathenaic amphoras, Athena would appear full length, but the scale of the head makes this unlikely. From lower eye to top of olive wreath Athena's head on **LM 12** (Pl. 17) is at least two and a quarter times the equivalent distance on Panathenaic Athena heads. Since it is most likely that the standard amphoras

⁹ I am indebted to G. Roger Edwards for much of this material; see also his "Panathenaics of Hellenistic and Roman Times," *Hesperia*, XXVI, 1957, pp. 320-349, especially p. 335, note 55. Of the four vases measured by Brøndsted (*Trans. of the Royal Society of Literature of the United Kingdom*, II, London, 1834, pp. 102-135) only three are full-size amphoras; for two of these he gives the same capacity in cubic inches, of which the metric equivalent is 36.330 l. The second of these is now New York Metropolitan Museum of Art, Acc. no. 14-130.12 and was found recently by D. von Bothmer to hold 38.830 l. to the neck and 39.830 l. to the brim. Therefore, the first of Brøndsted's two amphoras of identical capacity should hold the same; this is the Burgon amphora, now London, British Museum B 130. Brøndsted's third, which he measured at 35.198 l., is now New York Metropolitan Museum of Art, Acc. no. 16.71 and was recently found by D. von Bothmer to hold 37.124 l. to the neck and 38.229 l. to the brim. A. Boeckh (*Metrolologische Untersuchungen über Gewichte, Münzfüße, und Masse des Altertums*, Berlin, 1838, pp. 279-280) records the capacity of two full-size prize amphoras (now Berlin 1833 and 1832) as 39.007 l. to neck, 39.983 l. to brim and 38.699 l. to neck, 39.050 l. to brim. The other capacities which he records are of smaller amphoras which seem not to have been prize vases. The sixth amphora, which was measured recently by the Laboratory of the British Museum, is British Museum B 605: 38.100 l. "to the level of the angle in the interior where the mouth springs out of the neck."

¹⁰ M. Lang, *B.C.H.*, LXXVI, 1952, p. 26, note 1.

are of the same size as Panathenaic amphoras, a full-length Athena on this scale would fit only if the top of her helmet appeared on the rim and her feet on the base. The owl is on the same heroic scale, so that Athena can not be thought of as shorter than the elegant Panathenaic types. Thus the scale and the parallel with the dry measures make it almost certain that only the head of Athena appeared on these official amphoras.

How the head of Athena, the owl and the inscription were arranged on the amphora can perhaps also be suggested. All heads, both of Athena and the owl, come at upper shoulder level. On three pieces (LM 12, 14, 15; Pl. 17) we see that *demosion* is divided exactly in half by the head of Athena. Since the inscription will have begun to the right of one handle and ended to the left of the other, it is reasonable to assume that the Athena head was centered on one side. That the owl was similarly centered on the other side (with or without inscription) is not only likely in itself but also suggested by the way in which the owl stamp always appears on the opposite side of the cylindrical dry measures from the Athena stamp. Not enough of any owl is preserved to indicate whether these, like the owls on the stamps, were double-bodied. The Athena head, however, seems to be much closer to the coin-type stamp than to Athena heads on Panathenaic amphora, particularly with respect to the olive crown and the way in which the helmet crest lies close to the helmet. One piece is exceptional not only for its earlier context date but also for the arrangement of the inscription; LM 20 (Pl. 17) comes from a certain 5th century B.C. context (one nearer the first half than the second), and its inscription runs down the wall instead of across the shoulder.

Two fragments (LM 18, 19; Pl. 17) show what might be bands or borders of black glaze above and below the owl. These might indicate that the black-figured representations were put on a reserved panel on an amphora otherwise glazed black. But other fragments show (LM 13, 16, 17; Pl. 17) part of the neck above the heads as reserved, so that these jars at least could have had no such panel. It is more likely, in view both of the glaze patterns of the dry measures and of the unglazed handles (see below) which may have belonged to these jars, that the official amphoras were unglazed except for a band around the rim (extending down into the neck; cf. LM 29) and occasionally a band above and below the representations of Athena and the owl.

Seven of the eight amphora handles (LM 21–27, Pl. 18) impressed with official coin-type stamps are of a size and form suitable for amphoras of Panathenaic type. Four (LM 21, 23, 26, 27) preserve the lower attachment and show that the inside wall of the vessel was covered with glaze or glaze wash. One (LM 25), preserving the upper attachment, shows that the inside of the neck was similarly treated. Four handles (LM 21–24) are impressed with the same coin-type stamp: double-bodied owl surmounted by the letters AGE and two olive sprays. This device is employed on the diobol of the early 4th century B.C.¹¹ The size of the stamps both here and on the dry measures is greater than that of the diobols, but presumably the metronomoi were provided with their own stamps, made especially for their special purposes. Three handles (LM 25–27) carry an Athena head, which is most similar to the obverse of this same diobol (and contemporary drachms and tetradrachms). Whether each official amphora was stamped twice, like the dry measures, with Athena head on one handle and owl on the other, can not at present be known. It seems likely that this was so, and also that these handles were attached to amphoras decorated, again with Athena head and owl, in black figure, like LM 12–20 (Pl. 17).

The eighth handle (LM 28, Pl. 18) is of a different shape and a different clay. Its stamp is more oval than round, but the representation of Athena with Corinthian helmet is very close

¹¹ Svoronos, pl. 17, 34–36. For bronze coins, Svoronos, pl. 21.

to the early 4th century B.C. silver pentobol and certain bronze coins.¹² There is not sufficient evidence to indicate whether this stamp also certifies an official measure.

Since the large majority (more than 80%) of amphora fragments (LM 10–28) come from the Tholos area, we may suppose that here again as in the case of the cylindrical measures there is evidence for a *thesauros metronomon* which housed official clay vessels. Whether the amphoras were replicas of a metal standard kept in the Tholos is more difficult to determine.

POSSIBLE OFFICIAL MEASURES

LM 29 (Pl. 35) has been included here because of its fabric, shape and the glaze on rim and inside neck. It may well belong to an official amphora similar to those represented by the shoulder fragments and handles above, but the handle is broader and flatter and is not stamped.

LM 30 and 31 (Pl. 17) have the fine clay of official measures and the same kind of letters in black glaze, but since there seem to be no parallels in shape, it is unprofitable to speculate further. If the inscription was more than one letter, the bowls must have been too shallow and open to be supported on the small foot. If the inscriptions were only one letter, then epsilon and eta must be taken as numerals. Perhaps we are to imagine deep bowls, the smaller holding five kotyles and the larger eight.

CATALOGUE

The pieces are grouped by shapes. The order within the groups is as follows: from most nearly complete to most fragmentary olpai; from most nearly complete to most fragmentary oinochoai; from necks to shoulders to handles of amphoras; uncertain or possible measures. Finding places are generally indicated by the square or squares of the Agora grid, with a context date where available; for dated deposits which are also groups the grid designation is followed by the number of the deposit within the square.

Abbreviations used: H. – Height; P.H. – preserved height; diam. – greatest outside diameter; max. dim. – maximum dimension.

OLPAI

- LM 1 (P 13429) Inscribed Olpe. Pls. 16, 35.
N 18:7. Late 6th century B.C. *Hesperia*, XV, 1946, pl. XXVII; Suppl. IV, p. 142, note 134.
Neck, handles and some of wall restored in plaster. Flat bottom; gently rounding sides. A ligature, to be resolved δε(μόσιον), on shoulder in black glaze. Pinkish buff clay; dilute glaze wash on outside; black glaze on inside, and outside in one band around bottom of wall and another at shoulder.
P.H. 0.133 m. (restored height 0.145 m.); diam. 0.07 m. Capacity (to rim) 270 cc.
- LM 2 (P 24634) Inscribed Olpe. Pls. 16, 35.
Q 12:3. Late 6th–early 5th centuries B.C.
Handle, part of shoulder and neck restored in plaster. Round mouth, gently rounding sides and flat bottom. Small letters painted in glaze around shoulder: [δ]ε[μ]όσιον[ς]. Brownish buff clay with brownish glaze wash outside; black glaze band around bottom of wall, shoulder and mouth.
- Restored H. 0.145 m.; diam. 0.07 m. Capacity (to rim) 240^m cc. (Enough plaster inside to displace ca. 30 cc.)
- LM 3 (P 24118) Inscribed Olpe. Pls. 16, 35.
Q 12:3. Late 6th–early 5th centuries B.C.
Mouth and part of neck missing. General shape very much like LM 1. Small letters painted in glaze around shoulder: δεμόσιος. Buff clay with dilute wash outside; black glaze band around bottom of wall and on shoulder.
P.H. 0.125 m.; diam. 0.07 m. Capacity (to break) 210 cc. (If neck and mouth were restored, it should hold about 270 cc.)
- LM 4 (P 1406) Inscribed Olpe Fragment. Pl. 35.
G 6:3. Ca. 500–480 B.C. *Hesperia*, XV, 1946, p. 276, no. 16, pl. XXVII.
Four joining fragments from neck and shoulder of olpe like LM 1–3. Small letters painted in black glaze around shoulder: δεμ[όσιος]. Buff clay with

¹² B.V. Head, *A Catalogue of the Greek Coins of the British Museum*, London, 1888, p. 14, pl. v, 11. For bronze coins, also of the early 4th century B.C., *ibid.*, pp. 20–22, pl. vi, 1–10.

dilute wash outside; black glazed band around shoulder.

Estimated diam. 0.07 m.

LM 5 (P 10828) Inscribed Olpe Fragment. Pl. 35.
H 12. Late 6th–early 5th centuries B.C. *Hesperia*,
Suppl. IV, p. 142.

Small fragment of shoulder of olpe like **LM 1–3**.
Small letters painted in black glaze on shoulder:
[δεμόσ]ιο[s]. Pinkish buff clay, slipped; black glaze
band around lower shoulder.

P.H. 0.04 m.

LM 6 (P 16790) Inscribed Olpe. Pls. 16, 35.
G 15:1. Late 6th–earliest 5th centuries B.C.
Hesperia, XV, 1946, p. 276, under no. 16.

Bottom and lower walls restored in plaster.
Round mouth and gently rounding sides. Small letters
in added red around neck: δεμό[σ]ιος. Final sigma
reversed. Pinkish buff clay; dull flaky black glaze
outside and around inside mouth; traces of two lines
of added red just below handle-attachment.

P.H. 0.10 m. (restored H. 0.13 m.); diam.
0.075 m.

Capacity 220 cc. (Enough plaster inside to dis-
place about 50 cc.; the restored height is based on
other complete olpai from the same well.)

LM 7 (P 20849) Inscribed Olpe Fragment. Pl. 35.
D 17:10. Late 6th–early 5th centuries B.C.

Small fragment from shoulder. Letters in added
red: [δεμόσι]ος. Pinkish buff clay; somewhat flaked
black glaze outside.

P.H. 0.082 m.

OINOCHOAI

LM 8 (P 20234) Inscribed Oinochoe. Pls. 16, 35.

E 16. Many fragments make up profile; pot is
restored in plaster. Mouth missing but trefoil shape
certain from form of handle: oinochoe, shape III.
Letters in black glaze on shoulder: δε[μύσιον]. Pinkish
buff clay, surface polished; black glazed band outside
on foot, around middle and on lip, extending into
interior for ca. 0.02 m.

H. 0.146 m.; est. diam. 0.14 m. Capacity of
restored vessel (to neck) 875 cc.

LM 9 (P 18565) Fragments of Inscribed Oinochoe.
Pl. 35.

B 20. Late 6th–early 5th centuries B.C.

Several non-joining fragments from the shoulder
and walls of an oinochoe. To the right of traces of a
handle attachment are letters in much faded purple:
δε[μύσιον]. Pinkish buff clay; glaze, fired red mottled
with black, outside, and inside to base of neck.

AMPHORAS

LM 10 (P 25285) Amphora Fragment. Pls. 16, 35.
H 5. 5th century B.C.

Part of lower neck of large amphora. Letters
in dilute glaze on added white band: [δε]μύσ[ιον].
Pinkish buff clay; firm black glaze outside; thin
brown glaze wash inside.

P.H. 0.064 m.

LM 11 (P 26739) Amphora Fragment. Pls. 16, 35.
F 11. Second quarter 5th century B.C.

Part of mouth with straight lip set off from neck.
One letter preserved in dilute glaze on added white
band just below lip: [δε]μ[ύσιον]. Pinkish buff clay;
black glaze outside; top of rim reserved; good glaze
inside, fired black above and red below.

P.H. 0.072 m.

BLACK-FIGURE AMPHORA FRAGMENTS

LM 12–18 were found in the Bouleuterion Plateia
just on bed rock with fragments of pottery from the
5th and 4th centuries B.C. All are of fine pinkish buff
clay with polished outside surfaces and glaze inside
neck (where preserved).

LM 12 (P 5903) Amphora Fragments. Pls. 17, 35.
F 11. 5th–4th centuries B.C.

(a) Wall fragment with forepart of head, in Attic
helmet, facing left in black-figured style, and part of
an inscription in black glaze: [δε]μύ[σιον]. Glaze is thin
and ranges from black to light brown; all details in-
cluding eye, hair line, helmet edge and olive wreath,
are incised. Inside surface has added clay. (b) Shoulder
fragment with narrow ridge around base of neck.
Inside surface pared.

a) max. dim. 0.12 m.; b) max. dim. 0.10 m.

LM 13 (P 5905) Amphora Fragments. Pls. 17, 35.
F 11. 5th–4th centuries B.C.

(a) Lower shoulder fragment with forepart of
head, in Attic helmet, facing left in black-figured
style. Cf. **LM 12**. (b) Shoulder and neck fragment
with narrow ridge at base of neck.

a) max. dim. 0.085 m.; b) max. dim. 0.062 m.

LM 14 (P 5904) Amphora Fragment. Pls. 17, 35.
F 11. 5th–4th centuries B.C.

Fragment of lower shoulder with back part of
crested Attic helmet facing left in black-figured style
and letters in black glaze: [δεμύσιον]v. Glaze is thin
and ranges from black to light brown.

Max. dim. 0.103 m.

LM 15 (P 8099) Amphora Fragment. Pls. 17, 35.
F 10. 5th–4th centuries B.C.

Fragment of lower shoulder with back part of
head in crested helmet (cf. **LM 14**) and one letter in
black glaze: [δεμύσ]ι[ον]. Thin brown glaze.

Max. dim. 0.051 m.

LM 16 (P 5906) Amphora Fragments. Pls. 17, 35.
F 11. 5th–4th centuries B.C.

(a) Four joining pieces preserve almost half of the ridge at the base of the neck and a small part of upper shoulder, on which head of owl, facing front, is painted in black-figure style; round eyes and few feathers are marked by incision. Clear traces inside of added clay at joint between neck and body. (b) Wall fragment with letters in black glaze: [δε]μ[σίου].
a) est. diam. at base of neck 0.13 m.; b) max. dim. 0.049 m.

LM 17 (P 5907) Amphora Fragment. Pls. 17, 35.
F 11. 5th–4th centuries B.C.
Part of upper shoulder with top of owl's head in black-figure. Cf. **LM 16**. Inside, traces of added clay at joint of neck and shoulder.
Max. dim. 0.105 m.

LM 18 (P 5908) Amphora Fragment. Pls. 17, 35.
F 11. 5th–4th centuries B.C.
From shoulder of amphora with tail of owl standing left, in black-figure. Black glazed band below. Inside covered with thin glaze.
Max. dim. 0.073 m.

LM 19 (P 25489) Amphora Fragments. Pls. 17, 35.
H–O 12–13.
(a) Upper wall with part of owl's head, facing front, in black-figure. Above, a black glazed band.
(b) Wall with part of owl's body in black-figure; few feathers incised; at right, a rosette.
a) P.H. 0.087 m.; b) P.H. 0.058 m.

LM 20 (P 4758) Amphora Fragment. Pl. 17.
E–F 12–14. 5th century B.C.
Wall fragment with part of owl's body in black-figure, with feathers incised, and inscription in black glaze, arranged vertically: [δ]εμ[όσιον]. Thin wash of glaze inside.
H. 0.073 m.

STAMPED AMPHORA HANDLES

The arrangement is by coin-types, all three of which belong to the 4th century B.C.

LM 21 (SS 3299) Stamped Amphora Handle. Pls. 18, 35.
F 12. About half of handle with lower attachment. Round stamp with double-bodied owl, [A]ΘΕ, and two olive sprays just below angle of handle. Pinkish buff clay, slipped on outside; streaky black glaze on inside wall of amphora.
W. 0.036 m.; Th. 0.024 m.

LM 22 (P 5910) Stamped Amphora Handle. Pl. 18.
F 11. 5th–4th centuries B.C.
Part of shaft of handle. Stamp identical with that of **LM 21**; same location and orientation. Pinkish buff clay, slipped.
W. 0.035 m.; Th. 0.018 m.

LM 23 (SS 6593) Stamped Amphora Handle. Pls. 18, 35.

F 10. 5th–4th centuries B.C.
Lower part of handle, with attachment. Stamp identical with that of **LM 21**; same location and orientation. Brownish buff clay, slipped on outside; thin brown wash on inside wall of amphora.
W. 0.04 m.; Th. 0.017 m.

LM 24 (SS 6594) Stamped Amphora Handle. Pl. 18.
F 10. 5th–4th centuries B.C.
Middle part of handle. Stamp identical with that of **LM 21**; same location and orientation. Pinkish buff clay, slipped.
W. 0.038 m.; Th. 0.022 m.

LM 25 (SS 1420) Stamped Amphora Handle. Pl. 18.

H 12. *Hesperia*, III, 1934, p. 297.
Upper end with attachment. Round stamp with head of Athena, wearing crested Athenian helmet, facing right, just below angle of handle. Pinkish buff clay, slipped; remains of black glaze on inside wall of neck.
W. 0.036 m.; Th. 0.022 m.

LM 26 (P 5909) Stamped Amphora Handle. Pls. 18, 35.
F 11. 5th–4th centuries B.C.
Lower end with attachment. Stamp identical with that of **LM 25**; same location and orientation. Brownish buff clay, slipped; thin brown glaze on inside wall of amphora; a few smears on handle.
W. 0.043 m.; Th. 0.025 m.

LM 27 (SS 7804) Stamped Amphora Handle. Pl. 18.
C 10:3. (Second half 4th century after Christ).
Lower end with attachment. Stamp much worn but identical with that on **LM 25**; same location but almost upside down. Pinkish buff clay, slipped; traces of brownish clay on inside wall of amphora.
W. 0.043 m.; Th. 0.022 m.

LM 28 (SS 8404) Stamped Amphora Handle. Pl. 18.
O 22:1. Third quarter 4th century B.C.
Angle piece of heavy handle, almost round in section and sharply curved. Oval stamp with head of Athena, facing right, wearing Corinthian helmet. Pinkish buff clay, slipped.
W. 0.052 m.; pres. Th. 0.038 m.

UNCERTAIN OR POSSIBLE MEASURES

LM 29 (P 20975) Amphora Fragments. Pl. 35.
Q 8–9. 4th century B.C.
(a) Part of rim with heavy rounded lip. (b) Part of broad flat handle with upper attachment. Pinkish

buff clay; black glaze around lip and handle attachment and inside neck.

(a) max. dim. 0.095 m.; (b) max. dim. 0.09 m.

LM 30 (P 2417) Base of Bowl. Pls. 17, 35.

Q 15. Solid base like truncated cone. Inside on floor, a letter in black glaze: E. Fine pinkish buff clay with mica; surface polished.

P.H. 0.031 m.; diam. of foot 0.041 m.

LM 31 (P 9823) Base of Bowl. Pls. 17, 35.

L 19. Solid base like truncated cone. Inside on floor, a letter in black glaze: H. Fine pinkish buff clay, slipped.

P.H. 0.04 m.; est. diam. of foot 0.053 m.

CONCORDANCE

BRONZE			IRON AND LEAD			IRON AND LEAD			IRON AND LEAD		
<i>Inv.</i>	<i>Cat.</i>		<i>Inv.</i>	<i>Cat.</i>		<i>Inv.</i>	<i>Cat.</i>		<i>Inv.</i>	<i>Cat.</i>	
B 152	BW	5	IL 176	LW	30	IL 758	LW	53	IL 1278	LW	97
B 270	BW	9	IL 180	LW	99	IL 759	LW	108	IL 1362	LW	95
B 492	BW	2	IL 182	LW	32	IL 763	LW	94	IL 1363	LW	77
B 495	BW	1	IL 184	LW	69	IL 764	LW	75	IL 1401	LW	7
B 497	BW	3	IL 189	LW	73	IL 769	LW	21	IL 1435	LW	66
B 669	BW	12	IL 195	LW	6	IL 771	LW	33	IL 1457	LW	109
B 688	BW	10	IL 254	LW	76	IL 827	LW	13			
B 752	BW	11	IL 293	LW	102	IL 848	LW	36			
B 784	BW	7	IL 296	LW	45	IL 856	LW	62	POTTERY		
B 786	BW	4	IL 298	LW	28	IL 862	LW	43	P 496	DM	59
B 787	BW	13	IL 304	LW	52	IL 863	LW	49	P 1406	LM	4
B 808	BW	6	IL 315	LW	17	IL 865	LW	14	P 2417	LM	30
B 910	BW	8	IL 316	LW	4	IL 871	LW	107	P 3232	DM	47
B 1082	DM	42	IL 319	LW	23	IL 872	LW	88	P 3497	DM	46
B 1082 ^{bis}	DM	43	IL 347	LW	15	IL 884	LW	25	P 3505	DM	8
B 1204	BW	14	IL 349	LW	64	IL 900	LW	58	P 3559	DM	44
			IL 357	LW	63	IL 902	LW	59	P 3562	DM	45
			IL 358	LW	12	IL 913	LW	93	P 3719	DM	53
			IL 359	LW	24	IL 942	LW	96	P 4758	LM	20
			IL 361	LW	16	IL 947	LW	86	P 5697	DM	71
			IL 364	LW	57	IL 965	LW	80	P 5883	DM	60
			IL 371	LW	44	IL 972	LW	10	P 5886	DM	52
			IL 482	LW	110	IL 998	LW	82	P 5898	DM	61
			IL 514	LW	106	IL 999	LW	31	P 5899	DM	8
			IL 516	LW	79	IL 1014	LW	40	P 5900	DM	4
			IL 522	LW	111	IL 1018	LW	9	P 5901	DM	8
			IL 531	LW	70	IL 1019	LW	42	P 5902	DM	65
			IL 545	LW	5	IL 1023	LW	37	P 5903	LM	12
			IL 580	LW	35	IL 1027	LW	67	P 5904	LM	14
			IL 627	LW	92	IL 1039	LW	51	P 5905	LM	13
			IL 642	LW	85	IL 1041	LW	18	P 5906	LM	16
			IL 652	LW	74	IL 1042	LW	90	P 5907	LM	17
			IL 694	LW	91	IL 1043	LW	104	P 5908	LM	18
			IL 703	LW	50	IL 1044	LW	61	P 5909	LM	26
			IL 711	LW	68	IL 1046	LW	46	P 5910	LM	22
			IL 725	LW	71	IL 1048	LW	72	P 6060	DM	57
			IL 729	LW	81	IL 1050	LW	78	P 6061	DM	13
			IL 734	LW	47	IL 1054	LW	27	P 6209	DM	64
			IL 739	LW	38	IL 1069	LW	22	P 6487	DM	1
			IL 746	LW	48	IL 1070	LW	55	P 7300	DM	12
			IL 755	LW	2	IL 1268	LW	11	P 8098	DM	32
			IL 756	LW	3	IL 1272	LW	83	P 8099	LM	15
			IL 757	LW	100	IL 1274	LW	60	P 8932	DM	67
									P 9823	LM	31

POTTERY				POTTERY				POTTERY				STAMPS AND SEALS			
<i>Inv.</i>		<i>Cat.</i>		<i>Inv.</i>		<i>Cat.</i>		<i>Inv.</i>		<i>Cat.</i>		<i>Inv.</i>		<i>Cat.</i>	
P	10205	DM	31	P	13619	DM	3	P	23143	DM	28	SS	8408	LM	28
P	10210	DM	14	P	14276	DM	30	P	23419	DM	63				
P	10211	DM	15	P	14430	DM	68	P	23764	DM	75				
P	10212	DM	62	P	14431	DM	66	P	23776	DM	29	STONE			
P	10415	DM	49	P	15150	DM	26	P	23799	DM	33	ST	11	SW	10
P	10490	DM	50	P	16790	LM	6	P	24026	DM	55	ST	23	SW	12
P	10510	DM	19	P	17286	DM	35	P	24118	LM	3	ST	26	SW	9
P	10722	DM	48	P	17294	DM	25	P	24286	DM	73	ST	27	SW	14
P	10783	DM	2	P	17295	DM	36	P	24634	LM	2	ST	53	SW	8
P	10828	LM	5	P	17296	DM	41	P	25285	LM	10	ST	54	SW	1
P	10837	DM	56	P	18565	LM	9	P	25301	DM	74	ST	74	SW	11
P	10840	DM	10	P	18996	DM	70	P	25489	LM	19	ST	92	SW	24
P	10841	DM	22	P	19214	DM	38	P	25489	DM	5	ST	100	SW	28
P	10842	DM	23	P	19309	DM	39	P	25898	DM	5	ST	113	SW	5
P	10843	DM	24	P	19568	DM	69	P	26738	DM	40	ST	126	SW	15
P	12201	DM	16	P	20234	LM	8	P	26739	LM	11	ST	129	SW	2
P	12207	DM	20	P	20849	LM	7					ST	129	SW	2
P	12228	DM	21	P	20975	LM	29	SCULPTURE				ST	303	SW	3
P	12375	DM	6	P	21000	DM	34	S	1624	SW	23	ST	311	SW	6
P	12376	DM	7	P	22024	DM	58	S	1929	SW	21	ST	312	SW	4
P	12532	DM	11	P	22122	DM	72					ST	386	SW	18
P	13301	DM	9	P	22242	DM	54	STAMPS AND SEALS				ST	477	SW	20
P	13302	DM	17	P	22569	DM	37	SS	1420	LM	25	ST	600	SW	22
P	13303	DM	27	P	22868	DM	18	SS	3299	LM	21	ST	611	SW	25
P	13429	LM	1	P	23134	DM	51	SS	6593	LM	23	ST	612	SW	26
								SS	6594	LM	24	ST	647	SW	27
								SS	7804	LM	27	ST	687	SW	17

INDEX OF DEPOSITS

Additional information on these deposits will be found in other volumes of the Agora series. Where a deposit has several fillings, only the relevant one is listed here.

A-B 19-20:1	Drain	Hellenistic	LW 25
B 12:4	Pit	Second half 5th century B.C.	DM 12
B 14:3	Cistern	Second half 1st century A.D.	LW 92
C 10:3	Well	Second half 4th century A.D.	LM 27
C 20:2	Figurine factory	4th century B.C. with other debris dumped in 1st century B.C.	DM 69
D 5:1	Pit	First half 4th century B.C.	DM 39
D 11:4	Cistern	Late 2nd and early 1st centuries B.C.	LW 15
D 12:2	Cistern-shaft	Late 2nd and early 1st centuries B.C.	SW 5
D 15:1	Well	<i>Ca.</i> 500 B.C.	BW 1, BW 2, BW 3
D 17:5	Cistern	Second half 2nd century B.C.	LW 51
D 17:10	Well	Late 6th-early 5th centuries B.C.	LM 7
D 17:11	Well	Late Hellenistic	LW 31
D 19:1	Cistern	Late 5th century B.C. dumped in 3rd century B.C.	DM 38
E 2:3	Foundry pit	Second quarter 4th century B.C.	DM 37
E 3:1	Cistern	<i>Ca.</i> 300 B.C.	LW 12, LW 16
E 5:2	Cistern	3rd-2nd centuries B.C.	LW 35
E 6:3	Furnace pit	4th century B.C.	LW 110
E 14:1	Cistern	3rd century B.C.	LW 45
E 14:3	Cistern-shaft	1st century B.C.	LW 23, LW 30, LW 32 LW 69, LW 73, LW 99
F 11:2	Well	Second half 4th century B.C.	DM 13, DM 44, DM 45 DM 46, DM 57
F 12:3	Cistern	Late 4th-early 3rd centuries B.C.	DM 58
F 13:3	Well	2nd century B.C.	DM 71
F 16:1	Cistern	Second half 4th century B.C.	LW 26
F 17:1	Furnace dump	Late 3rd-early 4th centuries B.C.	LW 82
F 19:2	Cistern	Mid 4th century B.C.	LW 47
G 6:2	Cistern	<i>Ca.</i> 200 B.C.	LW 1
G 6:3	Rock-cut shaft	<i>Ca.</i> 500-480 B.C.	LM 4
G 11:4	Cistern	End of 4th century B.C.	DM 64, DM 74
G 13:4	Well	<i>Ca.</i> 340-310 B.C.	LW 29
G 14:2	Well	Gradual accumulation of 4th, 3rd and 2nd centuries B.C.	LW 19, LW 20, LW 39, LW 89
G 15:1	Well	Late 6th-early 5th centuries B.C.	LM 6
H 7:3	Building fill	Second quarter 4th century B.C.	DM 53
H 12:6	Well	Last quarter 5th century B.C.	DM 6, DM 7
H 12:11	Well	Beginning of 4th century B.C.	DM 30
H 16:4	Pithos	<i>Ca.</i> 150 B.C.	LW 98
K 6:2	Sandy fill	Second half 4th century B.C.	DM 35
M 17:7	Pit	To third quarter 5th century B.C.	DM 5
M 20:1	Cistern	Early 1st century B.C.	LW 79, LW 106, DM 66, DM 67, DM 68
M 20:2	Well	<i>Ca.</i> A.D. 267	LW 62

N 18:3	Cistern	3rd century B.C.	LW 70
N 18:7	Well	Late 6th century B.C.	LM 1
O 18:2	Well	<i>Ca.</i> 350–320 B.C.	LW 91
O 19:2	Cistern	Mixed from 5th century B.C. to late Roman	LW 74
O 22:1	Cistern	Third quarter 4th century B.C.	LM 28
Q 12:3	Well	Late 6th–early 5th centuries B.C.	LM 2, LM 3
Q 13–14:1	Cistern	Second quarter 4th century B.C.	LW 34
Q 15:2	Well	<i>Ca.</i> 400 B.C.	LW 95, DM 42, DM 43
R 14:2	Destruction	<i>Ca.</i> A.D. 267	SW 4, SW 6
S 21:1	Well	Late 1st century B.C. and early 1st century A.D.	LW 91
T 24:3	Well	<i>Ca.</i> 500 B.C.	SW 16

PART II
LEAD AND CLAY TOKENS

BY
MARGARET CROSBY

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ABBREVIATIONS AND BIBLIOGRAPHY

The principal works cited and the abbreviated titles by which they are mentioned are listed below. Easily identified abbreviations of standard periodicals are not included.

- Agora* = *The Athenian Agora*, Results of Excavations conducted by the American School of Classical Studies at Athens.
 vol. II, Margaret Thompson, *Coins from the Roman through the Venetian Period*, 1954.
 vol. III, R. E. Wycherley, *Literary and Epigraphical Testimonia*, 1957.
 vol. V, Henry S. Robinson, *Pottery of the Roman Period, Chronology*, 1959.
 vol. VI, Claireve Grandjouan, *Terracottas and Plastic Lamps of the Roman Period*, 1961.
 vol. VII, Judith Perlzweig, *Lamps of the Roman Period*, 1961.
- Agora Guide*² = *The Athenian Agora, A Guide to the Excavation and Museum*, 2nd ed., revised, 1962.
- Annali* = *Annali dell' Istituto di corrispondenza archeologica*.
- Antike Gemmen* = A. Furtwängler, *Die antiken Gemmen*, Leipzig, 1900.
- Benndorf = Otto Benndorf, "Beiträge zur Kenntnis des Attischen Theaters," *Zeitschrift für die Öster. Gymnasien*, XXVI, 1875, pp. 1-29, 83-92, 579-618, and plate of drawings after p. 730. (This study has been published with consecutive pagination in separate form which I have not seen.)
- B.M.C.* = *Catalogue of Greek Coins in the British Museum* (followed by the name of the specific volume cited).
- B.M.C., Rom. Emp.* = H. Mattingly, *Coins of the Roman Empire in the British Museum*, London, 1923-
 vol. IV, 1940
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- Busolt-Swoboda, *Griech. Staatsk.*³ = Busolt-Swoboda, *Griechische Staatskunde*, third ed., 1926.
- D-S = Daremberg et Saglio, *Dictionnaire des antiquités*.
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- Ἐφ. Ἀρχ., 1901 = K. D. Mylonas, Ἀττικὰ Μολύβδινα Σύμβολα, Ἐφ. Ἀρχ., | 1901, pp. 119-120, pl. VII.
- Ferguson, *Hellenistic Athens* = William Scott Ferguson, *Hellenistic Athens*, London, 1911.
- Head, *H.N.*² = Barclay V. Head, *Historia Numorum*, 2nd ed., Oxford, 1911.
- J.I.A.N.* = *Journal international d'archéologie numismatique*.
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- McDowell, *Stamped Objects from Seleucia* = R. H. McDowell, *Stamped and Inscribed Objects from Seleucia on the Tigris*, Ann Arbor, 1935.
- Marshall, *Finger Rings* = F. H. Marshall, *Catalogue of the Finger Rings, Greek, Etruscan, and Roman in the British Museum*, London, 1907.
- Monumenti* = *Monumenti inediti pubbl. dall' Istituto di corrispondenza archeologica*.

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- Num. Chron.* = *Numismatic Chronicle*.
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BIBLIOGRAPHICAL NOTE: PREVIOUS PUBLICATIONS OF ATHENIAN LEAD TOKENS

The first significant publication of Athenian lead tokens was made by A. Postolacca in the *Annali dell' Instituto* for 1866 and 1868. In the two articles he published 1121 tokens from the collection in the National Numismatic Museum in Athens and illustrated many of them in line drawings, plates XXXII and LII in *Monumenti*, VIII. The earlier article includes those tokens which he believed related to the government of Athens (a total of 300 including 13 added in the second article). He stated that he was unable to decide on their use (pp. 354–356).

Albert Dumont in 1870 in a general survey of Greek lead tokens, *De plumbeis apud Graecos tesseras* (almost all examples cited are Athenian), suggested four main divisions according to probable use: those belonging to private individuals (personal coats-of-arms), those related to the government, those for use at games (agonistic) and those related to religion. He believed, apparently, that most of the Hellenistic Athenian tokens were for individual private use. In his chapter on those related to the government he included only those stamped with an owl or with an inscription definitely related to the city (pp. 67–78). He suggested that those with an owl were the heliastic “symbola parva” or “jetons de presence” given to the dikasts.

Otto Benndorf in *Beiträge zur Kenntnis des attischen Theaters*, 1875, was the first to point out the suitability of many of these lead tokens for use as the theorikon or entrance ticket at the Greater Dionysia (pp. 1–29). In the last section of his study (pp. 579–618) Benndorf discussed other uses of lead tokens in Athens, suggesting that some served as tokens to be exchanged for pay in the assembly, courts and council, that others were used in the periodic wheat distributions, and still others were for private use (house money or identification?).

Arthur Engel in 1884 published and illustrated in line drawings 225 Greek tokens, *B.C.H.*, VIII. His classification is based on Dumont and many of the tokens mentioned by Dumont (who gave no illustrations) are included. Some of those published by Postolacca are also included.

Ioannis Svoronos in 1898 published the first of a series of articles entitled *Τὰ Εισιτήρια τῶν Ἀρχαίων*. The first, *J.I.A.N.*, 1898, pp. 37–120, is concerned with the bronze tesserae from Athens; these he identified as tickets (symbola) for the theater of Dionysos used both at meetings of the assembly in the theater and at the Dionysia (these bronze examples, on present evidence, however, would seem to have been used in the law courts, see below, p. 84, note 33). The second article was on clay theater tickets of Mantinea and the third on a rectangular inscribed bronze ticket (?) which he believed to be for a section of the ἀγορὰ πωλῶν, *J.I.A.N.*, III, 1900, pp. 197–228 and 229–235. The fourth and apparently last in this series of articles on tickets is a catalogue of 296 Athenian lead tokens, *Τὰ Μολύβδινα Σύμβολα*, *J.I.A.N.*, III, 1900, pp. 319–343. Most of these are illustrated by photographs. The promised sequel (see p. 320) which was to explain the exact uses of these tokens and give the reasons for his classification was never published. Most of the tokens selected for this publication are inscribed. Some of those included had already been published by Postolacca and Engel. Obviously Svoronos believed all of the tokens he published to be for official use.

The Svoronos publication of 1900 is the most recent general study of Athenian tokens. Some small groups and some individual tokens have been published in the intervening years. These include:

Rostovtzeff, *Catalogue des plombs de la Bibl. Nat.*, nos. 765–781, Greek tokens of which some are Athenian.

Rostovtzeff, *Rimskia svintsovïia tesserae*, pp. 263 ff., nos. 1–160, Greek tokens of which some are Athenian; pp. 310–315, nos. 1–72, “tesserae Athenis repertae in Museo Petropolitano (Hermitage) asservatae”; pp. 315 ff., nos. 73–89, “tesserae Athenienses minus notae in variis museis asservatae.”

Rostovtzeff, “Augustus und Athen,” *Festschrift z. O. Hirschfeld*, pp. 303–311.

Ἐφ. Ἀρχ., 1901, pp. 119–120, pl. 7: 127 tokens, 14 types, of the 3rd century after Christ found on the shop floors of the Stoa of Attalos. (See section V of catalogue for other examples of the same types.)

J.I.A.N., VII, 1904, pp. 203–206, an Athenian token representing the Antikythera warrior statue.

J.I.A.N., VIII, 1905, p. 344, hoard of tokens from near Koropi.

J.I.A.N., IX, 1906, pp. 55–59, an Athenian token representing a hoplite-racer.

Pnyx, I, pp. 104–108, thirteen tokens from the Pnyx excavations.

B.C.H., LXXX, 1957, p. 498, an Athenian token representing Athena Parthenos acquired by the Numismatic Museum in Athens.

The occasional mentions of lead tokens in the lists of new acquisitions of the Numismatic Museum in Athens scattered through volumes IV to XXI of *J.I.A.N.* are not included above.

For a bibliography of earlier studies of tesserae, most of which are related only to the Roman tokens, see Dumont, pp. 14–20; Rostovtzeff, *Bibl. Nat.*, pp. 1–6, and Rostovtzeff, *Röm. Bleit.*, pp. 122–125, “Sammlungen der Bleitesserae und Publikationen derselben.”

The most comprehensive publications of Roman tesserae are three by Rostovtzeff: the catalogue of those in the Bibliothéque Nationale in Paris, 1900; *Tesserarum Urbis Romae et Suburbii Sylloge*, 1903; *Römische Bleitesserae*, 1905.

Babelon, *Traité des monnaies grecques et romaines*, I, 1901, pp. 692–720, and Lafaye, D-S, *s.v. tessera*, both give clear accounts of the possible uses of lead tokens. Their classifications of Athenian tokens are based largely on the works of Benndorf and Svoronos.

LEAD TOKENS

INTRODUCTION

CHARACTER OF MATERIAL

Some nine hundred lead tokens sufficiently well preserved to be identified have been found in the course of the excavations of the Athenian Agora. Physically they fall into three categories:

- a. Relatively small disks, 12 to 14 mm. in diameter, with a symbol usually only on one side. Most of these date from the 3rd and 2nd centuries B.C., a few probably from the 4th century B.C. Among them one finds few exact duplicates (Sections II, III).
- b. Larger disks, 19 to 25 mm. and a few as large as 30 mm. in diameter, stamped more often than not on both sides. In many cases the stamp on one side is clearly later, thus representing a re-use of the disk. A relatively large group of these can be dated by the context in which they were found to the middle of the 3rd century after Christ. Many duplicates of the same stamp occur (Sections IV, V).
- c. A few disks of the larger size, with large single letters on them instead of symbols, probably late Hellenistic in date. These are successors of the bronze tesserae of similar type which are usually assumed to be tickets for the assembly, but which were more probably used in the courts (Section I, L 1-L 19, see below, p. 84, note 33).

Similar lead tokens have been found throughout the ancient world but most of those found elsewhere date from the Roman Imperial period. Athens would seem to be the only city in which they were in abundant use in the Hellenistic period. The Numismatic Museum in Athens has many thousands in its collection, of which only a small part have been published.¹

SYMBOLON AND TESSERA: USES AND NAMES

The exact use of a particular token is often impossible to determine. The majority of the Athenian examples are either uninscribed or have only one or two letters on them, and the subjects used as types are drawn from the common repertory of small design of the ancient world, so that in the token itself there is usually no certain clue to its specific use. The tokens from Rome are more often inscribed and also more often mentioned, as tesserae, in the literature of the period. Many, thus, can be and have been assigned to specific uses, both public and private. They served a variety of purposes: some were used in the various distributions, to be exchanged later for money or a present; others were intended for admission to imperial games or festivals, as tickets for baths, as vouchers for inns, or as small change used by individual merchants or shops.²

¹ See Bibliographical Note. Mme. Varoucha, curator of coins in the Numismatic Museum, has kindly let me look at the lead tokens in that collection. Some are obviously from the same stamp as some of those from the Agora; many more are of similar subjects but not exact duplicates. An accurate comparison of the Agora tokens with those in the Numismatic Museum is impracticable because of the vast numbers in the museum collection. In the catalogue I have in a few cases noted the existence of duplicates in the Numismatic Museum; the omission of such a reference does not, however, mean that a duplicate may not exist in that collection.

² See Bibliographical Note.

The Athenian tokens will have had a similar variety of uses. Many of those of the Hellenistic period, however, are stamped with types corresponding closely to the types and symbols used on Athenian coins or, occasionally, are inscribed with the name of a tribe, a deme, a city magistrate or a council. These seem to be for official use in one or more ways by the city government, and have been so identified in previous publications.³ These "official" tokens of the Hellenistic period are probably the most interesting of the examples from Athens.

A quick review of the workings of the Athenian government shows the need for some such objects (originally in vast numbers and in great variety) to be used either as entrance tickets to the Greater Dionysia or as evidence of attendance at the assembly, the law courts and probably the council. In both cases the tokens would be exchanged later for money, the first group by the theater contractor,⁴ the second by the individual citizen for the pay due him for attendance. A third important, but lesser, need was for tokens to be used in the collection of wheat at the occasional free distributions. The identification of some of our tokens as those used for the theorikon, the ekklesiastikon, dikastikon, bouleutikon and sitonikon, first made by Bendorff, gains further support from the fact that the proper Greek word for the objects used as theorikon, ekklesiastikon, etc., would seem to be *symbolon*, which in Greco-Roman times was the Greek equivalent of the Latin *tessera*. And *tessera* is of course the Latin word for lead tokens such as ours; the word is a common one, frequently used regardless of the specific purpose of a particular token. A lead token of the Roman period from Egypt, formerly in the National Museum at Athens, is inscribed CYNBOΛON⁵. A bronze hand from Gaul, probably a *tessera hospitalis*, *I.G.*, XIV, 2432, is inscribed σύμβολον πρὸς Οὐελαυνίου. Dio Cassius, XLIX, 43, 4, in describing the benefactions of Agrippa in 33 B.C. writes καὶ τέλος σύμβολά τέ τινα ἐς τὸ θέατρον κατὰ κορυφήν ἔρριψε, τῷ μὲν ἀργύριον, τῷ δὲ ἐσθῆτα, τῷ δὲ ἄλλο τι φέροντα. Again *symbola* is clearly the equivalent of the Latin *tesserae*.

It can be shown that the word *symbolon* was used, although only occasionally, in classical and Hellenistic times with this same meaning. The Greek word, like the English "token," was used in a variety of ways, both concrete and abstract; in some cases scholiasts and lexicographers have only added confusion in their efforts to explain its meaning. Several distinct types of object are called *symbola* (L-S-J, *s.v.*, I, IV, V). One is a tally or token of identification broken in half; the identification is established when the two halves are joined. These are the *symbola tetmemena* mentioned for example by Plato, *Symp.*, 191D, 193A. Three clay *symbola* of this type have been found in the Agora.⁶ These do not concern us here. The other type is a single object. The Athenian dikasts received a *symbolon* which they later exchanged for their pay.⁷ The members of the assembly also received a *symbolon* before taking their seats in the assembly (Aristophanes, *Ekkl.*, 297). These *symbola* distributed at the assembly are probably those named in an inscription of 341/0 B.C. (*I.G.*, II², 1749). There, at the end of a prytany list, a vote of praise is added (lines 75 ff.) by the members of the tribe for three members of the prytany ἐπειδὴ καλῶς κ[αὶ δ]ικαίω[ς] ἐπεμελήθησαν τῆς συλλογῆς τοῦ δήμου καὶ τῆς δ[ι]αδόσε(ω)ς τῶν συνβόλων καὶ ἐπόησαν τὴν δωρεί[αν] τοῖς φυλέταις. An entrance ticket to a theatrical show of some sort (θαῦμα) is called a *symbolon* by Theophrastos (*Char.*, VI, 4).

The dictionaries often include "small coin" as one of the meanings of *symbolon* (L-S-J, *s.v.*, V). This is based on Pollux, *Onom.*, IX, 70-72, who among the definitions of *symbolon*

³ *Ibid.*

⁴ Pickard-Cambridge, *Dramatic Festivals*, pp. 272-273.

⁵ Rostovtzeff, *Bibl. Nat.*, pp. 150-151, reported that this *tessera* had been lost from the Museum.

⁶ *Hesperia*, XX, 1951, pp. 51-52, pl. 25, c.

⁷ Aristotle, *Ath. Pol.*, 68, 2; 69, 2 and Bekker, *Anecd.*, p. 185. Apparently there are several different *symbola* involved in the elaborate court procedure described by Aristotle. See also *Ath. Pol.*, 65, 3, and for recent discussion, Alan Boegehold, *Hesperia*, XXIX, 1960, pp. 393-401.

includes βραχὺ νόμισμα ἢ ἡμίτομον νομίσματος. The half coin clearly refers to the tokens of identifications, the *symbola tetmemena*. Pollux's citations for the meaning of small coin can be and are better interpreted, it seems, as referring to tokens, that is, something of small or no intrinsic value. His quotation from Hermippos παρά τῶν καπήλων λήψομαι τὸ σύμβολον may well refer to tokens issued by shopkeepers for use in their own stores, i.e. house-money.

The infrequent occurrence of the word symbolon in its meaning of token may in part be due to the scantiness of our sources, especially for the Hellenistic period. But another reason for the relative rarity of the word is that the adjective describing the specific use of a token, i.e., theorikon, ekklesiastikon, dikastikon, was commonly used for the token itself. A decree of the middle of the 3rd century B.C., *I.G.*, II², 1272, honors a certain Dion who, while serving as secretary of the treasurer τῶν σιτωνικῶν in the year of Menekles (267/6) was zealous περὶ τὴν τοῦ σ[ι]του δόσιν καὶ τῶν ἐκκλησιαστικῶν τῶ[ν] διδομένων ἐπὶ τὸν σίτο[ν]. Here the ekklesiastikon given for the wheat would seem to refer to a token with which the wheat was to be collected.⁸ Ekklesiastika may have replaced the proper word symbola (or symbola sitonika?) either because the ekklesiastikon was the most common of the official tokens and therefore its name was sometimes used to describe any token, or else because the value of the tokens distributed by Dion was the equivalent of the ekklesiastic three obols. Similarly, theorikon seems to be used for a ticket or token without the word symbolon: Leochares (Demosthenes, XLIV, 37) is described as going to the demarch to collect his theorikon, but οὔτε τὸ θεωρικὸν λαβών. Pollux, VIII, 20, in a list of dikastic words includes dikastikon which he defines as the triobol pay given to the dikast.

Once it is recognized that many of these tokens are in fact the symbola used in the theater, at the assembly, probably at the council, in the law courts, at grain distributions and wherever else an object of no intrinsic value was needed to exchange either for pay or for a real object such as a specific amount of grain, the great variety of the types found need cause no surprise. Different types would certainly be used for each category; the theorikon, for instance, would be different from the ekklesiastikon. To safeguard against the possibility of a second or a false collection, one must assume that the careful Athenians would have used a separate type within each category at least for each year, more probably for each use. At large gatherings, moreover, such as the Greater Dionysia or the assembly, where the citizens sat by tribes, a different type for each tribe, possibly each deme, would be useful, not only to indicate the section in which the citizen should sit but also to serve as an added safeguard in the collection. We have seen that the theorikon was collected from the demarch; and tribal officials, the συλλογεῖς τοῦ δήμου, distributed the tokens for the assembly.⁹ Probably most of the official tokens were distributed by tribe or deme.

Once used, the tokens were probably re-melted and the lead employed again for the next issue. This would explain the fact that relatively few duplicates are found among the Hellenistic official tokens. Presumably those that have survived were lost or not turned in to the proper authorities for collection.

The tokens of the Roman period found in Athens were apparently in most cases used either as tesserae in the ever more frequent distributions made not only by the emperors and officials but also by private citizens, or else as entrance tickets to the many games and festivals. There is no evidence to suggest that citizens were paid in Roman Athens for performing their public duties; hence one would not expect to find tokens intended to be exchanged for pay among those of Roman date.

⁸ Rostovtzeff, *Röm. Bleit.*, p. 28, note 2; Svoronos, *J.I.A.N.*, VIII, 1905, p. 344.

⁹ See the inscription quoted above, p. 77, and Busolt-Swoboda, *Griech. Staatsk.*, p. 994 and note 2 for the identification of the three tribal officials who were being honored as the συλλογεῖς τοῦ δήμου.

INSCRIPTIONS AND DEVICES: HELLENISTIC PERIOD¹⁰

Very occasionally an inscription on a token or the device used as a type provides a clue to its use. In most cases, however, it is impossible to assign a particular token to a specific use. Very few of the Hellenistic examples found in the Agora are inscribed and an inscription, when present, consists, more often than not, of only one or two letters, thus permitting a great variety of restorations. From the much larger collection now at the Numismatic Museum in Athens Svoronos published a good many with complete or almost complete inscriptions. These include, on tokens of the Greek and Hellenistic periods, the following organs and officials of the city government: the demos, the boule, the prytaneis, the agoranomoi and perhaps a grammateus.¹¹ He also found some examples inscribed with the names of tribes, tribal heroes and demes.¹²

Further, Svoronos suggested that the inscriptions ΠΕΝ and ΠΕ found on 50 tokens with 36 different devices were abbreviations of πεντακοσίων and thus referred to the boule.¹³ These tokens then would all date from the 4th century, before the membership of the boule was increased from 500 to 600 by the creation of the two Macedonian tribes in 307/6 B.C. A smaller group, seven tokens of five types, inscribed ΕΡΧΟ and ΕΡΧΟΥ, Svoronos called γενικά ἀναγκαστικά εισιτήρια τῆς ἐκκλησίας, thus apparently identifying them as ekklesiastic tokens (Svoronos, 1900, nos. 291–296). The second person singular imperative ἔρχου, however, seems a curious form to use on a token intended to be exchanged for pay.

Among the tokens of the Hellenistic period, three types are inscribed with the names of gods: Demeter, Artemis Phosphoros¹⁴ with Athena Nikephoros on reverse, and Nike (Svoronos, 1900, nos. 257, 252–256, 269–270). The word Eirene, found on two types, may be interpreted either as the name of the goddess or as the title of the play by Aristophanes (as Svoronos, 1900, nos. 283, 286–287). The inscription on Svoronos, no. 283, with owl as device, reads ΕΙΡΗΝΗΣΑ; on nos. 286–287, with cornucopia as device [Ε]ΙΡΗΝΗ.

Sums of money are named on two types: ΤΡΙΩΒΟ(λον) (L 199, Pl. 26 and Engel, no. 64), and four and a half obols, written thus ΙΙΙΙC (L 42, Pl. 19). The number ΔΕΚΑ, L 39–L 40 (Pl. 20), perhaps also refers to money.

Names of persons are rarely found written in full on Athenian tokens before Roman times. Some, perhaps many, of the one and two letter inscriptions may be the first letter or two of a name. For example, the EP on the group of tokens published as Section II of the catalogue is probably to be restored as Ἐρ[μίας] or Ἐρ[μίππος] rather than as the tempting Ἐρ[εχθής] or Ἐρ[μείον] since one of the types found with them was inscribed ΕΡΜΙ. One notable exception is a token on which the name Polykleitos is written beside a cicada on one side, and Nikagoras beside a tripod on the other (Engel, no. 169). Polykleitos is probably to be identified with

¹⁰ In the discussion that follows, I omit the “probably” before “of the Hellenistic period.” For the basic uncertainties in date see below pp. 83–85 ff.

¹¹ Svoronos, 1900: ΔΗΜΟΣ, nos. 92–97, 99; ΔΗΜΑΘ, nos. 90–91, and possibly ΛΕΩΣΝΙΚΗ, nos. 103–109; ΒΟΥΛΗ, ΒΟΛΗ, and ΒΟΥ, nos. 172–179; ΠΡΥΤΑΝΕΑ, ΠΡΥ and ΠΡ, nos. 238–246; ΑΓΟΡΟΝΟΜΩΝ and ΑΓΟΡ, nos. 165–166, 159–161 (also L 170); ΓΡΑ (μυστεύς), no. 232. I have not cited the tokens on which the word is restored from a short, and so indecisive, abbreviation. Svoronos, by restoring such abbreviations and monograms, adds to his list of officials named on the tokens the Areopagites, nos. 167–171 (see L 23); the dekadarchoi, no. 233 (see L 39–L 40); the endeka, no. 234; the thesmothetai, nos. 235–237; and the strategoi, no. 247. See also L 37 which might be restored as basileus.

¹² Full name or almost certain restoration of tribal name, Svoronos, 1900: ΑΙΓΕΙΣ, nos. 118–119, two types; ΑΙΑΝ (τις), nos. 112–115, one type (fifth copy of the same, *Pnyx*, I, no. 6, a sixth noted at the American Numismatic Museum in New York and a seventh in Russia, Rostovtzeff, *R.s.t.*, p. 311, no. 11); ΑΝΤΙΟΧΙΣ, nos. 126–129, one type; ΕΡΕΧΘ (ῆς), nos. 139–140, one type; ΠΑΝΔΙΟΝΙΣ, no. 157. The names of the tribal heroes ΑΙΑΣ, ΑΙΓΕΥΣ, ΟΙΝΕΥΣ, written beside stamps of standing male figures (eponymous heroes?), nos. 277–280, 281 and 289, Svoronos places among the tokens inscribed with the names of plays. For the demes, ΔΗΜ ΠΕΙ (ραίεως), no. 110; ΚΟΙΛΗΣ, no. 111; possibly ΟΙΝΟ(η), nos. 153–155 (and L 147, L 157, two types), and ΕΛΑ<Ι>ΟΥ(ς), L 38.

¹³ Svoronos, 1900: nos. 181–228; *Pnyx*, I, no. 5; L 209. Dumont, p. 79, suggested reading πέν(ταθλον).

¹⁴ See Wycherley, *Agora*, III, p. 57; these tokens are mentioned in reference to the cult of Artemis Phosphoros.

Polykleitos, son of Alexandros, of Phlya, archon of Athens in 110/9 B.C. and epimelete of Delos in 99/8; Nikagoras will have been the son of Polykleitos, known from Pythaist lists at Delphi.¹⁵ A second son of Polykleitos, Alexandros, served as epimelete of Delos in 54/3 B.C. Both cicada and tripod, the devices used on this token, are found as types on Delos Cleruchy coins;¹⁶ the token was doubtless used in some public way, perhaps in a wheat distribution, or as a ticket to some festival for which the two members of the family were paying.

Many of the attested inscriptions on the tokens of the Greek and Hellenistic periods thus seem to fit the suggestion that these are official symbola used as exchange tokens. Those with the word *demos* would be suitable for the *ekklesiastikon*, those with *boule* and perhaps ΠΕΝ suitable as pay-tokens for meetings of the *boule* or possibly for members of the *boule* at meetings of the assembly or at the Greater Dionysia where the *bouleutai* sat in a separate section, τὸ βουλευτικόν.¹⁷ This might also apply to the tokens inscribed “*prytaneia*.” Tokens naming tribes or demes would be appropriate either for the *ekklesiastikon* or the *theorikon*, or for use as wheat distributions, for all of which the tokens, as already noted, were probably distributed by tribes and demes.¹⁸

Tokens with the names of gods fit less easily into the picture, but they might have served as admission tickets to festivals other than the Greater Dionysia. It may be noted in this connection that the *agonothetai* of the Theseia in the mid-2nd century paid the *καθέσιμον* for the *boule* for one or two days of the festival.¹⁹ The token with the names of Polykleitos and Nikagoras would be appropriate, as noted above, either as a free admission ticket or as an exchange token.

The tokens naming the play of Aristophanes, if indeed it be the play to which the inscription refers, would be tickets for a production of that play probably at the Greater Dionysia, and so a *theoric* token.²⁰

The abbreviated names of persons seem most probably to be the names of magistrates responsible for issuing or distributing the particular token, possibly a *σιτώνης* or *ταμίης τῶν σιτωνικῶν* for the wheat distribution, or one of the *συλλογεῖς τοῦ δήμου* for the *ekklesiastikon*. These short abbreviations, so difficult to identify, would scarcely have been used on private tokens or on shop money, where the identity of the individual or the shop is essential. The closest parallel would seem to be to the abbreviated names of the third magistrates on New Style coins of the middle period.²¹

Thus far we have tried to fit the inscriptions into the various categories of exchange tokens. The tokens of the *agoranomoi*, however, seem best explained as receipts. The collection of the market tax (*ἀγοραστικόν*) was one of the duties of the *agoranomoi*, and these tokens were prob-

¹⁵ See P. Roussel, *Délos Colonie Athenienne*, Paris, 1916, p. 111 for the *stemma*, and *B.C.H.*, LIX, 1935, pp. 66–67 for the identification of the epimelete with the archon, and the date of the latter.

¹⁶ Svoronos, *Monnaies*, pl. 106, nos. 17–22, 42–44, pl. 107, nos. 28–35, 42–45, 50–74. The same types also appear as added symbols on Athenian New Style coins, of 159/8 and 157/6 B.C.

¹⁷ Aristophanes, *Aves*, 794.

¹⁸ See above, p. 78 and note 9. That the grain distributions were made by tribe is suggested by the fact that the *sitonai*, originally ten in number, were increased to twelve in the period of the twelve tribes, Ferguson, *Hellenistic Athens*, p. 98, note 1 and *I.G.*, II³, 792. See also Svoronos, *J.I.A.N.*, VIII, 1905, p. 344.

¹⁹ *I.G.*, II³, 956, lines 14–15; 957, line 10; 958, line 12. See Ferguson, *Hellenistic Athens*, p. 290, note 1. The sum seems to represent the regular pay due the *bouleutai* for a day's session. Presumably they were being paid for attending the Theseia, although the text could be interpreted to mean that the *agonothetes* among his other benefactions was generously paying for the regular meeting.

²⁰ Performances of one of the plays of the Old Comedy were included in the Greater Dionysia from 339 B.C. on, Pickard-Cambridge, *Dramatic Festivals*, p. 100.

²¹ On present evidence there is no reason to suggest a direct connection between any of the coin magistrates and these hypothetical magistrates named on tokens. The official tokens may well have been made at the mint, so similarities in type of inscription and in device are easily explained by assuming that the same die-cutters were working on both coins and tokens.

ably given to the merchant as evidence that he had paid the tax.²² To the three types inscribed "agoranomoi" and "agor," cited above, note 11, one can probably safely add three more inscribed ΑΓ: Svoronos, 1900, no. 162 with caduceus as type, no. 163 with owl, and L 194 (Pl. 26) with herm as type. Note that the caduceus is used as a device on two of those inscribed ΑΓΟΡ.²³

Tokens inscribed with a number, such as the two with ΔΕΚΑ, L 39–L 40 (Pl. 20), or a sum of money, ΤΡΙΩΒΟ(ΛΟΝ), L 199 (Pl. 26) and four and a half obols, L 41 (Pl. 19), could be either receipts or exchange tokens.

The subjects chosen for the devices stamped on the tokens come, as already noted, from a repertory common alike to coins, stamped amphora handles and other objects where a relatively small design is required. In fact almost half of the subjects used on the Hellenistic tokens from the Athenian Agora occur on contemporary Athenian coins.²⁴ Most of these parallels are to the small symbols on Athenian New Style coins, symbols which changed annually and which marked a particular term of office. Also, some of the subjects used on the tokens, and in one case from an identical die, occur as stamps and countermarks on official weights and validated measures.²⁵ Thus it seems probable that the devices on the tokens also mark a particular issue or magistracy. Like the added symbols on the coins, the stamps on the weights, or the devices on amphora handles, the subjects were apparently chosen arbitrarily by the responsible magistrate.

In some few cases the subject chosen is probably relevant to the use. It is generally assumed that the various types on which an ear or branch of wheat is represented were exchange tokens for wheat in the free grain distributions.²⁶ The owls that are close to the types used on the silver triobols are probably exchange tokens for a triobol payment, perhaps dikastic symbola. The same may be true of some of the tokens stamped with gorgoneia, for both owls and gorgon heads are often found on bronze dikast tickets.

The devices in most cases, however, are of no help in assigning a particular token to a specific use. Similar devices appear with different inscriptions and the same inscription with different stamps: e.g., one example with a caduceus is inscribed ΑΓΟΡ, another ΕΡΧΟ (L 170, Pl. 25 and Svoronos, no. 294); ΟΙΝΟ is written on a token stamped with an owl, and on another stamped with an amphora (L 147, Pl. 24 and L 157, Pl. 25). Theater masks would seem eminently suitable for use on theoric symbola. In one case, however, a token stamped with a mask is inscribed ΠΕ (L 209, Pl. 27) and is thus presumably associated with the group of similarly

²² For this suggestion see Busolt-Swoboda, *Griech. Staatsk.*³, p. 1118, note 4 and Benndorf, p. 598. One of the meanings of σύμβολον in Ptolemaic and Roman Egypt was receipt, Rostovtzeff, *Bibl. Nat.*, pp. 151–152. Rostovtzeff suggested elsewhere, however, that these particular Athenian tokens of the agoranomoi were used in wheat distributions, *Num. Chron.*, XX, 1900, p. 103. But since a ταμίς τῶν σιτωνικῶν still existed at least as late as the time of Augustus (*I.G.*, II², 3504), I prefer the former suggestion.

²³ A token with a cicada and the letters ΑΓ is assigned to the agoranomoi both by Svoronos, no. 164, and Engel, no. 24; the placing of the letters argues somewhat against this restoration.

²⁴ This count does not include L 1–L 42 (Pls. 19, 20) with single letters or inscriptions as main types. Ninety-four out of the remaining two hundred Hellenistic types (L 43–L 241, Pls. 20–28) are stamped with devices found on coins. Detailed references to the types will be found in the catalogue.

²⁵ The same die seems to have been used for the head of Hephaistos on token L 262 (Pl. 28) and on a lead weight published by Pernice, *Griech. Gewichte*, Pl. I, no. 3, p. 82. A seated Dionysos as on token L 86 (Pl. 22) is also used on two lead weights and on two clay measures (see L 86 for references), but no one of these seems to be from the same die. For other subjects found both on lead tokens and as added stamps on lead weights see above, *Weights and Measures*, LW 26, 27, 28, 33, 45, 46, 84; also Pernice, *op. cit.*, pp. 19–23.

²⁶ Benndorf, p. 594, Rostovtzeff, *Num. Chron.*, XX, 1900, p. 103; and Svoronos, *J.I.A.N.*, VIII, 1905, p. 344 (a hoard of tokens found near Koropi at the east foot of Hymettos of which 81 are stamped with an owl on a branch of wheat). See L 172–L 173 (Pl. 25), L 197–L 198 (?; Pl. 26), L 233–L 234, L 235 (Pl. 28). The Eleusinian combination of poppy and wheat, such as L 213–215 (Pl. 27), or kernos with wheat through the handles, L 204–L 205 (Pl. 26), both paralleled on coins, may be simply devices chosen for a particular issue, either for the theorikon or the ekklesiastikon. The group of tokens, L 43–L 56 (Pl. 20), in which wheat is present in many of the stamps, may well have been used for grain.

inscribed tokens with a great variety of stamps, assigned by Svoronos to the boule. Another token with a double mask as device, inscribed EP (L 44, Pl. 20), is similarly by its inscription (and also its place of finding) associated with a group in which the other devices seem more appropriate for use in a wheat distribution. L 79 (Pl. 22) and L 208 (Pl. 27) may well be theoric symbola.

As an illustration of the diverse uses of a given device, and an indication of the impossibility of assigning any practical significance to a device so used, particulars may be given in one instance, that of the caduceus:

A. A caduceus is used as an added symbol beside a letter in at least two of the single letter series, L 7 (Pl. 19; Svoronos, 1900, nos. 37, 51), and Svoronos, no. 69; also as reverse on a token with a single letter as an obverse, L 19 (Pl. 19), and as a countermark beside a single letter, L 17 (Pl. 19).

B. Inscriptions beside a caduceus on seven types seem to suggest at least five unrelated uses:

1. ΑΓΟΡ on two types, L 170 (Pl. 25) and Svoronos, nos. 159–161; and ΑΓ on Svoronos, no. 162.
2. EP on L 47 (Pl. 20), probably to be restored as EPMI by comparison with L 43, so inscribed and stamped with caduceus and thunderbolt crossed.
3. EPXO and EPXOY, Svoronos, nos. 294, 295–296.
4. ΑΕΥ (?), Postolacca II, no. 570.
5. ΠΕΝ, Svoronos, no. 198.

C. On uninscribed tokens a caduceus is found on two examples which have stamps on the back: L 75 (Pl. 21) with thunderbolt as reverse, and L 76 (Pl. 21) with anchor as reverse; also on three with unstamped backs, L 171–L 173 (Pl. 25). An ear of wheat is shown beside the caduceus on L 172–L 173. Postolacca I, no. 226 (not illustrated), the device described as caduceus enclosed in olive wreath, would seem to be still another type.²⁷

There would thus seem to be no common denominator that would fit all of these examples. They include dikastic symbola (the single letter series), receipts of the agoranomoi, symbola probably used for the boule (ΠΕΝ), and others used in wheat distributions, L 172–L 173 and possibly that inscribed EP.

INSCRIPTIONS AND DEVICES: ROMAN PERIOD

Inscriptions and devices on Athenian tokens of the Roman period are again of only limited help in determining the use of a particular token. Inscriptions, when present, are however more often complete than are those on the earlier tokens. A *grammateus boules*, Aur. Bassos, is named on one type, Svoronos, 1900, nos. 230–231 (see on L 263); a member, probably an official, of the *hiera gerousia* on another, L 310 (Pl. 30); and the word *gerousias* on a third (see on L 244). Names of individuals, some of whom may have been officials of some sort, are found on others: L 243, L 244, L 300, L 320, L 326 (Pls. 28, 30). Gods and priests are occasionally named; these include Zeus, a priest of Zeus, and Hygieia (Svoronos, 1900, nos. 267, 250, 272).

Names of festivals include the Panhellenion, written in full on Svoronos, 1900, no. 274, and probably the Panathenaia, restored from ΠΑΝΑ, *ibid.*, no. 272a (illustrated, Postolacca I, no. 231), and the Soteria, restored from ΣΩΤΗΡ, *ibid.*, nos. 275–276. ΘΕΩΦΟΡΟΥΜΕΝΗ written on

²⁷ Postolacca I, nos. 225, 227, 229 and II, nos. 568–569, 571–572, not illustrated, may or may not be repeats of the examples cited. Engel, no. 200, is stamped with a combination of caduceus, poppy head and ear of wheat and inscribed ΑΠΙ; this is probably of the Roman period so it is not included in the list.

a token stamped with three theater masks is certainly to be interpreted as the name of the play by Menander, L 329 (Pl. 30 = Postolacca II, no. 732).

The tokens marked with the name of a festival or a play must have been used as admission tickets to the festival or play named. Those inscribed with the name of an official or individual might have been used either in a public distribution made by the person in question²⁸ or as an entrance ticket to a game or festival. In the latter case the individual named is presumably the person issuing the tickets (an agonothetes?). A special group of tokens probably used as entrance tickets, perhaps to Ephebic games, is described below (Section V of catalogue).

The devices chosen as stamps are in most cases familiar types commonly used in the 2nd and 3rd centuries after Christ. There are many parallels to the reverse types of contemporary coins, both Athenian issues and those from other parts of the Roman empire. These include Athena and olive or Theseus and minotaur, as found on Athenian coins; Helios in spread quadriga, Serapis, Asklepios and Telesphoros, or Hermes with money bags. Some of the devices chosen may well have been a speaking symbol for the name of the individual.

Countermarks are more frequent on tokens of the Roman period than on the Hellenistic examples. A countermark of stork and lizard occurs on fifteen of the types found together in and around the Stoa of Attalos (Section V of the catalogue), and a dolphin countermark on nine types of which seven are from two adjacent deposits on Kolonos Agoraios (L 248, L 251–L 252, L 257, L 264–L 265, L 275, L 289, L 291; Pls. 28, 29). The use of the same countermark on different types suggests that the originals were issued by the same authority. Therefore they would seem more appropriate for use as tickets to a recurring event than as exchange tokens in a donation.

PROBLEMS OF DATING

Style, type and fabric permit us, in most cases easily, to date a token either to the Hellenistic or to the Roman period. For instance a token of the 2nd century B.C. may readily be distinguished from an example of the 3rd century after Christ. There is, however, little inherent difference in the appearance of tokens of the 3rd and 2nd centuries B.C., or those of the 2nd and 3rd centuries after Christ. Dating based on style or workmanship is particularly hazardous for a class of objects such as these, where good or bad workmanship is so easily confused with good or bad preservation. Therefore a particular token can be closely dated only by outside evidence such as excavation context or a close and dated parallel to the stamp used on the token.

No lead tokens have been found that are demonstrably earlier than the middle of the 4th century.²⁹ By excavation context only eleven can be placed in this century, five from the Agora and six from the filling of the third period of the Assembly Place on the Pnyx (L 27 b, L 94 a, L 168, L 193, L 227; Pls. 19, 22, 25–27; *Pnyx* I, pp. 104ff., nos. 1, 3, 6, 7, 8, 13). The 36 types inscribed ΠΕΝ (see above p. 79) must also be placed in the 4th century if one accepts the restoration πεν(τακοσίωv). The few dated examples suggest that the typical token of the 4th century (and perhaps of the early 3rd) is rather solid and of medium size, 13–15 mm. in dia-

²⁸ Rostovtzeff, *Num. Chron.*, XX, 1900, p. 106, suggested that most of those from Asia Minor and Athens inscribed with the name of magistrate or individual were used in distributions, and cited the Athenian token of the *grammateus boules* as one example.

²⁹ Benndorf, p. 586, note 6 (followed by LaFaye in D-S, *s.v. tessera*) argued that some lead tokens belong to the end of the 5th century because the following inscriptions suggest that the post-Euclidian alphabet was not firmly established. On two types ΒΟΑΗ is found, Sv. nos. 172–173 (= Postolacca I, no. 281); ΠΡΥΤΑΝΕΑ on another two, Sv. nos. 238–239 (= Postolacca II, no. 281); ΑΙΓΕΙΣ for ΑΙΓΗΙΣ on Sv. no. 118 (= Postolacca II, no. 100); and ΔΕΜΟ for δημό(σιου) or δημό(ς) on Postolacca II, p. 303, no. 11. Recent evidence has shown that the occasional use of O for OY and E for EI continues well into the 4th century. For late uses of E for H see *Hesperia*, XXVIII, 1959, p. 278, no. 7 (XXIX, 1960, p. 86, no. 166), of ca. 249/8 B.C.

meter, with a relatively simple, clear device such as the bow, thorax or kernos of **L 168**, **L 227** and **L 203** (Pls. 25–27).

Lead tokens were in use in Athens continuously from at least the middle of the 4th century B.C. to the third quarter of the 3rd century after Christ. In the Agora collection there are scattered examples of the 4th century B.C., many of the Hellenistic period, relatively few that can be definitely assigned to the 1st and 2nd centuries after Christ, and again many of the 3rd century after Christ. The relative numbers in each period may be due partly to an imbalance in the Agora contexts³⁰ and partly to uncertainties in dating.

If however the absence of tokens that can be definitely dated in the first half of the 4th century B.C. and the relative scarcity of those from the second half is a true picture, one must assume that other objects were used as symbola for the ekklesiastikon and the theorikon, for both institutions were started at about the end of the 5th century.³¹ One might suggest as possible candidates for early symbola the series of tiny Athenian bronzes variously identified as tesserae or as coins called kollyboi, and variously dated to the end of the 5th century or to the late 4th and 3rd.³² They are small bronzes, 5–9 mm. in diameter, stamped on both sides with a great variety of types, letters and monograms. Some of the subjects are the same as those used on the lead tokens (see **L 22**, **L 74**, **L 77**, **L 97**, **L 128**, **L 129**, **L 187**, **L 196**; Pls. 20–23, 26). In spite of the difference in size, material and date (?), it is hard to believe that they were not intended for much the same use as some at least of the lead tokens, especially perhaps those with stamps on both sides (as **L 57–L 81**; Pls. 21, 22).

The other series of Athenian bronze tesserae, Svoronos, *Monnaies*, pls. 100–102, was certainly in use in the second half of the 4th century, probably as dikastic symbola.³³ It may also well be that for part of that century some material other than metal was used for the ekklesiastikon and the theorikon, possibly wood or clay.³⁴

By the 3rd century B.C. lead seems firmly established as the material regularly used for symbola. Even the bronze dikastic symbola were being replaced by lead tokens stamped with large single letters (**L 1–L 19**, Pl. 19), like those of the bronze series. The numbers and the variety in the Agora collection seem adequate to represent the major uses attested for the Hellenistic period. A fixed point at about the middle of the 2nd century B.C. is established by the tokens published as Section II of the catalogue, **L 43–L 56** (Pl. 20). These tokens, of

³⁰ In all Agora material there is a high proportion of late Hellenistic material, and also of material of the middle of the 3rd century after Christ, due to the fact that the area was pillaged by Sulla in 86 B.C. and by the Herulians in A.D. 267.

³¹ See A. M. Andreades, *History of Greek Public Finance I*, tr. by C. N. Brown, Harvard University Press, 1933, pp. 253 ff. Pickard-Cambridge, *Dramatic Festivals*, p. 270, however, pointed out that the history of charge for admission at the theater (the theorikon) was uncertain before Demosthenes' time, and that the generally accepted date at the end of the 5th century may be due to a confusion between the δωβελία as a poor fund and the two-obol theorikon for theater tickets. The jurors' pay, the dikastikon, was instituted earlier by Perikles. There is, however, no specific evidence to show that pay-tokens rather than actual money were used at the beginning.

³² Svoronos, *Monnaies*, pl. XVIII. Svoronos called them kollyboi and believed them to be legal money of the end of the 5th century, *J.I.A.N.*, XIV, 1911, pp. 123–160. S. Reinach, *Rev. Num.*, XXXI, 1928, pp. 150, 154 and Percy Gardner, *History of Ancient Coinage*, Oxford, 1918, pp. 296–297 both reject this suggestion, adhering to the older view that they are tesserae of some sort. See also M. Tod, *Num. Chron.*, series VI, vol. V, 1945, p. 112. Postolacca, *Ἀθήναρον*, IX, 1880, pp. 7–50 and *Ἐφ. Ἀρχ.*, 1884, pp. 1–10, published them as tesserae and dated them in the late 4th and early 3rd centuries. The drawings published by Postolacca are far clearer than the photographs on the Svoronos plate.

³³ Svoronos, *J.I.A.N.*, I, 1898, pp. 37–120, published these as the first group of tickets for the theater of Dionysos used both at meetings of the assembly and at the Dionysia (also illustrated in Svoronos' *Monnaies*, pl. 100–103). For the suggestion that they were used in the law courts rather than in the theater, a suggestion supported by recent excavation evidence, see Alan Boegehold, *Hesperia*, XXIX, 1960, pp. 393–401. The examples found in the Agora will be published in a forthcoming volume of this series.

³⁴ For example, dikast tickets, of which only bronze examples have survived, were of boxwood in the late 4th century, Aristotle, *Ath. Pol.*, 53, 4. Stamped clay disks, very like the lead tokens, have been found in Athens, but in much smaller numbers. Svoronos, writing in 1905, reported that 80 such pieces were all that he could find in Athens at that time (*J.I.A.N.*, VIII, 1905, pp. 323–328), and only 46 have been found in the Agora excavations (see below, pp. 124–126). Some may have been used occasionally as official symbola. Had they, however, been used in great numbers over any period of time, one would expect many more to have survived, since clay once baked is a material that cannot be re-used.

different types but with the same inscription and all found together, have been dated by the close correspondence of the types to the symbols on Athenian New Style coins dated in the years between 157/6 and 147/6 B.C.. They are small thin tokens, 11–13 mm. in diameter, with elaborate complicated designs as types.

In general, however, excavation evidence for precise dating is lacking. Most of the tokens of Hellenistic type come from sand and gravel at the bottom of the Great Drain, a natural place for small metal objects to be deposited, and a difficult place from which to establish precise chronology. The pottery and coins in this filling were in most cases a mixed lot of the 3rd and 2nd centuries and of the first quarter of the 1st century B.C. There were, however, occasional pockets of apparently pure 4th century material, and other spots that had been disturbed in the Roman period. (See deposit list, pp. 135–138, for specific details.)

The Agora Excavations have provided surprisingly little evidence on the tokens of the early Roman period. Only two examples were found in contexts of the 1st or 2nd centuries after Christ and both of these seem to be strays from Hellenistic fillings (L 15, Pl. 19; L 169, Pl. 25). Some, perhaps many, of the tokens published in Section IV of the catalogue probably belong to the 1st or 2nd centuries after Christ; others of the 1st century after Christ are probably included with the Hellenistic tokens of Section III. Given the limited evidence and the absence of dated types, the only basic difference between tokens of the 1st and the 3rd centuries would seem to be one of style and workmanship.³⁵ These criteria, as noted above, cannot be safely used because of the poor condition of many of the tokens. Therefore an early Roman date has been specifically suggested for only four types (L 243, L 247, L 257, L 282; Pls. 28, 29), although it may well apply to others.

The tokens published in Section V (L 299–L 331, Pl. 30) seem securely dated in the 3rd century after Christ. Presumably they represent those in current use in A.D. 267 when the Herulians sacked Athens (see below, pp. 115–117, for further details). They are definitely larger (20 to 25 mm. average diameter) than the typical Hellenistic token, are often carelessly stamped and in some cases struck over a still identifiable earlier device.

No tokens have been found in the Agora that need be dated after A.D. 267, nor is there, on present evidence, anything to suggest that tokens such as these were in general use in Athens after the 3rd century. They, like many other Athenian public institutions, apparently did not survive the upheaval caused by the Herulian sack.

CATALOGUE

NOTE ON ARRANGEMENT

Section I, L 1–L 42, includes those tokens in which a single letter, ligature, monogram, or inscription is used as a type. Unless otherwise stated all tokens in this section are believed to be of Hellenistic date.

Section II, L 43–L 56, is a special group of Hellenistic tokens of the middle or third quarter of the 2nd century B.C., perhaps used in a wheat distribution.

Section III, L 57–L 241, includes all the other tokens believed to be of Hellenistic date or earlier. Those stamped on both sides are in section IIIA, L 57–L 81.

Section IV, L 242–L 298, includes all those believed to be of Roman date except the special group published as section V.

³⁵ For dated examples of Athenian tokens of the earliest Roman period see Rostovtzeff, *Festschrift Otto Hirschfeld*, Berlin, 1903, pp. 303–311. He there published five types which he assigned to Augustus and dated to the year 19 B.C. Some he believed were used in distributions, probably for grain, others possibly as tickets for games celebrated at the time of Augustus's visit. He also included two with a portrait of Mark Antony. Three are illustrated by Postolacca II, no. 158 (Antony), nos. 174, 284 (both assigned to Augustus), and one by Engel, no. 40.

Section V, **L 299–L 331**, is a special group of the 3rd century after Christ found in and around the Stoa of Attalos. They presumably served as entrance tickets, perhaps to ephebic festivals.

Section VI, **L 332–L 336**, objects related to lead tokens, is made up of a lead disk with graffito, three lead sealings and a set of stamped strips.

Within each section the types are arranged alphabetically by subject thus:

- Figures, standing and seated: identified, unidentified
- Heads: identified, unidentified
- Animals, both mythological and real
- Miscellaneous

The arrangement of the catalogue by type rather than by use was chosen because of the uncertainties noted above (pp. 79, 81) in attempting to assign a particular token to a specific use. But, in spite of similar uncertainties in dating, it seemed useful to try to separate the Hellenistic types from the Roman. Some will certainly have been misplaced. This may be especially true of any that may belong to the Augustan period. These may well have been grouped erroneously with the Hellenistic types.

Each type or combination of types is given a separate catalogue number. In the case of tokens stamped on both sides, the capital letter A indicates the stamp on one side, a capital B that on the other. Thus **L 261A** and **261B** are opposite sides of the same token. Where more than one copy of a given type has been found, i.e. a duplicate from the same die, if the total is ten or less, the individual tokens are indicated by the small letters a-j placed after the catalogue number. If there are more than ten copies the total number is given immediately after the catalogue number and in the concordance the first occurrence is indicated by a small a after the catalogue number, the duplicates by an *id.* placed in front of the catalogue number.

Diameter is indicated in millimeters.

Finding places are generally indicated by the square or squares of the Agora grid (Pl. 36), with a context date where available; for dated deposits, the letter and number of the grid square is followed by the number of the deposit within that square (see Deposit List). The word "Square" is used to refer to the public part of the Agora Square. The phrase "Southwest Area" indicates the industrial area west of the Areopagus, and "Great Drain South" refers to the section of the Drain which passes through the Southwest Area.

The illustrations are all from photographs not from drawings. It was believed that in the case of such unclear badly preserved objects a photograph gives a more factual, less subjective picture.

NOTE ON REFERENCES TO ATHENIAN COINS AND ARCHONS

The various issues of Athenian New Style silver coins are identified simply by the year to which they are assigned by Margaret Thompson in *The New Style Silver Coinage of Athens*. References to the New Style bronze coins and to Athenian silver other than the New Style coins are given to the plates in Svoronos, *Monnaies*. Thus an Athenian issue is cited either as A.N.S. (Athenian New Style) 148/7 B.C. or as Sv. pl. 24, no. 1.

The dates given for Athenian archons of the 2nd century B.C. are those established by Meritt, *Hesperia*, XXVI, 1957, pp. 94–97, for archons of the 3rd century B.C. those established by Dinsmoor, *Hesperia*, XXIII, 1954, pp. 312–316 (with adjustments suggested by Meritt, *op.cit.*, p. 97). See now Meritt, *The Athenian Year*, 1961, pp. 232–238.

SECTION I

L 1–L 42 LETTERS, LIGATURES, MONOGRAMS, INSCRIPTIONS

Section I, **L 1–L 42**, includes all the tokens in which a single letter, ligature, monogram, or inscription is used as a type. **L 1–L 19** are almost certainly to be associated with the bronze tesserae with similar single letters and, like the bronze ones, may have served as dikastic symbola (see above, p. 84, note 33).

L 20–L 22 are four small tokens with single letters which do not appear to be associated with the bronze series; **L 23–L 36** include those with ligatures and

monograms; **L 37–L 42** are the tokens on which an inscription, either abbreviated or written in full, is the main part of the stamp.

Unless otherwise stated, all the tokens in this section should belong to the Hellenistic period.

L 1–L 19 LEAD TOKENS ASSOCIATED WITH THE BRONZE TESSERAE.

L 1–L 5 *Single letters, larger size.*

- L 1.** Kappa in a wreath. Pl. 19.
IL 418. 23 mm. On foundation of Altar of Ares (L 8).
- L 2.** Kappa. Pl. 19.
IL 941. 24 mm. Late Hellenistic context with occasional early Roman disturbance in Great Drain South (C 19).
Same as Svoronos, 1900, no. 57, pl. I, 36.
- L 3.** Chi. Pl. 19.
IL 1174. 26 mm. From southwestern part of Square (I 13).
- L 4.** Chi. Pl. 19.
IL 1410. 23 mm. The edge nicked. Late Hellenistic context in Great Drain South (D 16).
Probably from same series as **L 3**.
- L 5.** Chi with countermark. Pl. 19.
IL 1010. 26 mm. Late Hellenistic to early Roman context near the Great Drain (D 16).
Countermark, 10 mm. in diameter, of lidded kernos at end of one cross-bar.
A kernos is used as a symbol on some of the bronze tesserae (Svoronos, *Monnaies*, pl. 102, 16–19, 37–39 and Agora B 1160–1161); on those, however, the kernos has no lid. See **L 205** for a somewhat similar lidded kernos used as type on a lead token.
- L 6.** *Two letters in wreath.* Pl. 19.
IL 1441. 23 mm. From Kolonos Agoraios (A–E 9–14).
The surface is worn; apparently two tau's placed one above the other.
Without the wreath the two letters could be read as drachma signs thus H . But this would put the wreath on its side, a most unlikely position.
Cf. the published token, Svoronos, 1900, no. 77, pl. I, 56, on which two similarly placed tau's are scratched, not stamped.
A similar wreath is used on two inscribed tokens, **L 37** and **L 38**.
- L 7–L 9** *Single letters, large size, with added symbol.*
- L 7.** Alpha and winged caduceus. Pl. 19.
IL 54. 23 mm. From context of 3rd century after Christ in Great Drain (G 13).
Svoronos, 1900, published three tokens with single letter and caduceus, but no one of them corresponds exactly to this specimen. Two of approximately the same size, Svoronos, nos. 37, 51, pl. I, 23, 31, have the caduceus, apparently unwinged, to the right of the letter. The third, no. 69, pl. I, 49, is too small in diameter to have been used in the same series as ours.
- L 8.** Upsilon with round-bodied pot. Pl. 19.
IL 834. 21 mm. From southeastern part of Square (N–P 12–14).
To the right of the letter the lower half of a round-bodied pot on a low base is relatively clear. Above, the surface is badly preserved and no details can be deciphered.
- L 9.** Chi with wreath to right. Pl. 19.
IL 1173. 23 mm. From southwestern part of Square (H 14).
The chi is very similar to the chi's on some of the bronze tesserae which have an owl to the right, Agora B 1128, 1130, 1131.
- L 10–L 16** *Single letters, smaller size.*
- L 10.** Beta. Pl. 19.
IL 974. 18 mm. Late Hellenistic context, slightly disturbed, in Great Drain South (C 19). An incuse oval stamp 12 mm. high.
Svoronos, 1900, published five examples of a beta in an incuse stamp, nos. 20–24, of which three are illustrated (pl. I, 11–13). Our example from the Agora could be from the same die as his no. 24 (pl. I, 13).
- L 11.** Delta. Pl. 19.
IL 1437. 20 mm. From context of 3rd century after Christ to the west of the Middle Stoa (H 13).
A small Π (?) inside the delta.
- L 12.** Epsilon. Pl. 19.
IL 587. 16 mm. From a cistern on the slopes south of the Square in a context of the 3rd century B.C., deposit N 18:3.
The letter is in an incuse stamp 12 mm. in diameter. This token might easily belong to the same series as **L 10**.
- L 13.** Kappa. Pl. 19.
IL 716. 15 mm. From Turkish context along the Panathenaic Way south of the Square (T 21).
Note that this is a very thin disk, unlike the other tokens in this series of single letters. It perhaps does not belong to this series at all, and may well be much later in date.
- L 14.** Upsilon with a wreath. Pl. 19.
IL 738. 17 mm. From a mixed context, late Roman to Hellenistic, Southwest Area (A 18).
The upsilon is larger than the wreath which thus interlaces it.
- L 15.** Chi. Pl. 19.
IL 1223. 17 mm. From a well on the north slope of the Areopagus in context of late 1st to early 2nd century after Christ, deposit K 18:1. In an incuse oval stamp 9×11 mm.
This could be from the same series as **L 10** and **L 12**. Svoronos, 1900, published two tokens with the letter chi, nos. 75 and 76. No. 76 with diameter of 15 mm., described as in a marked incuse, might be from the same series as ours. See above, **L 3**, **L 4**, **L 5**, **L 9**, for other chi's.

L 16. Chi (?) in wreath. Pl. 19.

IL 1220. 20 mm. From a late Roman context south of the Square (H 16).

Surface very bad; the letter chi or perhaps crossed torches enclosed in a wide wreath.

L 17–L 19 *Single letters with stamp also on back.*

L 17. Alpha with countermark: Athena head right. Pl. 19.

IL 1463. 31 mm. From north slope of Areopagus (S 17).

A: Alpha with countermark of winged caduceus.

B: Athena head right, New Style coin type (?).

The Athena head on face B was probably struck from a New Style coin die as was **L 18**. It is a very dull impression and the stamp is not clear enough to enable one to decide whether the same die was used for the two tokens.

See p. 82 and Index for other tokens with a caduceus as type or countermark.

L 18. Gamma with countermark: Athena head right. Pl. 19.

IL 57. 33 mm. Found in front of the Metroon (I 9).

A: Gamma with circular countermark, 12 mm. in diam., of kernos (?).

B: Athena head right, New Style coin type.

The Athena head would seem to be struck from a coin die. The details correspond very closely to those of the head on the New Style tetradrachms on which Mithradates is named as one of the magistrates (Thompson, pl. 127, no. 1144a) and which are now dated by M. Thompson *ca.* 121 B.C. Cf. also the heads on the issues of 114/3 and 109/8 B.C., Thompson, pl. 134 no. 1200, pl. 138 no. 1230.

An Athena head of New Style type is also found on several bronze tesserae with a kernos stamp on the reverse (Svoronos, *Monnaies*, pl. 102, 37–39). Svoronos placed these in Class IX which he dated to the period between 255 and 220 B.C. The parallels for the head on this lead token suggest for it, and probably also for **L 17**, a date close to the beginning of the 1st century B.C.

L 19. Epsilon: Caduceus. Pl. 19.

IL 1188. 16 mm. Southwest Area (B 18).

A large epsilon, 10 mm. high, on face A is faint but seems certain. The lower half of the caduceus on face B is enclosed in a wreath. See p. 82 and Index for other tokens with caduceus stamps.

L 20–L 22 TOKENS WITH SINGLE LETTERS,
UNRELATED (?) TO BRONZE TESSERAЕ

L 20. Epsilon and star. Pl. 20.

IL 867. 12 mm. Late Hellenistic context in Great Drain South (D 16).

A somewhat angular thick disk, 4 mm. thick, with an epsilon and star in an incuse stamp 7 mm. in diam.

L 21. Alpha: Cornucopias and wheat (?), Inscribed. Pl. 20.

IL 837. 13 mm. Late Roman context near Great Drain South (B 20).

A: Broken bar alpha in incuse stamp 10 mm. in diameter.

B: An ear of wheat (?) between two cornucopias (?), crossed by horizontal bar with split angular ends (like a trident without the middle prong). In field lower left, an epsilon, lower right a blob which may originally have been a rho. See below **L 43–L 56**, group of tokens inscribed EP, to which this is perhaps related.

A similar stamp is found on a published token said to be from Karystos, Postolacca II, no. 624, pl. LII.

L 22. Nu: Ivy wreath. Pl. 20.

IL 730. 11 mm. Beside the Panathenaic Way south of the Square (R 20).

There is no certain trace on face B of any object within the wreath. Cf. however a token with a beta in an ivy wreath, Svoronos, 1900, no. 25, pl. I, 14, and the token from the Agora with an amphora (?) in an ivy wreath, below **L 161**. At the Numismatic Museum in Athens I noted a token with a similar small ivy wreath and uncertain back.

This resembles the kollyboi, in that it has a single letter on one side and a type stamped on the other. See for example the kollybos with an eta on one side, an ivy wreath on the other, Svoronos, *Monnaies*, pl. 18, no. 16, clearer in the drawing, Postolacca, *Ἀθηναίων*, no. 33. See p. 84.

L 23–L 36 LIGATURES AND MONOGRAMS

L 23. Ligature of alpha and rho. Pl. 19.

IL 170. 14 mm. West side of Panathenaic Way (P 14).

The same ligature but not the same stamp is found on two published tokens (Svoronos, 1900, nos. 167–168, pl. III, 11, 12) which Svoronos assigned tentatively to the Areopagites. A similar ligature but without the broken bar on the alpha is found on the issues of A.N.S. coins of 195/4 and 183/2 B.C.

L 24. Pi and theta. Pl. 19.

IL 1459. 13 mm. North slope of Areopagus (Q 17).

A pi with theta placed between its vertical hastas.

L 25. Sigma and ligature of alpha and rho. Pl. 19.

IL 1226. 15 mm. Context of late 2nd century B.C. on north slope of Areopagus (deposit M 18:2).

L 26. Monogram on shield. Pl. 19.

IL 322. 12 mm. From central part of Square.

▲ on shield with border of dots as rim, 9 mm. in diameter.

Svoronos, 1900, no. 135, pl. II, 20, published a similar token which he assigned to the tribe Attalis.

L 27 a-c. Monogram on shield. Pl. 19.

IL 1154, (ill.) 15 mm., from lower slope of Areopagus (F 20).

IL 832. 17 mm., context of late 4th and early 3rd centuries, Southwest Area, deposit A 18:8. An un-inventoried token, 15 mm., from same deposit.

As **L 26** except that the stamp is slightly larger, 10 mm. as diameter of border of dots, and in slightly higher relief. The tau is not clear on **b**; the uninventoried example is badly preserved and shows only the shield.

The tribe Attalis was not created until 201/0 B.C.

L 28. Monogram. Pl. 19.

IL 401. 19 mm. In front of Stoa of Attalos (O 7).

The token has disintegrated since finding; no check on photograph possible.

L 29. Monogram (?). Pl. 19.

IL 1406. 17 mm. From Southwest Area (A-D 17-22).

L 30. Monogram. Pl. 20.

IL 1453. 10 mm. Late Hellenistic context in Great Drain South (deposit B 20:9).

L 31. Monogram (?). Pl. 20.

IL 1231. 11 mm. From outside the excavations, Hellenistic context with modern disturbance, at foot of the Pnyx.

L 32. Monogram. Pl. 20.

IL 1407. 14 mm. Southwest Area (A-D 17-22).

A thin disk, perhaps very late in date. Note similar stamp, of same size, on unguentaria of 5th or 6th centuries after Christ (such as SS 4626).

L 33. Monogram: Traces (?). Pl. 20.

IL 781. 13 mm. Late Hellenistic context in Great Drain South (deposit B 20:9).

L 34. Monogram (?): Nike inscribed. Pl. 20.

IL 722. 17 mm. North Slope of Acropolis (T-U 23-26).

On reverse winged figure, Nike (?), with right arm raised. Letters to right and left: $A_{\ominus}^{\Phi} \Lambda$. The left hasta of the alpha is also part of the wing. All in line drawing only.

For Nike right, cf. A.N.S. coins of 189/8 and 171/0 B.C., Svoronos, pl. 35, 7-11, pl. 42, 1-20.

L 35. Monogram (?): Two stalks of wheat (?). Pl. 20.

IL 797. 14 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.

Monogram now illegible. On the back, upper surface somewhat damaged, a clear ear of wheat at right;

at left might be poppy head or wheat. See **L 213-L 215** and **L 294** for other tokens with wheat and poppy.

L 36 a-b. Monogram (?): Flower (?) in wreath. Pl. 20.

IL 796 (ill.), IL 808. 12 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.

Monogram now illegible. The object enclosed in the wreath on reverse might be a lotus flower.

L 37-L 42 INSCRIPTIONS AND NUMBERS USED AS TYPES

L 37. ΒΑΣΙ in wreath. Pl. 19.

IL 1022. 17 mm. Disturbed Hellenistic fill in Great Drain (D 16).

Βασι(λεύς) (?). For other examples of the titles of city officials on tokens see pp. 77, 79.

L 38. ΕΛ/ΑΟΥ in wreath. Pl. 19.

IL 1168. 15 mm. Northwest of Temple of Ares (I-J 6-7).

This token is similar in feel, size and general appearance to the preceding one. There is no space for, nor trace of, an iota between the alpha and the omicron. Is it omitted and could one read $\epsilon\lambda\alpha\langle i \rangle\omicron\upsilon$ or possibly a variant spelling $\epsilon\lambda\alpha\langle i \rangle\omicron\upsilon(\varsigma)$ for the Attic deme? See p. 79 for examples of deme names on tokens.

L 39. ΔΕΚΑ: Illegible. Pl. 20.

IL 1186. 11 mm. From an early Roman context in Southwest Area. Traces of an earlier (?) stamp on back, now illegible.

Cf. Svoronos, 1900, no. 233, pl. III, 27, another token probably from the same die. Svoronos restored the inscription as $\delta\epsilon\kappa\alpha(\delta\acute{\alpha}\rho\chi\omicron\iota)$ and placed it among the tokens of magistrates. It is equally possible to read it as the number 10. See p. 79.

L 40. ΔΕΚΑ. (not ill.)

IL 1210. 13 mm. West of Great Drain (D 15-16).

The surface of the token is badly worn and no picture is possible. The letters are written in two lines with the first letters of each, delta and kappa, smaller than the epsilon and alpha. A lunate epsilon and a broken bar alpha are used.

L 41. ΚΟΡΑΣΙΩΝ: Illegible. Pl. 19.

IL 1160. 21 mm. From north slope of Areopagus (O 21).

Inscription in two lines enclosed in wreath.

The word $\kappa\omicron\rho\acute{\alpha}\sigma\iota\omicron\nu$ as diminutive of $\kappa\omicron\rho\eta$ is known (L-S-J). Possibly it refers to some group of maidens taking part in a festival; if so it might have served as an entrance ticket.

Probably of Roman period.

L 42 a-b. ΙΙΙC. Pl. 19.

Two copies, 20-22 mm. IL 814 (ill.), Hellenistic context in Great Drain South (deposit A-B 19-20:1).

IL 992, late Hellenistic context in Great Drain (C 18-19).

The symbol for four and one half obols with an illegible object above.

Since the weights, six and seven grams, are not that of four and a half obols, the tokens would seem to refer to a sum of money.

SECTION II

L 43-L 56 HELLENISTIC TYPES: GROUP OF TOKENS OF MID-2ND CENTURY B.C., POSSIBLY FOR GRAIN DISTRIBUTION

The 14 types published here as a special group, L 43-L 56, are believed to be synchronous and to have served the same purpose. Ten types (29 examples) are inscribed EP, one type (three examples) EPMI, and one has a ligature that could be read as EP. They are very alike in style and fabric. Of the 38 tokens included in the group, 34 were found together in the gravel at the bottom of the southern branch of the Great Drain, deposit C 18:14 (see deposit list for description of this deposit and a list of other tokens found in it). Two uninscribed types are included, L 52 because it is so like L 51, and L 56, partly because it is so like the others in style and fabric and partly because four examples were found in the deposit.

Of the twelve subjects used as types six occur as symbols on five closely contemporary issues of Athenian New Style coins. These five issues are dated by Margaret Thompson in various years between 165/4 and 157/6. Another type, L 48, corresponds to the symbol used on the coin issue of 147/6. It seems safe to assume that this group of tokens must be of about the same date as the coins to which they correspond, that is, about the middle of the 2nd century.

The tokens inscribed EPMI are so similar in fabric, size, and in the rather ornate device used as type to those inscribed EP with which they were found that the two inscriptions seem best interpreted as abbreviations of the same word or name. The possibilities are thus limited to a proper name of which Hermias and Hermippos are the only two among known Athenians. Of the about 80 known Athenians named Hermias at least 18 belong to the 2nd century and of the 17 named Hermippos eight.¹ There is no evidence on which to choose among these possibilities. Presumably he was the person who issued the tokens.

The fact that wheat forms part of the device in seven of the thirteen identified types (excluding L 52) suggests the possibility that these tokens may have been used in a wheat distribution, but since two of the devices with wheat, L 49 and L 50, are borrowed directly from coin symbols, the percentage does not seem high enough to be decisive. It may be noted,

however, that there was a free distribution of wheat in the year 147/6 B.C. (*I.G.*, II², 968, line 37) which accords perfectly with the probable date of these tokens. If the tokens are symbola sitonika, they were presumably all issued in that one year with the different types used for different sections of the population, probably one type for the members of each deme. If however they are symbola ekklesiastika or theorika they may have been issued over a period of fifteen or twenty years perhaps to members of the same deme, of which Hermias or Hermippos may have been an official or clerk of some sort.

L 43 a-c. Thunderbolt, trident and caduceus ^{E P}_{M I}. Pl. 20.

IL 922, 923 (ill.), 924. 15-11 mm., diam. of stamp 11 mm. Great Drain South, deposit C 18:14.

An elaborate thunderbolt crossed by staff which ends in trident at right, caduceus at left. Letters in the four corners. A name such as Ἑρμίας or Ἑρμιππος is probably to be restored.

A winged thunderbolt is used as symbol on the A.N.S. silver issue of 162/1 B.C., and a simpler one beside a tripod on the reverse of a bronze series, Svoronos, pl. 80, 1-7, pl. 72, 16-17, probably contemporary with the silver issue of 157/6 B.C. (see also J. P. Shear, *Hesperia*, II, 1933, pl. VII).

For other tokens with a thunderbolt see L 74 and L 75. Note that L 75 came from the same deposit as the present type.

L 44. Janiform Masks (?) E P. Pl. 20.

IL 985. 13 mm., diam. of stamp 9 mm. Deposit C 18:14.

Two round-faced unbearded heads back to back with bearded head set across the top facing up. E to left, P to right. The two heads clearly end in a conventional tassel or hair rather than a neck, therefore probably represent masks with a third across the top rather than a double Herm.²

See L 79 and L 208, tokens with Janiform masks with different inscriptions.

A similar combination of three masks is found on some gems with a bearded and unbearded mask back

¹ Count based on the catalogue of names at the Institute for Advanced Study.

² The two unbearded heads are very close to an unbearded Janus head on some Roman coins of the late 3rd and early 2nd century B.C., E. A. Sydenham, *The Coinage of the Roman Republic*, 1952, pl. 13, nos. 64-70. For further discussion of Janiform heads and double Herms see A. B. Cook, *Zeus*, II, pp. 374ff., III, p. 1132.

to back and a bearded one across the top, Furtwängler, *Geschnittene Steine in Antiquarium*, Berlin, 1896, no. 5318 and one in the Lewis collection in Cambridge, illustrated in Cook, *Zeus*, II, p. 389, fig. 298.

Janiform heads occur in Athens in various shapes and material from at least the end of the 6th century B.C. See for example an issue of early coins, Svoronos, pl. 7, 38–43, a black-figured lekythos of ca. 500 B.C., *B.C.H.*, LXXVI, 1952, pp. 597–604, and some of the plastic head vases of the 5th century B.C., *J.H.S.*, XLIV, 1929, pp. 38–78. A fine example is found on a clay seal impression from the Agora; see below C 7.

Five lead tokens with Janiform heads or masks have been published but they offer no exact parallels for the Agora examples, Postolacca II, nos. 728–731, Engel, no. 106.

L 45 a-b. Winged animal with human head EP. Pl. 20.
IL 928–929. 11 mm., diam. of stamp 9 mm. Deposit C 18:14.

Forepart of animal body, bearded human head, wings, and front flipper-like feet. EP in field below.

L 46. Cicada E P. Pl. 20.
IL 978 and an uninventoried example. 14 mm., diam. of stamp 10 mm. Deposit C 18:14.

E to left, P to right.

A cicada is used as symbol on three issues of A.N.S. silver: 185/4 B.C., 159/8 B.C., and 100/99 B.C. It is also used on the bronze series with Apollo Delios which is associated with the silver issue of 148/7 B.C.; for the bronze see Svoronos, pl. 56, 26–27, pl. 80, 8–14. The plump cicada of the token is relatively close to the symbols for the issues cited of 159/8 and 148/7 B.C.

See L 119–L 122, for other tokens from the Agora with a cicada and for reference to the published tokens with cicadas, no one of which seems connected with this type.

L 47 a-b. Winged (?) caduceus E P. Pl. 20.
IL 935 (ill.). 13 mm., diam. of stamp 10 mm. Deposit C 18:14. IL 1209. 13 mm. Roman context west of Great Drain (C 16).

E lower left, P lower right.

The “wings” on the caduceus are dissimilar; the one at right might possibly represent an ear of wheat.

A winged caduceus is used as symbol on the A.N.S. silver issues of 165/4 B.C., and of 101/0 B.C. See pp. 82 for other tokens with a caduceus as type.

L 48 a-c. Cluster of grapes E P. Pl. 20.
IL 938 (ill.), 982, 987. 11–12 mm., diam. of stamp 9.5 mm. Deposit C 18:14.

Cluster of grapes hanging from a branch. In field on either side the letters E P.

It is very similar to the cluster used as a symbol on the A.N.S. silver issue of 147/6 B.C.

L 49 a-j. Cornucopia between wheat E P. Pl. 20.
IL 917 (ill.), 918–921, 984, 989, and one uninventoried from deposit C 18:14. IL 943 from late Hellenistic context further south in Great Drain (C 19). IL 1213, disturbed fill west of Great Drain (D 16). 12–13 mm., diam. of stamp 10 mm. A cornucopia between two ears of wheat, E upper left, P upper right.

The same subject is used as symbol on the A.N.S. silver issue of 160/59 B.C.

L 50 a-c. Cornucopia between wheat EP. Pl. 20.
IL 925, 926 (ill.), 927. 10–13 mm., diam. of stamp 10 mm. Deposit C 18:14.

The stems of the wheat do not join the cornucopia as in the preceding type; the letters EP below the cornucopia.

See above for coin reference, below L 177 for another token with a cornucopia.

L 51. Pot with two ears of wheat (?) E P. Pl. 20.
IL 794. 12 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.

Apparently a round-bodied pot from which two ears of wheat arise. E in field left; P at right. Traces of wreath or branches at bottom.

Note that this token was not found with the others published in this group, but is included because of the inscription and similarity of subject. See below L 56, clearly not the same stamp as that one.

L 52. Uncertain. Pl. 20.
IL 991. 13 mm. Deposit C 18:14.

The stamp is far from clear. Possibly same subject as preceding.

L 53 a-c. Tripod E P. Pl. 20.
IL 930 (ill.), 931, 940. 11–13 mm., diam. of stamp 10 mm. Deposit C 18:14.

Tripod, poppy head to either side with stems crossing in front of tripod, small vertical (grain of wheat?) to either side. E lower left, P lower right.

A tripod is used as a symbol on the A.N.S. silver issue of 157/6 B.C.

A published token, Engel no. 194 with diameter of 14 mm., has a tripod with an epsilon to the left of it all enclosed in a laurel wreath. The drawing shows traces of a vertical to the right which might be restored as a rho and thus correspond to our type. But there is no trace of a wreath on ours and the tripod is different in type.

Svoronos, 1900 published two lead tokens with a tripod and inscription EPEXΘ on one side, a figure of Dionysos on the other (nos. 139–140, pl. II, 23). Pickard-Cambridge, *Dramatic Festivals*, illustrates one of these as a theater ticket, fig. 206. Neither this type nor the other published token with a tripod, Engel no. 169, seems to bear any direct relation to our tokens.

L 54 a-b. Three ears of wheat (?) crossed EP. Pl. 20.
IL 981, 986 (ill.). 12-14 mm., diam. of stamp
9 mm. Deposit C 18:14.

E to left, P to right.

The three "ears of wheat" are not identical. The two outer ones are shaggier with slightly shaggy stems. The same contrast is found on an A.N.S. bronze issue, with two ears crossed, Svoronos, *Monnaies*, pl. 104, 46-50. In Pick's *Index* to Svoronos' plates the type is described as "palm branch and ear of wheat crossed." M. Thompson, however, *Hesperia*, XI, 1942, p. 226, pl. I, 13, describes the type as "two ears of wheat." On the tokens the two outer stalks do seem closer to wheat than to a palm branch.

One and two ears of wheat are found on several A.N.S. issues, but there are no close parallels for this type. Among the published tokens, of which there are many with one, two or three ears of wheat, the only one that at all resembles this type is Postolacca II, no. 529 (pl. LII), where the two outer stalks are crossed, but the central one, at least as drawn, does not come down and it does not carry this inscription.

See Index for other tokens from the Agora on which wheat is found.

L 55. Standing figure facing, monogram. Pl. 20.
IL 937. 11 mm. Deposit C 18:14.

Figure facing, head turned to left; uncertain object in left hand, right hand stretched out above

uncertain object. Monogram or ligature in field upper left.

The details are far from clear. The pose is like that of the winged Tyche casting a ballot used as symbol on the A.N.S. silver issues of 139/8 and 137/6 B.C. There Tyche has a cornucopia on the left shoulder and is dropping a vote into an amphora with right hand. It is not impossible that the figure on the token is the same.

The monogram is far from clear. By reading it from bottom to top one can imagine the ligature EP. A published Athenian token, Postolacca II, no. 244 (pl. LII; Benndorf, p. 590, no. 18, pl. 56) shows a draped winged figure dropping something in a vase with right hand. As drawn it is very close to the symbol on the coins, but the wings are more prominent than on our token.

L 56 a-d. Hydria with wheat (?) Pl. 20.

IL 910 (ill.), 932, 933, 979. 12-14 mm., diam. of stamp 10.5 mm. Deposit C 18:14.

Round-bodied rather tall-necked jug with one vertical handle, two small handles (?) at side; two sprays, probably ears of wheat projecting from its mouth.

No letters are visible but the tokens correspond so closely in style, fabric and size with those inscribed EP that I do not hesitate to include them with this group.

SECTION III

L 57-L 241 HELLENISTIC TYPES, GENERAL

SECTION III A: STAMPED ON BOTH SIDES

Section III A, L 57-L 81, includes all the Hellenistic tokens stamped on both sides except for the seven that have been placed in Section I because they had a letter or monogram as a type. They are mostly small in size and probably pre-Sullan in date. Note that all of those with the same stamp on each side, 5 types (9 tokens), and 8 types (10 tokens) of those with different stamps are from the same deposit B 20:9 and may date from the second half of the 2nd century B.C. (see deposit list).

SAME STAMP

L 57 a-c. Bearded bust, right: Same. Pl. 21.

IL 785 (ill.), 786, 806. 11-12 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.

Bearded, filleted bust, possibly a symbol behind the shoulder.

L 58. Female head, right: Same. Pl. 21.

IL 790. 13 mm. Deposit B 20:9.

Uncertain headdress, a mural crown (?).

L 59. Pilei of Dioskouroi: Same. Pl. 21.

IL 812. 12 mm. Deposit B 20:9.

The stamp is placed differently on the two sides and neither gives the full representation. The complete rayed tops are shown only on face A, the bottom streamers only on face B.

The pilei of the Dioskouroi are used as a symbol on two series of A.N.S. silver coins, 186/5 B.C. and 131/0 B.C.

L 60 a-b. Protome of horse, right: Same. Pl. 21.

IL 782 (ill.), 803. 12 mm. Deposit B 20:9.

Head and neck of horse.

Two published lead tokens, Postolacca I, nos. 264-265, are stamped with a horse's head right; the one that is illustrated, no. 264, is not identical with ours.

The same type of horse's head right is used as a symbol on an issue of Athenian bronze, Svoronos, *Monnaies*, pl. 22, nos. 53-54, dated by Svoronos 297-255, but placed with Class III of the A.N.S. coins by Bellinger, *N.N. M.*, no. 42, 1930, p. 2.

See below L 135 and L 136 for a similar horse's head on top of a column.

L 61 a-c. Uncertain representation: Same. Pl. 21.

IL 784, 813 (ill.). 11–12 mm. Deposit B 20:9. IL 912. 13 mm. Late Hellenistic context in Great Drain South, deposit C 18:14.

The stamp of face A is slightly larger than that on face B. The stamp is relatively clear. The upper half might be interpreted as a small figure, Eros or Nike (?) running or flying left with shield and spear. The lower half, however, looks most like an insect's body with four legs.

Copy c is badly preserved, with the stamp clear only on side B.

DIFFERENT STAMP

L 62. Hermes running left: Uncertain representation. Pl. 21.

IL 866. 10 mm. Late Hellenistic context in Great Drain South (D 16).

A: Figure running left with flying drapery behind; caduceus on left shoulder, money-bags (?) in right hand; branch in field upper left.

B: Uncertain. Possibly an owl right, above some horizontal object. This stamp is much worn and may represent an earlier use of token.

Hermes is used as symbol on two issues of A.N.S. silver, of 183/2 B.C. and 126/5 B.C.

L 63. Standing figure: Lion right. Pl. 21.

IL 780. 11 mm. Deposit B 20:9.

A: Figure facing, in short tunic; staff in left hand; in field left, a star.

B: Forepart of lion.

A somewhat similar forepart of lion right is used as a symbol on the A.N.S. silver issue of 164/3 B.C.

L 64. Standing figure, right: Uncertain representation. Pl. 21.

IL 795. 13 mm. Deposit B 20:9. Surface poor on both sides.

A: Nude figure with right foot raised; a second smaller figure or a herm to the right.

B: Uncertain, possibly a seated figure right with large object in his lap.

L 65. Helmeted bust, right: Gorgoneion (?). Pl. 21.

IL 1155. 13 mm. From the lower slope of the Areopagus (F 20).

The helmeted bust on face A is in a marked incuse stamp 12 mm. in diameter. Face B with a dull impression of a head front, probably a gorgoneion with heavy hair, may represent an earlier use of the disk. See **L 182** for references to other tokens with gorgon-heads.

L 66. Head, right, inscribed: Uncertain. Pl. 21.

IL 1021. 14 mm. Late Hellenistic context, disturbed, in Great Drain (D 16).

On both sides the impressions are sharp but their surfaces rubbed smooth. Above the head on face A there seem to be the two letters AI.

L 67. Female head, right: Head left, helmeted (?). Pl. 21.

IL 1040. 16 mm. Beside the Great Drain South (C 18).

This token was found at the surface of the stone packing between the Great Drain and a house wall. It is probably, but not certainly, to be associated either with the packing which dates from the early 4th century B.C. or with the Hellenistic deposit in the Great Drain.

L 68. Bull: Uncertain. Pl. 21.

IL 1229. 14 mm. From outside the Agora excavations; Hellenistic context with modern disturbance, at foot of the Pnyx.

A: Bull right, butting or pawing the ground. The disk is too small for the die, so the head is missing.

B: Unclear.

This and the following token, both thick and solid with sharp stamps, are more like coins than they are like other lead tokens.

A similar bull butting right is used as a device on coins of various places in the Greek world, such as Thurium (*B.M.C. Italy*, p. 287), Phlius (*B.M.C., Peloponnesus*, pl. VI, 20) and the Euboian League coins, these last of the early 2nd century (*N.N. M.*, no. 134, 1956, pl. XV, 1–9, p. 129 for date).

L 69. Bull's head, inscribed: Prow. Pl. 21.

IL 1299. 14 mm. Context of 4th to 3rd centuries in South Stoa I (O 16).

A: Bull's head and neck, right, turned half front; letter mu in field behind, horizontal line above head.

B: Prow right, with forecastle prominent.

More like a coin than a token, see **L 68**.

Both bull's head and prow are common devices on coins throughout the Greek world. A coin with bull's head right: prow right from an unknown mint in South Italy is listed but not illustrated in *B.M.C., Italy*, p. 56, no. 7.

This particular bull's head half front is close to some of the Euboian League coins, *N.N. M.*, no. 134, 1956, pl. XII, 35–38.

A prow occurs as a symbol on Athenian coins of the 3rd century, Svoronos, pl. 23, 30, and on the A.N.S. issue of 153/2 B.C. The prow on the token is not very close to these, is in fact much closer to the prows used on coins of Megara, *B.M.C., Attica*, pl. XXI, 10–11 (nos. 21–34) of ca. 307–243.

An almost identical prow right with prominent forecastle occurs on five stamped clay disks from the Agora (**C 15 a–e**). These, however, have a small seated figure of which there is no trace on the token.

See Index under "ships, prow" for other tokens with prow used as symbol.

L 70. Centaur: Seated figure (?). Pl. 21.

IL 1163. 13 mm. Northeast of the Tholos (H 11).

A: A centaur galloping right with upraised right arm.

B: Much worn.

L 71. Eagle right, inscribed: Winged animal (?) right. Pl. 21.

IL 980. 11 mm. Late Hellenistic context in Great Drain South, deposit C 18:14.

A: An omega behind the head of the eagle.

B: The animal might be a winged horse or some kind of bird.

An eagle is used as symbol on two issues of A.N.S. coins, those of 173/2 B.C. and 158/7 B.C.

L 72 a-b. Lion left (?): Uncertain representation. Pl. 21.

IL 788 (ill.), 807. 11 mm. Both from Late Hellenistic context in Great Drain South, deposit B 20:9.

The lion on face A is in a deeply incuse stamp 9 mm. in diameter.

Face B is much worn and may represent an earlier use of the disk with a stamp of a cornucopia or the head and neck of a crested bird.

L 73. Owl right, in wreath: Fly or bee. Pl. 21.

IL 1134. 16 mm. Late Hellenistic context in Great Drain (G 13).

On both sides there are incuse dots interrupting the original stamps, 3 on face A, 5 on face B. They may be intentional countermarks or cancellation or some accidental damage. An owl right standing on βόκιχος all in wreath of wheat is the reverse type on New Style silver triobols. See below **L 144-L 151** for other owls.

L 74. Turtle and nu: Thunderbolt and nu. Pl. 21.

IL 355. 14 mm. Disturbed Hellenistic fill in Great Drain (F-G 13).

A relatively large letter beside a symbol is often found on the bronze kollyboi, and the turtle is also used on them.

L 75. Caduceus: Thunderbolt. Pl. 21.

IL 934. 12 mm. Late Hellenistic context in Great Drain South, deposit C 18:14.

Both caduceus and thunderbolt are among the devices used as symbols on Athenian coins. See above **L 43** and **L 47** for references.

L 76 a-b. Caduceus (?): Anchor (?). Pl. 21.

IL 810 (ill.), 1187. 13-15 mm. Late Hellenistic context in Great Drain, deposit B 20:9 and B 20.

The stamps are far from clear and the identifications not certain.

An anchor is used as a symbol on the A.N.S. silver issue of 166/5 B.C.

L 77. Gorgoneion: Lizard. Pl. 22.

IL 1189. 11 mm. Accumulated filling of 5th and 4th centuries with late Hellenistic disturbance in the Southwest Area (A 20).

On face B there is an indeterminate object to the left of the lizard's head.

This is a small solid lead disk with clipped edges not unlike the smaller bronze kollyboi. References to other tokens with gorgon-heads are given under **L 182**.

L 78. Gorgoneion: Snake. Pl. 22.

IL 1132. 15 mm. From the Panathenaic Way south of the Square (S 19).

A chip is missing from the edge of the token and the surface of the left half of face B is in poor condition. It is not impossible that the original representation was the serpent-drawn car of Triptolemos or Demeter, see below **L 94**.

L 79. Janiform masks, inscribed: Cithara. Pl. 22.

IL 1452. 11 mm. Deposit B 20:9.

A: Two bearded (?) masks back to back. Possibly a third across the top as on **L 44** (*q.v.* for discussion of type). Letters at left, from bottom to top, EPATO. The first letter is uncertain, looking most like an uncompleted omicron with a scratch across it extending into the rho. If one assumes that the left part of the scratch is intentional it can be read either as a theta or as a lunate epsilon. The latter suggests the reading EPATO (ΥΣ), the muse of Lyric Poetry whose cithara is on the reverse.¹ A personal name such as Eratokles or Eratosthenes is equally possible.

B: Cithara. Postolacca II, pl. LII, no. 655, illustrates a token with a very similar instrument.

This token may have been designed for use at some particular musical contest or for use as a theorikon with a possible reference to the name of an official who issued the tokens.

L 80. Triskeles, left: Uncertain. Pl. 22.

IL 883. 11 mm. Late Roman context, Southwest Area (D 18).

The stamp on the back might be another triskeles with thicker legs (?).

Six lead tokens with a triskeles on one side are published by Svoronos, 1900, nos. 217-222, inscribed ΠΕ which Svoronos assigned to the council of five hundred. Another, Svoronos, 1900, no. 176a, is inscribed BOY. No traces of letters can be seen on our token.

L 81. A flat scroll: Uncertain. Pl. 22.

IL 1211. 15 mm. Southwest Area (D 15-16).

The stamp on the back is badly preserved; a round blob is clear but no details preserved.

¹ O. Bie in Roscher, *Myth. Lex.*, s.v. Μοῦσα II, p. 3295.

SECTION III B: STAMPED ON ONE SIDE ONLY

82-106 FIGURES.

L 82. Aphrodite Pandemos, inscribed. Pl. 22.

IL 1178. 9 mm. Late Hellenistic-Early Roman context west end of Middle Stoa, deposit H 13:3.

A figure facing front riding a goat (?) galloping right. Arms upraised holding scarf which billows out in loop above her head. A single letter, alpha, delta or lambda, below the animal's head.

This type of Aphrodite, riding a goat, either with cloak over her head or scarf above it, copied from the Aphrodite Pandemos at Olympia by Skopas, is found on mirrors, gems, terracottas and coins (see Richter, *Sculpture and Sculptors of the Greeks*, p. 272, fig. 204, and notes 123, 124. Also Pottier, *La nécropole de Myrina*, pl. VI, 2, and p. 293).

That this same type also was associated with Aphrodite Pandemos in Athens and her sanctuary below the Acropolis is suggested by the fact that a small marble relief was found South of the Acropolis (L. von Sybel, *Katalog der Skulpturen zu Athen*, 1881, no. 4246) as well as another example of this same token, Postolacca II, no. 304, pl. LII (see *Jahrb.*, IV, 1889, pp. 208-209, where Boehm makes the suggestion and identifies the published token as Aphrodite Pandemos).

L 83. Apollo Delios with three Graces. Pl. 22.

IL 916. 10 mm. Late Hellenistic context in Great Drain South, deposit C 18:14.

Nude figure facing, with statuettes of the three Graces in right hand, bow in left.

This representation of the Delian Apollo with statuettes in right hand and bow in left is used as a symbol on the A.N.S. issue of 148/7 B.C., and as a reverse type on bronzes probably contemporary with the silver issue, Svoronos, pl. 56, 26-27; pl. 80, 8-14.

On some of the coins the three Graces look just like a small trident as they do on the token.

2nd century B.C.

L 84. Artemis with torch (?), inscribed. Pl. 22.

IL 1020. 11 mm. In context of 1st century B.C. just South of Square (F 16).

Figure in short chiton striding right with torch held in both hands. Letters at right, Μ Σ. Uncertain symbol or letters to left of head.

This is the same representation as that used as symbol on the A.N.S. issue of 143/2 B.C., and as reverse type on the bronzes associated with the silver issue, Svoronos, pl. 73, 16-17; pl. 81, 53-56. Usually called Artemis with torch.

L 85. Asklepios (?). Pl. 22.

IL 1192. 16 mm. Roman context, Southwest Area (D 18).

The surface is badly worn and details far from clear, but it seems to be Asklepios facing with head to left and serpent staff in field left.

Three published tokens, Engel, nos. 122-124, show this same Asklepios type but they do not seem to be from the same stamp as ours.

This same type is used as symbol on two issues of A.N.S. silver, of 167/6 B.C. and 99/8 B.C.

See below **L 299-L 300** for Asklepios on tokens of the Roman period.

L 86. Dionysos (?) seated right. Pl. 22.

IL 1184. 14 mm. Southwest Area (A-D 17-22).

A figure seated right on high-backed throne; two dots, originally letters (?), in field left.

The surface is bad and the details are not clear. The pose is that of the throned Dionysos used as symbol on the A.N.S. silver issue of 90/89 B.C., and as a reverse type on coins of the Imperial period, Svoronos, pl. 92, 8-21. This type has been found used as a sealing on two pots, probably measures (**DM 66**), from the Agora of the end of the 2nd or early 1st centuries, *Hesperia*, XVIII, 1949, pp. 108-113 and also on two lead weights, one from the Agora, above **LW 17** and one in the collection of the Archaeological Society in Athens, Pernice, *Griech. Gewichte*, no. 6.

A lead token with the same type is published by Svoronos, 1900, no. 112 (pl. II, 45), on which he read the letters ΔHM set vertically in field left and associated it with the demos of the Athenians.

See below **L 310** for examples of the same type used on tokens of the Roman period.

The same stamp does not seem to have been used on any of these objects.

L 87. Dionysos in cart. Pl. 22.

IL 1443. 15 mm. Roman context south of the Eponymous Heroes (I 11).

Cart and horse right, seated figure in cart, with large thyrsos (?) in front of figure. Dots below ground line may have been letters.

Although the surface is bad and details are far from clear, the subject is almost certainly taken from a Dionysiac procession, with Dionysos in the cart. For a very similar scene cf. that on a red-figured chous, L. Deubner, *Attische Feste*, pl. 11, nos. 3, 4. See **L 88** for another token showing the cart of Dionysos.

L 88. Dionysos, cart of. Pl. 22.

IL 350. 17 mm. Roman context northwest of Square (F 3).

Cart drawn right by two horses; stylis set in bell-shaped object on cart; uncertain objects in field upper right.

A ship's standard or stylis, symbolizing the ship of Dionysos, was carried in the Hieros Gamos procession at the Anthesteria. For other representations of stylises see Deubner, *Attische Feste*, pl. 11, nos. 2, 3, pl. 12, pp. 105-106. For recent discussion of Hieros Gamos processions, see Pickard-Cambridge, *Dramatic Festivals*, pp. 11-12.

Benndorf published another copy of this same token, p. 612, no. 4, no. 51 on plate, which he described as the wagon carrying the peplos in the Panathenaic procession. The object in field upper right is described and drawn as an animal right. The token is one of twenty-six at the Archaeological Museum at Göttingen listed by Benndorf.

L 89. Eros right. Pl. 22.

IL 1152. 13 mm. Byzantine context in Great Drain (D 15).

Eros right, leaning forward with right leg extended; uncertain object in outstretched hands. An Eros in somewhat similar pose is found on a kollybos, Svoronos, *Monnaies*, pl. 18, 89.

See **L 258** and **L 259**, Erotes of Roman period.

L 90. Herakles with beast, inscribed. Pl. 22.

IL 615. 12 mm. Late Roman context northeast of Tholos (H 11).

A bearded nude figure dragging with his left hand a beast (?) left; club over r. shoulder. A letter, possibly E, in field left.

A similar subject is found on a token published by Svoronos, 1900, no. 192, pl. III, 38 on which Herakles with club on left shoulder is rushing right dragging something behind him. That token is inscribed ΠΕΝ (for which see above, p. 79).

The Agora token has deteriorated in the past few years and the photograph published by Svoronos is far from clear so one cannot determine whether the one is the reverse of the other.

L 91. Hermes right, inscribed. Pl. 22.

IL 1181. 11 mm. Kolonos Agoraios (C 7).

A small copper-colored disk. Nude, bearded figure right, with caduceus held vertically in right hand. In field upper left the letter Σ. Surface gone, lower left; no trace of letters in field right.

The pose is similar to that of Hermes used as symbol on the issue of New Style coins of 126/5 B.C.

Postolacca II, p. 303, add. no. 11, not illustrated, might be the same type. He read four letters $\Sigma \Delta$. See also Postolacca I, no. 224, pl. XXXII, another token with a similar figure of Hermes, but there an owl in field left, a cicada right.

L 92. Hermes (?) right, inscribed. Pl. 22.

IL 1144. 11 mm. Hellenistic context in Great Drain (E-F 14).

Two letters in field right, ΔΡ. The stamp is not clear. If the figure is nude, it will be Hermes with caduceus in left hand; if draped it could be Dionysos holding thyrsos and kantharos.

L 93. Nike standing left. Pl. 22.

IL 944. 16 mm., oval stamp 12×14 mm. Late Hellenistic context, disturbed, Great Drain South (C 19).

Winged Nike with outstretched right hand in which wreath is probably held. Good workmanship.

A winged Nike with a wreath appears as symbol on four series of A.N.S. silver, those of 189/8 B.C., 171/0 B.C., 155/4 B.C., and 92/1 B.C. The figure on the token is rather like that on the series of 155/4 B.C. The workmanship however is better and the token is really closer to the figure of Nike on the Alexander coins such as that illustrated in Head, *H.N.*², p. 226, fig. 137.

The token is very like, perhaps the same as, five published examples, Postolacca II, nos. 235-239, of which 235 is illustrated.

L 94 a-b. Triptolemos in serpent car. Pl. 22.

IL 112. 17 mm. Found with material of 4th century B.C. in pocket of gravel in the Great Drain near the Tholos (I 11). IL 878 (ill.). 15 mm., from late Hellenistic context in the Great Drain South (D 16).

These two tokens with a figure seated left in a winged car drawn by serpents may be from the same die, probably representing Triptolemos, possibly Demeter.

I noted eight similar tokens at the Numismatic Museum in Athens of which three might be from the same die, and one of which may be the token illustrated by Postolacca I, no. 101, pl. XXXII.

Triptolemos in serpent car is used as a type on five series of bronze coins, assigned to Eleusis by Svoronos (pls. 103-104) but more recently to the Athenian mint by M. Thompson, *Hesperia*, XI, 1942, pp. 213ff., where the first three series are dated 325-263 B.C. The last two are assigned to the later Hellenistic period, and associated with two silver issues of A.N.S. coins on which the same type is used as a symbol 145/4 B.C. and 97/6 B.C.

4th or 3rd century B.C.

L 95. Seated figure, Triptolemos (?). Pl. 22.

IL 977. 12 mm. Early Roman context near west end of Middle Stoa (H 13).

The pose of the seated figure is similar to that of Triptolemos on **L 94**, but without further details, of which none are preserved on the token; an identification with that one is far from certain.

L 96. Standing figure, with shield. Pl. 22.

IL 1205. 18 mm. Southwest Area (C 12).

Standing figure, front, with bearded head turned left; shield in left hand; uncertain object in right.

L 97. Standing figure, kappa in field. Pl. 22.

IL 713. 13 mm. South of Square (F-H 16-17).

Figure half left, in helmet and tunic, spear in left hand, wreath in right. In field right, a large kappa.

The metal is brown in color, possibly copper.

L 98 a-b. Standing figure (?). Pl. 22.

IL 800. Late Hellenistic context in Great Drain South, deposit B 20:9. IL 896 (ill.). Late Hellenistic

context in Great Drain South, slight disturbance (C 19). 14 mm.

Apparently a draped figure facing with spear in right hand and small scroll or shield in or below left hand. The lower part of the body tapers towards bottom, and the head is very small. I have found no parallel.

L 99. Standing figure with countermark. Pl. 22.

IL 969. 14 mm. Hellenistic context in Southwest Area (A 19).

Head and shoulders of standing figure with left arm outstretched. The lower half is obliterated by a countermark, 7 mm. in diameter, of small object, perhaps an amphora or jug, enclosed in an ivy wreath. The stamps on **L 22** and **L 161** are similar to but not the same as the countermark.

L 100. Standing figure. Pl. 22.

IL 789. 10 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.

Upper half of nude standing figure right, wearing petasos, holding a herm or small statue in outstretched hands; a palm branch or wing directly behind.

The stamp on the irregular disk of lead is probably incomplete.

L 101. Standing figure (?). Pl. 22.

IL 811. 11 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.

Apparently a nude standing figure with uncertain branch-like object in field right, a bow (?) in right hand. If the figure does in fact hold a bow, could it represent Apollo? Cf. the nude figures of Apollo with bow on the A.N.S. silver issue of 175/4 B.C. The token is not the same representation as that on the coins, but might be a similar subject.

L 102. Standing figure. Pl. 22.

IL 288. 15 mm. Roman context on Kolonos Agoraioi, deposit D 11:7.

Draped figure left, left arm held forward and down; uncertain symbols in field left and right.

L 103. Standing figure. Pl. 22.

IL 1250. 15 mm. Roman context West of Panathenaic Way (P 14).

Disk somewhat bent and impression far from clear. Standing draped figure, head to right; spear in right hand with shield (?) on ground; left arm forward.

Possibly an Athena Promachos type. On Athenian Imperial coins she is consistently shown in reverse, with spear and shield at right, head left. She is shown, however, on some coins without shield, with spear in right hand and head right, Svoronos, pl. 83, 29-36.

L 104. Standing figure facing. Pl. 22.

IL 1258. 18 mm., diam. of stamp 14 mm. Roman context on Kolonos Agoraioi, deposit A 14:1.

Faint impression of figure facing with right arm outstretched.

L 105. Male figure seated left on ship, inscribed.

Pl. 22.

IL 936. 11 mm. Late Hellenistic context in Great Drain South, deposit C 18:14.

Nude male figure seated left on prow; right arm outstretched, torch or cornucopia (?) in left hand; two dots in field upper left. The letter K in field right, a letter, probably A, in field left below the hand.

A close parallel to this stamp is found in a stamped amphora handle in the Benaki collection inscribed ΕΤΟΥΣ Ι ΑΙΜΕΝΟΣ (I owe this information to V. Grace).

For a somewhat similar pose see the coins of Antigonos Gonatas or Dason with Apollo seated left on ship, Head, *H.N.*², p. 231, fig. 143.

This token is very like those in Section II with which it was found, **L 43-L 56**.

L 106 a-c. Figure playing double flute. Pl. 23.

IL 783, 787, 815 (ill.). 13-16 mm. Late Hellenistic context in Great Drain South. IL 783 and 787 from deposit B 20:9. IL 815 from area B 20.

A squatting figure right, playing the double flute.

A published token, Postolacca II, no. 375, pl. LII, has a figure playing a single flute on one side, a monkey playing a triangular instrument on the other. The flute player is described as but not drawn as a monkey and somewhat resembles our double flute-player.

L 107-L 116 HEADS

L 107. Head of Athena, countermark. Pl. 23.

IL 1126. 20 mm. With material of 3rd to 2nd century B.C. behind the Stoa of Zeus, deposit G-H 5:1.

Head of Athena right in Attic helmet, with an illegible countermark upper right.

The head is very like that on some of the bronze tesserae, cf. Svoronos, Classes VII and VIII, *Monnaies*, pl. 102.

L 108. Head of Goddess (?). Pl. 23.

IL 1029. 24 mm. Context of 5th to 3rd centuries B.C. Southwest Area, deposit A 20:9.

Female head right, hair rolled; single strand choker-necklace.

This large, well stamped lead disk has no parallels among the tokens.

L 109. Bust of Pan (?). Pl. 23.

IL 894. 16 mm., diam. of stamp 10 mm. Late Hellenistic context, with slight disturbance, Great Drain South (C 19).

Bust right, long pointed beard, short horns, possibly Pan.

- L 110.** Bust of Pan (?). Pl. 23.
 IL 1143. 15 mm. Roman context in Great Drain (E 14).
 The same representation but not the same die as the preceding number.
 On a published token, Postolacca I, 64 (pl. XXXII) head of Pan right with letters MT is stamped twice on a large disk with three other stamps all of owl left. Not the same stamp as ours.
- L 111 a-c.** Silenus (?) head facing. Pl. 23.
 IL 356 (ill.). Late Hellenistic context in Great Drain (G 13). IL 1222. Late Roman context above South Stoa II (N 15). IL 1263. Roman context in East Branch of Great Drain (P 15). 15 mm.
 A bald bearded head in high relief on a thin disk. Svoronos, 1900, no. 214, is described as a Silenus head, facing, inscribed at right ΠΕΝ. His illustration pl. IV, 1, is not clear enough to enable one to make a comparison. Postolacca II published two tokens of which one side is described as a satyr's mask, nos. 297 and 714, both illustrated, pl. LII; the stamp is somewhat similar but not identical with ours.
- L 112 a-b.** Bearded head right. Pl. 23.
 IL 805 (ill.). 10 mm. Late Hellenistic context, Great Drain South, deposit B 20:9. IL 1145. 12 mm. Late Hellenistic context in Great Drain (D-E 15).
 Bearded head right, wearing fillet or brimmed cap; in field right, symbols or letters. The surface on both examples has deteriorated since the original photographs were taken.
- L 113 a-b.** Bearded head right. Pl. 23.
 IL 895. Late Hellenistic context with slight disturbance, Great Drain South (C 19). IL 1151 (ill.). Hellenistic fill beside Great Drain (D 15). 13 mm., diam. of stamp 9 mm.
 Head right with full shaggy beard and curious snake-like crest on back of head. Possibly mask of Silenus.
 Very similar to a published token, Postolacca II, 716, pl. LII, described as mask of bearded man (= Benndorf, pp. 609-610, no. 30 on plate).
- L 114.** Head right. Pl. 23.
 IL 1217. 16 mm. Late Roman context on Kolonos Agoraios, deposit B 14:2.
 Head right with illegible symbol in field right.
- L 115.** Head right. Pl. 23.
 IL 1187. 16 mm. Hellenistic context in Great Drain (F 14).
 The stamp is far from clear but probably is a male head with short hair.
- L 116 a-c.** Female bust facing. Pl. 23.
 IL 1025 (ill.), IL 1214. 14-16 mm. Both late Hellenistic context, disturbed, Great Drain South (D 16). IL 1193. 13 mm. Late Hellenistic context, Great Drain South (D 16).
 The curious angular curls to either side may represent the plumes of a crested helmet.
 A similar token was noted at the Numismatic Museum.
 The representation is not unlike that on three published tokens described as Athena head front in crested helmet, Postolacca II, nos. 105-107, pl. LII.
- L 117-L 156 ANIMALS**
- L 117 a-b.** Bird right. Pl. 23.
 IL 305 (ill.), 12 mm. IL 306. 12-14 mm. North Room of Metroon (G 9).
 A long-legged, long-necked bird. Heron (?). Trace of letter above.
- L 118.** Bird left. Pl. 23.
 IL 1253. 17 mm., diam. of stamp 10 mm. Late Roman context on Panathenaic Way (L-M 7).
 Probably a dove with poppy-head on long stem in front, crossed wheat or torches in field above. See **L 54**, **L 213-L 215** and **L 294** for various combinations of wheat and poppy head.
- L 119.** Cicada. Pl. 23.
 IL 779. 13 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.
 No close parallels on the published tokens, Postolacca I, nos. 118-120 (none illustrated), II, nos. 419-421, Engel, nos. 149, 168, 169, 177, Svoronos, 1900, no. 165, pl. III, 8.
 A cicada is used as a symbol on three issues of A.N.S. coins; see **L 46** for reference.
- L 120.** Cicada. Pl. 23.
 IL 1182. 15 mm. East of Eponymous Heroes (J 10).
- L 121.** Cicada. (not ill.)
 IL 1166. 12 mm. Near Tholos (H 12).
 Poor condition, but identification seems certain.
- L 122.** Cicada. Pl. 23.
 IL 1448. 15 mm. From lower slopes of Areopagus (L 17).
 Cicada, side view left, on branch or ground line.
 For a somewhat similar side view of a cicada see published token Engel, no. 149.
- L 123.** Cock. Pl. 23.
 IL 1171. 14 mm. West end of Middle Stoa (I-J 13).
 Cock right on ground line.
 Same type as published token, Postolacca II, no. 391, pl. LII.
 A similar cock right on ground line occurs on a clay disk in the Agora, **C 4**, with the letter rho stamped on the back.

- L 124.** Cow. Pl. 23.
IL 819. 12 mm. Southwest Area (B-C 20).
Cow right on ground line. A line over back.
- L 125.** Dolphin right. Pl. 23.
IL 1146. 15 mm. Above sand in Great Drain (D-E 15).
A thin disk, much the same character as the amphora inscribed OINO, **L 157** and the owl, **L 150**.
- L 126.** Dolphin and helmet. Pl. 23.
IL 1196. 13 mm. Late Hellenistic fill in Great Drain South (D 16).
Dolphin with helmet in field above.
A similar token was noted at the Numismatic Museum.
- L 127.** Duck right. Pl. 23.
IL 317. 14 mm. Above north wall of Odeion (L 10).
A fat bird, probably a duck, walking right.
- L 128 a-b.** Frog. Pl. 23.
IL 886 (ill.), IL 887. 15-13 mm. Both Hellenistic context in Great Drain South, deposit A-B 19-20:1.
A similar frog was noted on several tokens at the Numismatic Museum in Athens.
Late 4th or 3rd century B.C. (?)
- L 129 a-c.** Griffin (?). Pl. 23.
IL 890, 891 (ill.). 14 mm. As above, deposit A-B 19-20:1. IL 945. 17 mm. Late Hellenistic context with occasional disturbance in Great Drain South (C 18).
The animal seems to have a human face, but the single horn is certain.
A griffin occurs as symbol on the A.N.S. issue of 121/0 B.C. This relatively large solid token is, however, probably earlier than the New Style coins, and may date from the 3rd century B.C.
- L 130.** Griffin, forepart (?). Pl. 23.
IL 809. 11 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.
The body and head look rather bird-like, but the animal clearly has front legs sharply bent at the knee. Cf. **L 137** below, for forepart of winged horse with body ending in a point.
- L 131.** Hare (?). Pl. 24.
IL 1423. 15 mm. Late Roman context west of southwest Fountain House (H 15).
A crouching animal, left, with long ears, perhaps a hare.
- L 132.** Horse right, inscribed. Pl. 24.
IL 737. 13 mm. Southwest area (C-D 17).
A horse galloping right, large B in field above, E (?) below. Hind legs not clear, perhaps not shown.
- L 133.** Horse right suckling child (?). Pl. 24.
IL 1415. 18 mm., diam. of stamp 11 mm. Context of 6th century after Christ in Southwest Area, deposit D 16:7.
Svoronos published three tokens, with stamp of horse suckling a child, 1900, nos. 143-145, pl. II, 24-26. He identified the child as Hippothoon and assigned the tokens to the tribe Hippothontis. Neither this token nor the one below seems to be from the same stamp as any of the three published examples.
- L 134.** Horse right suckling child (?). Pl. 24.
IL 352. 15 mm. Northwest of Square (G 3).
The token has disintegrated since the time it was inventoried and photographed.
Probably same subject as preceding with, however, an owl (?) in field above and an illegible symbol in field lower right. Note that Svoronos 1900, no. 143, pl. II, 24, is described with an owl above, a kalathos to right.
- L 135 a-b.** Protome of horse on column. Pl. 24.
IL 838 (ill.). 18 mm. Context of early 3rd century B.C. in Southwest Area (B 20). IL 1445. 14 mm. North slope of Areopagus, deposit O 17:2.
Cf. **L 60** for a similar protome of horse without the column and **L 136** below for further copies of this same type from a different die.
An identical token was noted at the Numismatic Museum in Athens.
Late 4th or 3rd century B.C.
- L 136 a-b.** Protome of horse on column. Pl. 24.
IL 889. 18 mm. Hellenistic context in Great Drain South, deposit A-B 19-20:1. The second example is an uninventoried token from the southwest part of the Square (H-K 13-15).
This is the same subject as the preceding but instead of a loop as of reins hanging down from the column there is an almost horizontal cross-bar.
A published token from the Pnyx, *Pnyx*, I, p. 109, no. 9, is stamped with an identical column; the top of the token is not clear but may well have had a horse's head and so be identical with ours.
Late 4th or 3rd century B.C.
- L 137.** Forepart of winged horse, right, inscribed. Pl. 24.
IL 897. 12 mm., diam. of stamp 9 mm. Late Hellenistic context with slight disturbance, Great Drain South (C 19).
Note that the body ends in a point as it does on the griffin of **L 130**. Two letters retrograde below, OZ̄. Postolacca II, no. 443, lists a token as "front half of Pegasus right" but does not illustrate it.
Pegasus is used as symbol on the A.N.S. silver issue of 129/8 B.C. The representation there is entirely different.
See **L 45** for another token with a winged animal.

- L 138.** Insect. Pl. 24.
 IL 1015. 9 mm. Roman context south of Square (F 17).
 A small insect with spread wings seen from above, perhaps a bee.
- L 139.** Insect. Pl. 24.
 IL 1185. 14 mm. Roman context Southwest Area (A-B 21-22).
 Probably a fly seen from above. Not unlike published token, Svoronos, 1900, no. 100, pl. II, 43, described as fly between letters Δ and Η.
- L 140.** Insect. (not ill.)
 IL 1130. 13 mm. Lower slopes of Areopagus (Q-S 17-19).
 Surface damaged. Apparently an insect similar to preceding type.
- L 141.** Insect. Pl. 24.
 IL 1227. 10 mm. Lower slopes of Areopagus (N-P 19-21).
 An insect with pointed body, a hornet or possibly cicada.
- L 142 a-c.** Insect (?) in wreath, epsilon at right. Pl. 24.
 IL 792, 793 (ill.), 799. 11 mm., diam. of stamp 7-8 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.
 An oval object, perhaps a fly or other insect with closed wings within a wreath. To right an epsilon about half the size of the fly.
- L 143.** Lion right. Pl. 24.
 IL 1141. 18 mm. Hellenistic context in Great Drain (E 15). Lion running right with open mouth.
 See **L 72** for another lion.
 No certain parallels among the published tokens. Svoronos, 1900, nos. 148a, 150. Postolacca II, nos. 129, 362, are described as lions right, but not illustrated.
- L 144-L 151** Owls (see also **L 73**)
 Nine types with an owl as device, always ubiquitous in Athens, have been found in the Agora, of which three, **L 144**, **L 147** and **L 148**, are inscribed and of which one has a stamp on the reverse, **L 73**.
 Published tokens with owls include:
 Svoronos, 1900, 19 types classified according to inscriptions, six types inscribed ΑΘΕ, nos. 78-86, 88-89; one ΔΗΜΟ, no. 99; six types with names or abbreviated names of tribes, nos. 116, 126-129, 130-133, 150, 153-155; one with ΑΓ, no. 163; one with ΒΟΥ, no. 177; two with ΠΕΝ, nos. 198-199; and two types with names, or abbreviations read as names, of plays, nos. 283-285.
- Postolacca I, 70 tokens, nos. 3-72 of which at least 15 were republished by Svoronos.
 Engel, 7 tokens, nos. 9, 28, 29, 30, 43, 44, 45 (not including those republished by Svoronos).
 Nos. **L 144-L 146** with an owl facing between two olive branches, as on the triobols from the 5th through the 3rd century would seem appropriate for use either as the dikastikon or the ekklesiastikon, both of which originally were to be exchanged for three obols. Throughout the period of the New Style coins the silver triobol reverse type was an owl right standing on a βᾶκχος all enclosed in a wheat wreath. Several of our tokens with an owl right on a ground line (so easily confused with a βᾶκχος) might be borrowed from the New Style triobols. Owls right however were so generally used both on old and New Style Athenian coins that it would be unsafe to guess an equivalent value unless all details corresponded.
- L 144 a-b.** Owl facing, inscribed. Pl. 24.
 IL 624 (ill.). From the area of the Tholos with material chiefly of 6th and 5th centuries but some as late as early 3rd (G-H 11-12). IL 821. 15 mm. From the area of the Odeion (L-M 9-12).
 An owl between two olive branches as on the silver triobols of Athens of the old style. The letters Α Θ are barely visible on the first copy, but cannot be seen on the second.
 The owl is rather close to those on the coins dated 297-255 by Svoronos, *Monnaies*, pl. 21, 43-52. For similar tokens see Svoronos, 1900, nos. 81-83.
- L 145.** Owl facing (?). (not ill.)
 IL 1221. 15 mm. A late Roman context south of the Square (H 16).
 Very poor condition, possibly same type but not same die as preceding.
- L 146.** Owl facing (?). Pl. 24.
 IL 861. 15 mm. Late Hellenistic context with Roman disturbance, Great Drain South (D 17).
 Traces of countermark or damage at left.
- L 147.** Owl right, inscribed. Pl. 24.
 IL 1430. 18 mm. From ancient road along lower slope of Areopagus (F 17).
 The letters ΟΙ at right, ΝΟ at left.
 Svoronos, 1900, published three similar tokens, nos. 153-155, pl. II, 35. He read the legend as ΟΙΝΟ and suggested that it stood either for the tribe Οἰνητῆς which seems impossible or the deme Οἰνόη.
 Both tribal and deme names do occur on tokens (see pp. 77, 79). The same inscription is found on a beside a typical Panathenaic lidded amphora (see token **L 157**) which makes one hesitate to suggest the obvious restoration οἶνο[υ] for wine. It may well be an abbreviated form of the deme Οἰνόη or possibly a name of an individual such as Οἰνόφιλος.

L 148. Owl right, inscribed. Pl. 24.

IL 870. 12 mm., diam. of stamp 10 mm. Late Hellenistic context, Great Drain South (D 16).

Owl right, on ground line or βάρυτος, round ball to either side. Letter A to left of head, incrustation in corresponding position at right.

A token published by Svoronos, 1900, no. 163, pl. III, 6 shows a somewhat similar but not identical owl with A to left, Γ to right and a wreath below the Γ. This he assigned to the *agoranomoi*.

L 149. Owl right, on ground line. Pl. 24.

IL 1024. 15 mm. Hellenistic context, disturbed, Great Drain (D 16).

A solid token with surface well preserved and no trace of letters.

The owl is very similar to that on two published tokens, Postolacca I, no. 5, pl. XXXII, and Engel, no. 30.

L 150. Owl right. Pl. 24.

IL 1194. 17 mm. Late Hellenistic context, Great Drain South (D 16).

Traces of symbol or letter to right (?).

The thin relatively large disk and the color of the metal are very similar to those of L 125 and L 157.

L 151. Owl on pedestal. Pl. 24.

IL 804. 10 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.

A small owl on pedestal or kalathos; enclosed by line following shape of design. Surface very bad.

L 152. Serpent (?), inscribed. Pl. 24.

IL 1195. 13 mm. Late Roman context, Southwest Area (D 17).

Possibly a serpent or snake moving right. Letters I and A in field above, Σ in field right.

L 153. Two winged serpents right. Pl. 24.

IL 1404. 12 mm. Kolonos Agoraios (D 6).

Perhaps the same stamp as that on the published token, Postolacca II, no. 449, pl. LII.

Probably the winged serpents that draw Trip- toleemos and Demeter, see above L 94.

Two snakes right, but without wings, are used as a symbol on the A.N.S. coin issue of 184/3 B.C.

L 154. Two winged serpents (?). (not ill.)

IL 798. 10 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.

An unclear stamp, probably same subject but not same stamp as preceding.

L 155 a-b. Sphinx right, inscribed. Pl. 24.

IL 1135, IL 1136 (ill.). 14-18 mm. Hellenistic context in Great Drain (G 13).

A single letter Γ in field behind, preserved only on the larger copy.

A similar sphinx but with the letters ΑΩ occurs on a published token, Engel, no. 172.

A sphinx left is used as symbol on the A.N.S. issue of coins of 108/7 B.C., a sphinx right as on the token on the bronze associated with the silver issue, Svoronos, pl. 72, 10-11.

L 156 a-b. Swan right, inscribed. Pl. 24.

IL 911 and one uninventoried example. 12 mm. Late Hellenistic context in Great Drain South, deposit C 18:14.

The letters ΑΝ or possibly ΑΛ above the back.

Very similar in size and appearance to the tokens inscribed EP from same deposit, L 43-L 56.

L 157-L 241 MISCELLANEOUS (SYMBOLS, PLANTS, ETC).

L 157-L 161 Amphoras

No exact parallels for L 157-L 161 have been found among the published Athenian tokens, though some may exist among those not illustrated by Postolacca I, nos. 142-171. Two published by Engel, nos. 182 and 185, have an amphora with a branch crossed behind it. There the branch is described as a palm branch, but it is probably better interpreted as wheat and the composition thus corresponds to that on Athenian bronze coins, Svoronos, pl. 106, 12-16; 107, 55-59, 60-69 and 75-79. If the objects to the left of the amphora in our L 159 are in fact branches of some sort, the subject on that token might be similar, but it is clearly not the same composition.

The amphoras on L 157 and L 158 are fairly close to those on some bronze coins assigned to the 3rd century by Svoronos, pl. 25, 15-21.

L 157. Panathenaic amphora, inscribed. Pl. 25.

IL 540. 18 mm. From Kolonos Agoraios (F 5).

A lidded Panathenaic amphora with two letters to either side, OI at right, NO at left. For the inscription OI-NO see L 147.

It may be of interest to note that this token was found only seven or eight meters from the northwest corner of the building in and around which the Agora fragments of Hellenistic Panathenaic amphoras were concentrated (*Hesperia*, XXVI, 1957, pp. 334-337).

Several similar tokens were noted at the Numismatic Museum in Athens.

L 158. Amphora. Pl. 25.

IL 1167. 14 mm. Northeast of Tholos (H 11).

Traces of letters (?) to left; all in wreath (?).

L 159. Amphora. Pl. 25.

IL 1164. 14 mm. Late Roman fill in Great Drain (H 12).

Two branches or quiver in field left.

Not unlike the angular amphora of bronze coins of the 3rd century such as Svoronos, pl. 22, 92.

L 160. Amphora (?). Pl. 25.

IL 816. 11 mm. Late Hellenistic context in Great Drain South (B 20).

Illegible symbols to either side.

L 161 a-b. Amphora in ivy wreath, inscribed.

Pl. 25.

IL 647. 15 mm. 3rd to 2nd century context, pocket in floor of Great Drain (H 12:19). IL 697 (ill.). 14 mm. Context of last quarter of 2nd century in Great Drain (H 12:1).

A round-bodied amphora (?) on high foot; in field lower left Δ, lower right Η, all enclosed in ivy wreath.

A somewhat similar stamp, smaller in size, is found as a countermark on token **L 99**. For another example of an ivy wreath see **L 22**.

L 162. Aphlaston.

Pl. 25.

IL 939. 18 mm. Late Hellenistic context in Great Drain South, deposit C 18:14.

Several identical tokens were noted at the Numismatic Museum of which one is probably that illustrated by Postolacca II, no. 533.

An aphlaston is used as symbol on the issue of A.N.S. coins of 172/1 B.C., and on some bronze coins of ca. 255-229 B.C., Svoronos, pl. 24, 1.

L 163. Boot, inscribed.

Pl. 25.

IL 1140. 18 mm., diam. of stamp ca. 13 mm. Hellenistic context in Great Drain (E 15).

A low boot right. Traces of a letter, lambda (?) below.

A similar boot, but turned to left not right occurs on one side of a published token, Engel, no. 215, which has a hand on the reverse.

L 164. Boukranion.

Pl. 25.

IL 1158. 11 mm. Southwest corner of Square (F 15).

Star between horns, scroll in field right.

No exact parallels among the published tokens, Postolacca I, nos. 236-201; Engel, nos. 143-144; Svoronos, 1900, nos. 200-201.

A boukranion occurs as symbol on some Athenian coins of the 3rd century, Svoronos, pl. 23, 20-21, and both as symbol and type in the Roman period.

See **L 286-L 287** for tokens of the Roman period with boukrania.

L 165. Boukranion.

Pl. 25.

IL 1456. 17 mm., diam. of stamp 10 mm. Southwest Area (D 18).

More properly a bull's head, for the ears are present.

L 166 a-c. Strung bow.

Pl. 25.

IL 61 (ill.). 18 mm. East of Tholos (G-I 11-13). IL 873, IL 875. 18 mm. Late Hellenistic context in Great Drain South (D 16).

A similar token, probably from the same die, was noted at the Numismatic Museum. No exact parallels for this token or for **L 167-L 169** among the two published tokens that have been illustrated, Svoronos,

1900, no. 101, pl. II, 44; Postolacca II, no. 545, *ibid.*, nos. 546-549 are not illustrated, simply described as strung bows.

3rd century B.C.

L 167 a-b. Strung bow.

Pl. 25.

IL 874. 16 mm. Late Hellenistic context, Great Drain South (D 16). IL 893 (ill.). 15 mm. Hellenistic context in Great Drain South, deposit A-B 19-20:1.

3rd century B.C.

L 168. Strung bow.

Pl. 25.

IL 830. 18 mm. Context of late 4th to early 3rd century B.C., Southwest Area, deposit A 18:8.

Very like **L 167** but apparently not the same die. 3rd century B.C.

L 169. Strung bow (?).

Pl. 25.

IL 1218. 15 mm. Context of early 1st century A.D. on Kolonos Agoraios, deposit D 12:1.

A deeply incuse circular stamp ca. 9 mm. in diameter, of a strung bow (?).

L 170. Winged caduceus, inscribed.

Pl. 25.

IL 1147. 11 mm. Hellenistic context in Great Drain (E 15).

Caduceus with wings set low; the letters ΑΓΟΡ in field arranged thus: $\begin{matrix} \text{A} \\ \Gamma \text{O} \text{P} \end{matrix}$.

Svoronos published four similar tokens inscribed ΑΓΟΡ but with the wings of the caduceus set differently, 1900, nos. 159, 160, 160a, 161, pl. III 4, 5. These he assigned to the *agoranomoi*. For discussion of these tokens and the other tokens with a caduceus as type see p. 82. See **L 47** for references to the use of a caduceus as a symbol on Athenian coins.

L 171. Winged caduceus.

Pl. 25.

IL 1468. 12 mm. From north slope of Areopagus (P 18).

A small winged caduceus very like that used as countermark on **L 17**.

L 172 a-c. Caduceus and wheat, crossed.

Pl. 25.

IL 1200 (ill.). 13 mm. Late Hellenistic context, disturbed, in Great Drain (D 16). IL 1207, 1372. 12 mm. Southwest Area (C 16-17).

Although the caduceus and ear of wheat both occur on Athenian coins and on published tokens, no parallel has been found for this particular combination. A published token, Engel, no. 200, probably of the Roman period, has both an ear of wheat and a caduceus but also a poppy head.

See pp. 81, 82 for a suggestion that these and other tokens with wheat as device or part of the device may have been used in grain distributions.

L 173. Caduceus and ear of wheat.

Pl. 25.

IL 1199. 12 mm. Late Hellenistic context, disturbed, in Great Drain (D 16).

An uncertain symbol in field lower right, surface damaged above.

See comment on preceding number.

L 174. Club. Pl. 25.

IL 363. 17 mm., diam. of stamp 11 mm. In South Stoa II (L 15).

A heavy solid token, probably of late 4th or 3rd century B.C.

A very similar club occurs as a symbol on the A.N.S. issue of 191/0 B.C.

L 175. Cluster of grapes (?). Pl. 25.

IL 1405. 14 mm. Context of early 3rd century B.C. Southwest Area (B 20).

The details are not clear. The stamp could be interpreted either as a cluster or as a flower calyx. See **L 48** and **L 288** for other clusters.

No parallel among the published tokens, Svoronos, 1900, nos. 70–71; Engel, no. 174; Postolacca II, nos. 466–480.

Late 4th or 3rd century B.C.

L 176. Conical Stone with taenia. Pl. 25.

IL 1206. 15 mm. Southwest Area (C 16–17).

This same representation occurs as a symbol on the issue of A.N.S. coins of 119/8 B.C.

As described by Head, *H.N.*², p. 386: "Conical stone (βαίτυλος) with knotted taenia hanging over it."

L 177. Cornucopia, inscribed. Pl. 25.

IL 983. 12 mm., diam. of stamp 9 mm. Late Hellenistic context in Great Drain South, deposit C 18:14.

Poppy head or thyrsos in field lower right; uncertain objects or letters in field left. Small letter Π upper right.

A single cornucopia is used as symbol on some Athenian silver of the 3rd century, Svoronos, pl. 23, 35 and on the A.N.S. silver issues of 193/2 B.C. and 180/79 B.C.

A single poppy head is used as a symbol beside a tripod on an A.N.S. bronze issue, Svoronos, pl. 72, 16; 80, 1–7, probably contemporary with the silver issue of 157/6 B.C., on which a tripod is used as a symbol.

A thyrsos is the symbol on the A.N.S. silver issue of 176/5 B.C.

There is no close parallel on the published tokens with cornucopia, Svoronos, 1900, nos. 248, 261, 286–287, and Postolacca II, nos. 600–613.

See **L 49**, **L 50** for a cornucopia between wheat from this same deposit.

L 178. Crescent and star, inscribed. Pl. 25.

IL 1208. 13 mm. Southwest Area (C 16).

Palm branch in field right. Letter Λ below crescent.

Engel, nos. 57–63, published a variety of tokens with crescents and stars but none similar to this.

A star between two crescents occurs as the symbol on an A.N.S. issue of ca. 121 B.C.

L 179. Die. Pl. 25.

IL 882. 14 mm. Southwest Area (D 17).

Rectangular stamp, 7 mm. in diameter, of die with five pips.

L 180. Flower (?), inscribed. Pl. 25.

IL 1179. 10 mm. Hellenistic to early Roman context at west end of Middle Stoa, deposit H 13:3.

Round-headed flower on straight stem, letter P to right; no certain trace of letter to left.

In character much the same as the tokens inscribed EP, **L 44–L 55**.

L 181. Foot right, inscribed. Pl. 26.

IL 113. 11 mm. Great Drain, disturbed fill (G 13).

Traces of two letters, one above, one below foot.

Perhaps same as published token, Engel, no. 198; there only the letter below the foot is recorded and it is read as an alpha.

L 182–L 183 *Gorgon-heads*

See also the three tokens **L 65**, **L 77** and **L 78** which have a gorgon-head on one side and a different stamp on the back.

Svoronos, 1900, published eight tokens with gorgon-heads, nos. 80, 84 with owls as reverse, nos. 92–97 with head of Demos, inscribed, as reverse. Postolacca published an additional 14, I, nos. 267–280, and Engel one, no. 32 (not including those republished by Svoronos). The gorgon-head is also used as a type on two kollyboi, Svoronos, *Monnaies*, pl. 18, nos. 124, 165, and is found on clay tesserae (**C 24**, **C 25**).

On Athenian coins it is used on both silver and bronze of the 3rd century, Svoronos, pl. 22, no. 58, and pl. 23, nos. 23–26, on the issue of New Style silver of 130/29 B.C., and on the bronze issue contemporary with that silver, Svoronos, pl. 25, nos. 22–28 (see *Hesperia*, X, 1941, pp. 212–217 for the association of the bronze with the silver).

Further a gorgon-head is often found on bronze dikast tickets, either with or without a second stamp of an owl. Therefore those tokens that combine the gorgon-head and owl, such as Svoronos, nos. 80, 84, may well have served as dikastic symbola (see p. 81).

L 182. Gorgoneion. Pl. 26.

IL 491. 15 mm. On Kolonos Agoraios just east of Hellenistic building (E 5–6).

The mouth is open and the teeth are showing. In type this seems closer to the gorgon-heads on the dikast tickets than to those on the coins. It is very close to, perhaps identical with, the representation on published token, Engel, no. 32. The latter however is stamped with a large E on back.

L 183. Gorgoneion. Pl. 26.

IL 1275. 16 mm. From southwest corner of Square (H-K 13-15).

A gorgon-head facing with caduceus below; in field left an owl, right a dolphin.

The head is much the same type as that found on the issue of A.N.S. bronze coins of 130/29 B.C., cited above.

L 184. Greave. Pl. 26.

IL 946. 15 mm. Late Hellenistic context, slight disturbance, Great Drain South (C 18).

It is similar to a token published by Engel, no. 17, which clearly is drawn as a greave, and also rather like one published by Postolacca II, no. 622, pl. LII, described as "crus humanum sine pede."

L 185. Greave (?). (not ill.)

IL 1198. 17 mm. Late Hellenistic context, Great Drain South (D 16).

Surface damaged at lower right. Same representation as above, probably not same die.

L 186. Greave (?). (not ill.)

IL 1219. 18 mm. Kolonos Agoraios (B-E 10-14). A dulled impression of greave or *Xoanon*.

L 187. Hand. Pl. 26.

IL 1150. 9 mm. Hellenistic context in Great Drain (E 15).

Left hand and wrist.

A small chunky token possibly related to the kollyboi. Note two with very similar stamps of a hand, Svoronos, *Monnaies*, pl. 18, 120-121. Both, however, are stamped on both sides.

Perhaps same as two published but unillustrated tokens, Postolacca II, nos. 663-664. A token with similar representation of a right hand—not left—is inscribed ΠΕ-N, Svoronos, 1900, no. 226. For other published tokens with a simple hand see Postolacca II, nos. 659-662.

L 188 a-b. Hand (?) and rudder. Pl. 26.

IL 1248 (ill.). IL 1247. 13 mm. On line of Panathenaic Way (P 14).

Hand and wrist (?) held upright across a rudder right; curved line below the rudder, possibly an aphlaston.

Several published tokens show hands grasping various objects, Postolacca II, nos. 665-667, but none like this one.

A rudder is used as a symbol on the A.N.S. issue of 190/89 B.C.

L 189. Helmet. Pl. 26.

IL 723. 12 mm. South of Square (G 19).

Macedonian helmet with short spike.

No similar stamp noted among the published tokens with a helmet as type, Svoronos, 1900, nos. 137, 138, pl. II, 21, and Postolacca II, nos. 635-644.

A very similar helmet occurs as symbol on the issue of A.N.S. coins of 106/5 B.C. A helmet is also used on some bronze coins, dated in the 3rd century by Svoronos, pl. 22, 53-54 and on the A.N.S. issue of 174/3 B.C.

L 190. Helmet, sword and wheat. Pl. 26.

IL 801. 12 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.

Helmet, side view right, with star on top; sword to left, ear of wheat or palm branch to right.

L 191. Helmet. Pl. 26.

IL 1403. 12 mm. Bouleuterion plateia (G 11).

Helmet side view right. A vertical at left may represent a sword.

For a somewhat similar helmet on a published token cf. Postolacca II, no. 640, pl. LII.

L 192. Helmet (?). Pl. 26.

IL 1251. 17 mm. Beside Panathenaic Way (P 13).

A similar token noted at the Numismatic Museum.

L 193-L 198 *Hermes*

No close parallels for the herms of **L 193-L 198** have been found either on Athenian coins or on the illustrated published Athenian tokens. Herms are relatively frequent on the bronze kollyboi of which eleven are given in Pick's Index to Svoronos' plates. **L 196** with the single large letter is reminiscent of the kollyboi types, particularly Svoronos, *Monnaies*, pl. 18, 162, herm facing with A at left, or Postolacca, Ἀθήναιον, no. 196, a herm right, with A behind it, but it is not the same.

On Athenian coins a herm is used as a symbol on the second issue of gold coins, Svoronos, pl. 24, 2 and on the New Style issue of 183/2 B.C.

Svoronos, 1900, no. 232, pl. III, 26, published a token with herm right, palm branch behind and the letters ΓΡΑ in front. This he assigned to the secretary of the boule. Other published Athenian tokens with herms are Engel, no. 181, a herm beside an amphora, and Postolacca II, nos. 215-222 (none illustrated).

L 193. Herm with seated figure. Pl. 26.

IL 150. 16 mm. Context of second half of 4th century B.C., near the Tholos, deposit F 11:2.

This thin irregular disk with traces of a spur at upper left was probably originally attached to something as a sealing rather than used as a token.

A herm right with nude male figure sitting in front. Traces of letters (?) behind. Surface is bad and details far from clear.

Possibly the same as an unillustrated published token, Postolacca II, no. 218, described as "Herma . . dm., cui insidet fig. nuda dm., in area ante fig. Γ; pone herman H; infra serpens."

A combination of a herm and a seated figure occurs on some terracottas (*Hesperia*, XXI, 1952, no. 48a, pp. 126, 144, 162 and *Pnyx*, I, pp. 124ff.) but there seem to be no close parallels to the composition on the token.

L 194. Herm facing, inscribed. Pl. 26.

IL 1193. 12 mm. Region of Tholos (G 12).

A in field left, Γ in field right. See pp. 80–81 for discussion of tokens inscribed ΑΓ and ΑΓΟΡ.

L 195. Herm facing with symbols. Pl. 26.

IL 1026. 12 mm. Late Hellenistic context, disturbed, Great Drain South (D 16 north).

Herm facing with cicada in field right, dog (?) jumping up at left.

L 196. Herm right, inscribed. Pl. 26.

IL 166. 12 mm. Roman context west of Middle Stoa (H 13).

Herm right with palm branch or wheat in field left, letter A in field right. See above, p. 104, introductory comment.

L 197. Herm left, inscribed. Pl. 26.

IL 868. 11 mm. Southwest Area (D 18).

A branch or ear of wheat in field lower right, letters in other three corners, Δ and Η or Ε upper left and right, ≡ lower left of which only two bars are preserved.

L 198. Herm left with symbols. Pl. 26.

IL 1366. 12 mm., diam. of stamp 9 mm. Roman context southwest of Middle Stoa (H 14).

Herm left, snake (?) in field left, ear of wheat (?) in field right.

Perhaps same as the unillustrated published token, Postolacca II, no. 219, described as herm right between wheat and S.

L 199. Isis symbol between the pilei of Dioskouroi, inscribed. Pl. 26.

IL 1016. 11 mm. Roman context south of Square (F 16).

The disk is too small for the die, only part of pileus at right preserved. Letters below ΤΡΙΩΒ.

Same as a published token, Engel, no. 64. There the two pilei are clear and Engel read the letters ΤΡΙΩΒΟ (ΑΟΝ). He classified it as a monetary token, probably temple money, and compared it with a token from Egypt marked 2 obols (*Rev. Num.*, 1861, pl. XVIII, p. 407).

The Isis symbol by itself is found on three published tokens, Postolacca II, nos. 704–705, and Engel, no. 56.

It also occurs as a symbol on A.N.S. coins of 125/4 B.C., Svoronos, pl. 68, 13–27.

The pilei are found on a token from the Agora, **L 59**, and on two issues of A.N.S. coins, Svoronos, pl. 37, 1–5 of 186/5 B.C., and pl. 58, 1–23, of 131/0 B.C.

L 200. Kantharos. Pl. 26.

IL 1438. 17 mm., diam. of stamp 13 mm. Southwest Area (C–E 16–18).

Faint but clear impression of kantharos with double spurred handles; flower (?) or branches (?) rising from it. Few lines on body of cup suggest decoration of some sort.

The shape is reminiscent of the Kabeiric kantharoi with the double spurred handles (P. Wolters – G. Bruns, *Das Kabirenheiligtum bei Theben*), and the Athenian black-glaze kantharoi such as the one illustrated in *Hesperia*, II, 1933, p. 320, fig. 5, no. A 30, which however lack the double spurs on the handles. Probably from a metal prototype.

L 201. Kantharos. Pl. 26.

IL 818. 14 mm. Late Hellenistic context, Southwest Area (B 21).

A kantharos with ribbed body and tall thin stem, object (?) rising from it. Traces of letters (?) at left edge.

No parallels found on published tokens.

In shape the vase is fairly close to the kantharoi on Megarian bowls (*Hesperia*, II, 1933, p. 363, fig. 48, C 36 for example) and no doubt like those is derived from a metal original, such as the silver kantharos from the Tarentum hoard (Wuilleumier, *Le trésor de Tarente*, 1930, pp. 41–47, pls. V, VI) dated in the early 3rd century.

L 202. Kantharos (?). Pl. 26.

IL 1074. 13 mm. Kolonos Agoraios, deposit D 10:1.

A ribbed flaring kantharos (?); uncertain object possibly a high lid above it.

L 203–L 205 *Kernoi* (variously called *plemochoë*, *kerchnos* and *kernos* in the numismatic publications)

A kernos is used as the main device on the following three types from the Agora and as a countermark on two of the single letter series, **L 5** and **L 18**. In related material it is found as an added symbol on bronze tesserae (Svoronos, *Monnaies*, pl. 102, 16–19, 37–39, and Agora B 1160–1161), on a lead weight (Pernice, *Griech. Gewichte*, no. 396) and on a group of lead strips possibly designed for use as sealings (**L 336**).

Postolacca published 36 Athenian lead tokens stamped with kernoi, I nos. 177–212, which he placed with those tokens which he believed to be for public use. Engel published five but placed them among those for private use (nos. 183, 187, 189 [= Postolacca I, no. 205], 190, 191). Svoronos, 1900, included only one, no. 16, and on that the kernos is a symbol below the letter alpha, thus probably related to the bronze tesserae. One token with a kernos stamp was found on the Pnyx in a context of the fourth century

B.C. (*Pnyx*, I, p. 106, no. 8). I noted many tokens with kernoi in the collection at the Numismatic Museum in Athens.

A few of the published ones are inscribed: Postolacca, no. 184 A—Σ, no. 190 H—Δ, no. 205 M; Engel, no. 187 Δ, no. 190 NIK, and no. 191 $\overset{\Lambda}{\underset{A}{Y}}$. The inscriptions would seem to give no clear clue to any particular use.

On Athenian coins a kernos is used as a type and as a symbol on various issues of bronze of the 3rd century and as a symbol on three issues of New Style silver and on the bronze associated with them. The earlier representation, at least on the coins, is a rather plump kernos without a lid such as that found on four bronze issues of the 3rd century: as type on two issues, Svoronos, pl. 103, nos. 29–32, 47–48 (dated ca. 287–263 B.C. by M. Thompson, *Hesperia*, XI, 1942, pp. 221–222) and as symbol on two, Svoronos, pl. 24, nos. 33, 34–40 (dated 289–261 B.C. by J. P. Shear, *Hesperia*, II, 1933, p. 252). Further the kernoi used on two classes of Athenian bronze tesserae, Svoronos, *Monnaies*, pl. 102, nos. 18–19 and nos. 37–39 are uncovered. Svoronos dated these in the periods 287–266 and 252–220 B.C. respectively but they may be earlier in date.

Kernoi with lids, however, are also found on three bronze issues of the 3rd century, Svoronos, pl. 104, nos. 1–7, 8–20, 21–23 (dated ca. 262–230 B.C. by M. Thompson, *op.cit.*, pp. 224–225). The token found on the Pnyx in 4th century context also shows a kernos with a lid.

The later representation as found on the three issues of New Style coins is consistently that of a kernos with rounded or pointed lid and almost always with a branch of wheat through the handles. These three issues are dated in 195/4 B.C., 182/1 B.C., and 120/19 B.C.

The two examples of **L 203** are probably at least as early as the 3rd century. **L 204** and **L 205** are perhaps later. Specific references for the Agora types are given under each type.

L 203 a–b. Kernos on torch. Pl. 26.

IL 885 (ill.). 20 mm. IL 892. 19 mm. Both Hellenistic context in Great Drain South, deposit A–B 19–20:1.

A kernos without a lid resting on a lighted torch.

This unlidded kernos with a rather shallow bowl is like those found on an issue of bronze coins of the 3rd century, Svoronos, pl. 24, 33–40. For the combination of a kernos and torch on Athenian coins see Svoronos, pl. 103, nos. 47–48, also probably of the 3rd century (for date see *Hesperia*, XI, 1942, p. 222).

These may well be close successors to the bronze tesserae of Class IX, Svoronos, *Monnaies*, pl. 102, 37–39.

L 204. Lidded kernos with wheat. Pl. 26.

IL 646. 11 mm. 3rd to 2nd century B.C. context in Great Drain, deposit H 12:19.

A branch of wheat through each handle.

Very similar to the kernos used on the New Style issue of 195/4 B.C., and on a bronze issue, probably of 3rd century, Svoronos, pl. 104, 21–23 (*Hesperia*, XI, 1942, pp. 224–225, for date). Also very like a token with kernos found on the Pnyx, *Pnyx*, I, p. 106, no. 8.

L 205. Lidded kernos with wheat on torch. Pl. 26.

IL 1149. 11 mm. Hellenistic context at bottom of Great Drain (E 15).

Perhaps the same as Postolacca I, no. 183, pl. XXXII.

L 206. Leaf. Pl. 26.

IL 1197. 17 mm. Late Hellenistic context in Great Drain South (D 16).

A badly worn token with large leaf, probably of grape vine.

A published token, Engel, no. 174, has a somewhat similar leaf on one side, a grape cluster on the other.

L 207. Lyre (?). Pl. 27.

IL 876. 17 mm. Late Hellenistic context, Great Drain South (D 16).

For equally poor representations of lyres cf. those on some of the Delos Cleruchy coins, Svoronos, pls. 105, 106, especially 106, 8.

For published tokens with a lyre see Postolacca II, nos. 654–658. No close similarity with the three that are illustrated, pl. LII, nos. 654–656.

L 208. Janiform masks, inscribed. Pl. 27.

IL 1142. 18 mm. Hellenistic packing beside Great Drain (D 15).

This is the same representation, slightly larger in size, as that on token **L 44**. The inscription however is different, probably three letters of which an alpha upper left is the only one completely preserved: $\text{A} \begin{array}{|c|} \hline \text{ } \\ \hline \text{ } \\ \hline \end{array}$. See also **L 79**.

$\begin{array}{|c|} \hline \text{E} \\ \hline \end{array}$

L 209. Mask right, inscribed. Pl. 27.

IL 877. 11 mm. Hellenistic fill of Great Drain South (D 16).

Letters to either side $\text{E} \Pi$.

Four identical tokens published by Svoronos, 1900, nos. 209–212, one illustrated, pl. III, 51. A fifth not illustrated, same to left. He assigned them to the Council of 500. See p. 79.

See **L 292** for mask on tokens of later period.

L 210. Palmette. Pl. 27.

IL 671. 13 mm. Context of 3rd to 2nd century B.C. Great Drain, deposit H 12:19.

L 211. Palmette. Pl. 27.

IL 1180. 12 mm. Kolonos Agoraios (C 9). Border of dots. Slightly smaller stamp than preceding.

- L 212.** Palmette (?). (not ill.)
 IL 284. 11 mm. Kolonos Agoraios, deposit D 11:7. Border of dots. Surface bad.
 Possibly same as palmette stamp used as a countermark beside head of Serapis on **L 249 d**, a larger token of Roman period.
 Postolacca II published eleven tokens with palmettes, nos. 682–692, of which four are illustrated. None of them corresponds to any of the three from the Agora.
 The only lead token published, presumably the only one found, from Olynthos, has a palmette very like those of **L 210** and **L 211** on one side, an ivy tendril on other (*Olynthus*, X, p. 505, no. 2574).
- L 213.** Poppy head between two ears of wheat. Pl. 27.
 IL 1165. 12 mm. Context of 3rd century A.D. beside Great Drain, deposit H 12:4.
 Three similar tokens were noted at the Numismatic Museum.
 The Eleusinian combination of poppy head and wheat occurs both on published tokens and on Athenian coins. Postolacca I, nos. 106–112; Engel, no. 175; Svoronos, 1900, no. 259, pl. IV, 22. On the coins it is found as a symbol on the A.N.S. issue of 116/5 B.C., and on the bronze associated with that silver issue, Svoronos, pl. 79, 15–17, 29–31 and pl. 104, 38–45 (see *Hesperia*, XI, 1942, pp. 226–227, for the association of the bronze with the silver).
 There are no close parallels to this stamp unless among those of Postolacca of which none are illustrated.
 See **L 214**, **L 215** and **L 294**, for other tokens with same subject.
- L 214.** Poppy head and ear of wheat. Pl. 27.
 IL 1148. 12 mm. Hellenistic context in Great Drain (D–E 15).
 United on a single stem.
 For subject see commentary on **L 213**.
- L 215.** Poppy head and ear of wheat. Pl. 27.
 IL 1177. 12 mm. Hellenistic to early Roman context at west end of Middle Stoa, deposit H 13:3.
 Traces of another stem to right suggest that the stamp may have had a second poppy head. If so it is like the published token, Svoronos, 1900, no. 259, pl. IV, 22, an ear of wheat between two poppy heads, with the letters Δ and Η in field above. The published token has a head on the reverse of which there is no trace on the Agora specimen.
 For subject see commentary on **L 213**.
- L 216.** Quiver. Pl. 27.
 IL 1228. 15 mm. Hellenistic context with modern disturbance at the foot of the Pnyx.
 Svoronos, 1900, no. 87, published a token with a quiver stamped on it inscribed A_E^Θ. It is not the same composition as the type on this token.
 A quiver similar to this is used on an issue of small Athenian silver, Svoronos, pl. 24, 18, ca. 255–229 B.C. A similar quiver, but there combined with a bow, is also found on the issue of A.N.S. coins of 141/0 B.C.
 3rd century B.C. (?).
- L 217.** Rose. Pl. 27.
 IL 859. 16 mm. Late Hellenistic context, disturbed, in Great Drain South (D 17).
 Engel, no. 173 has a very similar rose but of smaller size.
- L 218.** Rose (?). Pl. 27.
 IL 1447. 13 mm. Lower slopes of Areopagus (M 17).
 A small partially struck stamp probably a rose.
- L 219.** Rosette. Pl. 27.
 IL 648. 13 mm. Context of 3rd to 2nd century B.C. in Great Drain, deposit H 12:19.
 A six-petalled rosette, stamped with a defective die (?).
- L 220.** Rosette. Pl. 27.
 IL 1233. 16 mm. Temple of Ares (J 8).
 Six-petalled rosette, probably not same die as preceding, though size of rosette seems to be same.
 No exact parallels for these six-petalled rosettes have been noted among the published tokens, Postolacca II, nos. 496–504.
- L 221.** Two scrolls. Pl. 27.
 IL 1153. 12 mm. Context of 3rd century after Christ, lower slope of Areopagus (G 19–20).
 The die probably had two identical ornaments, placed back to back, but the disk is smaller so the one at right is not fully shown.
- L 222.** Shield with wreath. Pl. 27.
 IL 1138. 20 mm. Hellenistic context in Great Drain (F 14).
 See above **L 26–L 27** for other tokens with shields.
 3rd century B.C.
- L 223 a–b.** Shield with wreath. (not ill.)
 IL 1409. 16 mm. Late Hellenistic context in Great Drain South (D 16). A second uninventoried example, 18 mm., from Southwest Area (D 17–18).
 Similar to **L 222** with slightly larger stamp.
 3rd century B.C.
- L 224.** Ship prow left. Pl. 27.
 IL 1123. 17 mm. Context of last quarter of 2nd century B.C., Great Drain, deposit H 12:1.
 A good stamp on a solid token, perhaps of 3rd century B.C.

Not unlike the prow with swan's head akrostolion used as symbol on some Athenian coins of the 3rd century B.C., Svoronos, pl. 23, no. 30.

See index for references to other tokens with prows, and **L 297** for a stamp very like this one on a token probably of the Roman period.

L 225 a-b. Ship with mast and oars, left. Pl. 27.
IL 656 (ill.). 17 mm. From lower slopes of Areopagus (O 20). IL 1451. 16 mm. North of west end of Middle Stoa (I 12).

On both copies the surface is damaged at left.

Probably the same stamp as Engel, no. 219. As drawn that shows the prow at left and a small object between the prow and the mast.

L 226. Ship stern. Pl. 27.
IL 817. 13 mm. Disturbed fill along East side of Great Drain South (B 20).

The back half of a ship with oars and rudder. An ear of wheat above.

L 227 a-e. Thorax. Pl. 27.
IL 903 (ill.). 16 mm. Late Hellenistic context in Great Drain South with slight disturbance (C 19). IL 831. 17 mm. Context of end of 4th and early 3rd centuries B.C., Southwest Area, deposit A 18:8. IL 1122. 16 mm. Context of last quarter of 2nd century B.C. in Great Drain, deposit H 12:1. IL 1444. 15 mm. Hellenistic to early Roman context at west end of Middle Stoa, deposit H 13:3. IL 532. 17 mm. From north slope of Areopagus (M 19).

Breast plate and lappets.

Examples **c**, **d**, and **e** all badly preserved but possibly from same die as **a** and **b**.

Several identical tokens were noted at the Numismatic Museum. Postolacca published six tokens with thorax stamp, II, nos. 742-747, of which the one illustrated, 743, may be the same as this type.

3rd century B.C.

L 228. Thorax. Pl. 27.
IL 888. 18 mm. Hellenistic context in Great Drain South, deposit A-B 19-20:1.

Similar to **L 227**; an illegible symbol in field upper right.

3rd century B.C.

L 229. Thorax. Pl. 27.
IL 988. 16 mm. Late Hellenistic context in Great Drain South, deposit C 18:14.

Same subject as **L 227-L 228**. Details not clear.

L 230. Trident. Pl. 27.
IL 820. 14 mm. Southwest Area (C 21).

A neatly stamped elaborate barbed trident.

Postolacca II published four Athenian tokens with tridents, but illustrated none.

A trident is used as symbol on the issue of A.N.S. silver of 179/8 B.C. It also occurs on some of the Delos Cleruchy coins, Svoronos, pl. 107, nos. 26-27.

L 231. Trident (?). Pl. 27.
IL 704. 14 mm. North of Eponymous Heroes (I 9).

A trident with symbols or letters below, or perhaps all a large monogram.

L 232. Trophy on prow. Pl. 27.
IL 1047. 12 mm. Southwest Area (C 17).
Palm branch behind trophy.

An almost identical type appears as symbol on the A.N.S. silver issue of 149/8 B.C. The coin lacks the palm branch.

L 233. Ear of wheat (?). Pl. 28.
IL 651. 15 mm. North slope of Areopagus (O 19).
Ear of wheat (?) with snake in field left, circle or letter in field right.

One, two and three ears of wheat occur on some of the published tokens, Postolacca I, nos. 106-112; II, nos. 519-529; Engel, nos. 176-179; Svoronos, 1900, nos. 179, 258, 260.

One, two and five ears are found on various issues of Athenian coins both bronze and silver from the 3rd century B.C. into the Roman period.

No parallel has been noted for this token. For other tokens from the Agora with representations of wheat see Index, and see p. 81 for discussion of these tokens and their possible use.

L 234. Two ears of wheat, inscribed. Pl. 28.
IL 1230. 13 mm. From outside the excavations, Hellenistic context with modern disturbance at foot of Pnyx.

Two ears of wheat on single stem; letter Π in field above; all in wreath.

Perhaps same as published token, Postolacca I, no. 111 (not illustrated). See commentary on **L 233**.

L 235. Five ears of wheat, inscribed. Pl. 28.
IL 1159. 15 mm. Between the Metroon and Odeion (J 9).

Five ears of wheat; € in field near bottom; all in wreath.

Five ears of wheat do occur on Athenian coins of the Imperial period, Svoronos, pl. 94, 53-54. The representation is quite different. Perhaps this token should be placed with those of the later period.

L 236. Wreath. Pl. 28.
IL 1466. 26 mm. Panathenaic Way (S 17).
A small stamp, 7.5 mm. in diameter, of a wreath placed on a large disk.

L 237. Unidentified. Pl. 28.
IL 990. 13 mm. Late Hellenistic context in Great Drain South, deposit C 18:14.

Relatively clear but incomprehensible device, possibly an animal right, with wing or aphlaston above.

L 238. Unidentified. Pl. 28.

IL 802. 10 mm. Late Hellenistic context in Great Drain South, deposit B 20:9.

An oval object with lines above.

L 239. Unidentified. Pl. 28.

IL 1169. 13 mm. In front of Temple of Apollo (I 7). Possibly some combination of crossed ears of wheat.

L 240. Unidentified. Pl. 28.

IL 1175. 13 mm. Hellenistic to early Roman context at west end of Middle Stoa, deposit H 13:3.

Three feathers or ears of wheat above a round object. Uncertain symbols in field lower right, perhaps also lower left.

L 241. Unidentified. Pl. 28.

IL 1212. 17 mm. Southwest Area (D 15-16).

A tightly closed spiral with projecting line. Possibly an animal with long bushy tail (such as fox) curled up asleep.

SECTION IV

L 242-L 298 ROMAN PERIOD

This section contains the tokens believed to belong to the period between Augustus and the sack of Athens by the Heruli, i.e. from ca. 31 B.C. to A.D. 267, except those found in and around the Stoa of Attalos which are published below as a group, Section V.

Here, because the same stamp is sometimes found with an unstamped back, sometimes with two or more different types on the back, the tokens are arranged alphabetically by types without regard to the fact of whether only one or both sides are stamped.

L 242. Apollo. Pl. 28.

IL 40. 28 mm. South of the Square (I 17).

Standing draped figure facing, head to left, lyre (?) on left arm, uncertain object, probably patera, in right hand.

This is the same representation of Apollo Patroos as that used on Athenian Imperial coins, Svoronos, pl. 93, nos. 1-7, cf. especially 2-3. The back surface of the token is mostly gone but one trace of an original surface is bumpy and suggests that it too may have been stamped. This relatively large thin disk is about the same size as the coins, and it is probably an imitation of a coin rather than a proper lead token.

L 243. Ares (?) standing left, inscribed. Pl. 28.

IL 588. 24 mm. Late Roman context on Kolonos Agoraios, deposit A 14:2.

Warrior standing left, spear in right hand, shield on left arm; crescent in field upper left. Border of dots 18 mm. in diameter. Traces of letters around edge, originally read as Θ AN-I no longer visible.

In pose and equipment the figure is almost identical with one on three published tokens of the small Hellenistic type inscribed ΠΡΥ, Svoronos, 1900, nos. 241-243, pl. IV, 12-13. Cf. also two types with somewhat similar figures, the one inscribed ΑΙΑΣ, the other ΟΙΝΕΥΣ, *ibid.*, nos. 277-278, 289, pl. IV, 36-37, 43,

probably representing tribal heroes. These presumably are also earlier than this Agora token which probably belongs to the early Roman period.

L 244. Athena Parthenos: Head, inscribed. Pl. 28.

IL 612. 21 mm. North of Hephaisteion (E 6).

A: Athena with spear in left hand, shield on ground, Nike in right and owl (?) in field lower left. Border of dots 16 mm. in diameter.

Athena Parthenos is found on two other lead tokens neither of which corresponds exactly to this one. The one, in the Numismatic Museum in Athens (*B.C.H.*, LXXXI, 1957, pl. XI, 36, p. 498, also *Hesperia*, XXX, 1961, pp. 5-6, pl. 1, e), shows an owl on a tree (or column or altar) below the right hand and is inscribed ΓΕΡ[ΟΥ]ΣΙΑΣ (cf. L310 for inscription). The second representation, on a token in the Berlin Museum, shows a column below the hand (*Zeit. für Num.*, X, 1883, p. 152).

Our token is close to the representations of Athena Parthenos on Athenian Imperial coins, Svoronos, pls. 82, 83, 87. On the coins, however, the symbol at lower left is normally a snake.

B: Head right; letters ΚΑΡΠΟΥ at right. Border of dots 16 mm. in diameter. A chip is missing at left of the head. The inscription therefore may be incomplete.

Both Karpos and Eukarpos are common names in Roman Athens.¹ If it be true that many of these tokens, especially those of the 2nd and 3rd centuries after Christ, were tickets of admission to the various Games (above, Introduction p. 78) and if the name is complete and so correctly read as Karpos, it is barely possible that he might be the Karpos named as one of the two *agonothetai* of the Severeia celebrated by the ephebes in A.D. 221/2, *I.G.*, II², 2226, line 24 (for date see *Hesperia*, XVIII, 1949, p. 46).

¹ At least 44 Athenians named Karpos and 148 Athenians named Eukarpos appear in the catalogue of names at the Institute for Advanced Study.

- L 245.** Athena bust: Demeter in serpent car. Pl. 28.
 IL 290. 14 mm. Kolonos Agoraios, deposit D 11:7.
 A: Bust of Athena right in crested Corinthian helmet; owl behind head.
 B: Demeter standing in car drawn right by two serpents; upraised arms perhaps carrying torch and grain.
 An Athena head or bust right, most often in Corinthian helmet, occasionally in an Attic one, is the normal obverse on Athenian Imperial coins, and is found on many tokens, cf. **L 246–L 252**, **L 305–L 309**.
 The stamp of Demeter on face B is very like a reverse on some Athenian Imperial coins, see especially Svoronos, pl. 94, 42. See **L 94** and **L 301 B** for other examples of the serpent-drawn car. A published token, Engel, no. 115, shows Demeter right in serpent car, but the details as drawn do not correspond to this token.
- L 246.** Athena head right. Pl. 28.
 IL 1190. 17 mm. North of Middle Stoa (N 12).
 Head of Athena right in crested Corinthian helmet. See commentary on **L 245**. This is very close to the Athena head found on tokens in the group from the Stoa of Attalos, see **L 307**, **L 308**.
- L 247.** Athena bust right. Pl. 28.
 IL 115. 17 mm. Context of 3rd century A.D., beside the Great Drain (H 12).
 Bust right in crested Corinthian helmet. A round dot beside end of crest may represent a symbol. Border of dots 12 mm. in diameter.
 Sharp impression, good workmanship, perhaps early Roman or Hellenistic.
- L 248.** Athena bust right, countermark. Pl. 28.
 IL 1086. 24 mm. Panathenaic Way (Q 14).
 Bust right, crested Corinthian helmet. Countermark of dolphin at right, as on **L 264** (*q.v.*) and others.
- L 249 a–f.** Athena bust right: Serapis bust right. Pl. 28.
 IL 117, from Bouleuterion Porch (G 10). IL 157, from well at foot of Kolonos Agoraios, deposit F 12:4. IL 417 (ill.) and two uninventoried examples from Kolonos Agoraios (A–F 9–15). IL 1191, from Southwest Area (C 15). 18–25 mm.
 A: Bust of Athena right in crested Corinthian helmet, owl in field right. Very close to stamp of **L 248**.
 B: Bearded head of Serapis right, wearing modius, in high relief. On one copy (IL 1191) countermark of palmette behind Serapis. Very like the palmette stamp on **L 212**.
 Same (?) as Postolacca I, no. 75; II, no. 6; *ibid.*, I, nos. 283–284 for Serapis with other reverses.
 See **L 268**, for this same Serapis stamp with prow as reverse.
- L 250 a–g.** Athena head right. Pl. 28.
 IL 201, 203–204, 209, 212, 253, 258 from deposit D 10:1. 18–25 mm. (copy of **L 251**, IL 294, used as ill.).
 Head right in crested Corinthian helmet, enclosed in circle of dots 10 mm. in diam. Traces of letters or ornaments around edge, perhaps the entire device a type of Macedonian shield.
 See **L 251–L 252** for same type with stamps on reverse.
- L 251 a–e.** Athena head right: Boukranion, countermark. Pl. 28.
 IL 274, 294 (ill.) from deposit D 11:6. IL 199 from deposit D 10:1. IL 1440 and one uninventoried from Kolonos Agoraios (A–F 9–15). 18–23 mm.
 A: Athena head, as **L 250**.
 B: Filleted boukranion with countermark of dolphin above, as on **L 264** (*q.v.*).
 Similar filleted boukrania occur as reverses on Athenian Imperial coins, Svoronos, pl. 99, and on Athenian lamps of the late Roman period.
 Among the published Athenian tokens with boukrania no exact parallels have been noted, Postolacca I, nos. 236–252; Engel, nos. 143–144; Svoronos, 1900, nos. 200–201.
 See **L 164–L 165** and **L 286–L 287** for other tokens with boukrania from the Agora.
- L 252.** Athena head right: Three Graces, countermark. Pl. 28.
 IL 1139. 25 mm. From foot of Kolonos Agoraios (E 14).
 A: Athena head, as **L 250**.
 B: Three standing figures, the middle one seen from the rear with her arms across the shoulders of the other two. Countermark of dolphin at left, as on **L 289** and **L 291** (see commentary to **L 264**).
 This composition of the three Graces was very popular in Hellenistic and Roman times, found on a wall painting in Pompeii, in free standing statuettes, in reliefs, on coins and gems, perhaps all deriving from a painting of the 3rd century B.C. (Furtwängler in Roscher. *Myth. Lex.*, I, *s.v. Chariten*, p. 884; cf. D-S, *s.v. Gratiae*, p. 1667, fig. 3653). The type is also found on tesserae from Rome, Rostovtzeff, *Sylloge*, no. 358, pl. III, 57 of which 84 examples are listed. These have a modius and ear of wheat beside them, and were used in the grain distribution. It occurs also on private tesserae from Rome with various reverses, *ibid.*, nos. 2445–2460, pl. VIII, 25–27.
 A published Athenian token probably Hellenistic in date, Svoronos, 1900, no. 98, pl. II, 14, is stamped with the three Graces but shown in a row all facing forward corresponding to the symbol on the issue of A.N.S. coins of 154/3 B.C.
 See **L 260**, another example of same stamp with plain back.

- L 253.** Athena bust and olive tree. Pl. 28.
IL 1442. 33 mm. Kolonos Agoraios (A-F 9-15).
Bust of Athena right in high crested Attic helmet; at right olive tree with owl on topmost branch; in field left symbol, possibly prow facing left, diameter of stamp 27 mm.
For similar representations of owl in olive tree cf. Svoronos, *Monnaies*, pls. 87, 89, no exact parallels.
At present the disk has a rough hole pierced near the top, so that it could be worn on a chain.
This is considerably larger and thicker than most of the tokens and is perhaps better thought of as a medallion.
- L 254.** Athena bust left on ship. Pl. 28.
IL 1270. 20 mm. Late Roman context in East Stoa (O 14).
Bust of Athena left in crested Corinthian helmet on a ship; two stars in field below ship (L 255 used as ill.).
A token with the same stamp was noted at the Numismatic Museum. That copy had a bearded head stamped on the back. A published token, Postolacca I, no. 76, described as bust of Athena left on boat may be the same as the Agora token. But that copy too has a stamp on the back, Dionysos throned right.
The bust of Athena is very like that shown on an agonistic table on Athenian coins of the Roman period, cf. Svoronos, pl. 88, 58, pl. 91, 14-15.
See below L 255 and L 256.
- L 255.** Athena bust left on ship: Two Erotes flanking a vase. Pl. 28.
IL 1080. 21 mm. From west side of Panathenaic Way (P 12).
A: Athena bust on ship, as L 254.
B: Two Erotes flanking a vase from which something is rising.
- L 256 a-b.** Athena bust left on ship with countermark. (not ill.)
IL 224, IL 273. 24 mm. Deposit D 11:6.
Exactly same composition but perhaps not same stamp as L 254 with addition of countermark of dolphin as on L 264 at left.
- L 257 a-b.** Eros feeding cock: Two snakes. Pl. 28.
IL 695 (ill.). 22 mm. Context of mid 3rd century after Christ on north slope of Areopagus, deposit P 19:1. IL 1467. 20 mm. From north slope of Areopagus (P 18).
A: Kneeling winged Eros, cock feeding from his hands. Star in field upper right. Border of dots 16 mm. in diameter.
B: Two snakes, facing, rearing; star between. Border of dots, 16 mm. in diameter.
The same subject, but not same representation, of an Eros and chicken is found as device on Athenian lamps of the late Roman period, *Jahrb.*, LXVII, 1952, fig. 46, p. 127, and pp. 139-140.
Good workmanship. Perhaps early Roman.
- L 258.** Eros. Pl. 28.
IL 835. 25 mm. Context of 3rd and 4th centuries after Christ, south of Middle Stoa (N 14).
Plump winged figure, half right with legs crossed; uncertain object, to right.
Poor workmanship.
Close to types found on Athenian lamps of 3rd and 4th centuries, such as those from the Agora, Perlzweig, *Agora*, VII, no. 644, Eros with torch and thyrsos, altar in field, or no. 1539, Eros playing syrinx, with legs crossed, standing before an altar. Closest to example from Kerameikos, *Jahrb.*, LXVII, 1952, fig. 48, p. 127.
- L 259.** Eros. Pl. 28.
IL 1348. 18 mm. Context of 5th century A.D. in southern part of Square (M 15).
Chubby winged figure right, with arms outstretched. Uncertain symbol in field right. Badly worn, poor work, poor lead (?).
- L 260.** The Three Graces. Pl. 28.
IL 1224. 16 mm. South of the Square (L-N 16-18).
The upper half of the same stamp as L 252. The disk is too small for the full stamp.
- L 261.** Helios head right, countermark. Pl. 28.
IL 1216. 21 mm. From Kolonos Agoraios (C 13-14).
Rayed head right; star in field lower right. Uncertain curved object, possibly prow, lower left. Border of dots 16 mm. in diameter. Illegible round countermark at bottom.
See L 313 for another representation of Helios head.
- L 262.** Hephaistos head left. Pl. 28.
IL 823. 23 mm. Southwest corner of Square, deposit F 16:2.
Bearded head left with close fitting pointed cap; tongs in field left, hammer (?) in field right. Border of dots 16 mm. in diameter.
The tongs at left are clear on token L 314 which is possibly from the same die. These with the bearded head in workman's cap establish the identity of Hephaistos. Cf. a bronze statuette in Berlin (illustrated in Roscher, *Myth. Lex.*, s.v. *Hephaistos*, p. 2044) or the Hephaistos on a terracotta lamp of the 2nd century A.D. probably copied from the cult statue in the Hephaisteion in Athens (*Ath. Mitt.*, LXIX-LXX, 1954-55, pp. 66-94, beil. 33).
The same head is stamped on a lead weight in the Acropolis Museum, Pernice, *Griech. Gewichte*, pl. I,

no. 3, p. 82.² From the published drawing it would seem to be stamped from the same die as the token.

L 263. Hermes: Serapis. Pl. 29.

17 examples: IL 200, 202, 205–208, 211, 213, 215, deposit D 10:1. IL 292, deposit D 11:7. IL 393, 504, 511 (ill.) and two uninventoried from Kolonos Agoraios (A–G 3–15). IL 699, from Bouleuterion Plateia (F 10) and one uninventoried from northwest of Bouleuterion (F 8). 17–21 mm.

A: Hermes, turned slightly left; cap, winged shoes, and chlamys falling from left arm. Money bags in right hand, caduceus in left. In field, lower right, a star; lower left, indeterminate object. Border of dots 14 mm. in diameter.

B: Serapis, semi-draped, wearing modius, head turned to left. Right arm outstretched, staff in left hand. In field lower left, star. Border of dots 14 mm. in diameter.

Hermes is shown in the same pose and with the same attributes on two published tokens, Svoronos, 1900, nos. 230, 231, pl. III, nos. 24, 25. But instead of a circle of dots around the figure, there is an inscription of which the left half is preserved on the one token, the right on the other, reading ΓΡΑΜΒΟΥΛΑ and [Α]ΥΡ ΒΑΣΣΟΥ.³

Both these types, the Hermes and the Serapis, are among the most popular of late antiquity.

In Athens this Hermes is used as a reverse on coins of the Imperial period, Svoronos, pl. 92, 27–29, for which a date of A.D. 192/3 has been suggested (*Hesperia*, V, 1936, p. 314). The same figure is found on an Athenian lamp of the first half of the 3rd century after Christ (Perlzweig, *Agora*, VII, no. 648). A marble statue of the Roman period of much the same type was found just south of the Square (*Hesperia*, VIII, 1939, pp. 236–237, fig. 36). See commentary to **L 264** for suggested use.

This same Hermes occurs on Roman lead tesserae (Rostovtzeff, *Bibl. Nat.*, nos. 297–303, 306–316, 318, 320–322) and as reverse on many Roman Imperial coins. Five of the coins found in the Agora of the mid 3rd century all from the Antioch mint have this Hermes as reverse, two of Valerian, A.D. 253–260, and three of Gallienus, 253–268; Thompson, *Agora*, II, nos. 379, 487, 498.

This Serapis type (Overbeck, *Kunstmyth.*, Münztafel IV, no. 20) is also a common reverse on Roman Imperial coins in the 3rd century and four examples have been found in the Agora, one on a coin of Caracalla, one on a coin of Gordian III and two on coins of Gallienus, *op.cit.*, nos. 216, 306, 468. See below **L 319**

for other tokens with this same type but from a different die.

L 264. Hermes bust right, countermark. Pl. 29.

Fifty examples: IL 217, 220, 222–223, 225–230, 232 (ill.), 233–239, 242–243, 245–251, 259–260, 263–264, 266–267, 269–271, 275–278, 280–282, 283, 285 from deposit D 11:6. IL 255–256 from deposit D 11:7. IL 158 from context of 3rd to 4th century near Bouleuterion, deposit F 12:4. IL 335 from Kolonos Agoraios (A–F 9–15) and one uninventoried from the Southwest Area (B–C 16–17). 19–22 mm.

Bust of Hermes right, with winged cap, caduceus over right shoulder. Countermark of dolphin ca. 1 × 7 mm. placed consistently at right on 45 examples, at left on three, and at bottom on one. (One poor copy, IL 283, may not have been countermarked.) These tokens are mentioned in *Hesperia*, V, 1936, p. 19.

The head of Hermes, right, is used as obverse on some small Athenian coins of the Imperial period, Svoronos, pl. 92, 30–34; pl. 99, 42, 44. He wears the winged cap as on the token in pl. 92, 32 and pl. 99, 44; the caduceus is missing. A published token, Svoronos, 1900, no. 269, pl. IV, no. 28, is similar to but not the same as ours, with bust of Hermes right and caduceus over the shoulder, but no trace of cap nor of drapery around the neck. The published token is inscribed at right ΝΙΚΗ (not visible in photograph).

Same (?) as token published by Postolacca II, no. 108, not illustrated.

This countermark of a dolphin is found on five other types, **L 248**, **L 251 B**, **L 256**, **L 265** and **L 275**. A different dolphin countermark, stamped in outline only, occurs on three types, **L 252 B**, **L 289** and **L 291**. The two dolphin countermarks are found on the reverses of tokens which have obverses from the same die, **L 251** and **L 252**. Examples of all the types, except **L 248**, are from three closely related deposits on Kolonos Agoraios, D 10:1, D 11:6 and D 11:7 (see Deposit List). Thus it seems probable that these nine types were issued by the same authority. The various subjects of the stamps on which these countermarks are added, Athena, Hermes, Poseidon, the Three Graces, a boukranion, helmet and lion's head, give no particular clue to a specific use.

The place of finding, however, of these fifty tokens with the head of Hermes and dolphin countermark is perhaps suggestive. 45 examples are from a pocket of Herulian debris in the corner of a Roman house some 40 m. to the southwest of the Bouleuterion, deposit D 11:6, two from similar debris over the same house, one from near the Bouleuterion and

² According to the publication the weight measures 50 × 8 mm. and weighs 178.61 gr.

³ A large columnar grave monument found in the Agora, *Hesperia*, XXIII, 1954, p. 275, no. 133, may be the tombstone of a member of the secretary's family or of the secretary himself. It reads: Μᾶρ. Αὐρ. [-----] Βάσσου [-----] and is dated by letter forms to the 2nd or 3rd centuries after Christ. Bassos is not one of the common names in Roman Athens; only nine men are listed in the index to *C.I.A.*, III, and no one of these is an Αὐρήλιος Βάσσος.

one from the general area of Kolonos (one only from a different area, i.e. from the Southwest). The seventeen examples of a standing Hermes type, **L 263**, were all found in this same area, ten from the related deposits D 10:1 and D 11:7. These do not have the countermark. Two published tokens, as noted above under **L 263**, with a very similar Hermes are inscribed ΓΡΑΜ(MATEΥΣ) ΒΟΥΛ(ΗΣ). It seems not impossible that our standing Hermes of **L 263**, the Hermes head of **L 264**, and the others connected by the dolphin countermarks, all found in closely related fills not far from the Bouleuterion, were issued by the *grammateus boules*, possibly for use by members of the boule at some festival. They will all date from around the middle of the 3rd century after Christ.

L 265. Poseidon bust right, countermark. Pl. 29.
IL 257. 21 mm. Deposit D 10:1.

Bearded head right; in field right, trident with dolphin entwined around it. Border of dots 16 mm. in diameter. Countermark of dolphin at left as on **L 264**.

This token is in poor condition, details not clear.

The same stamp without countermark is found with various stamps on the reverse, **L 266**, **L 267** and **L 309** (*q.v.* for ill.).

L 266 a-b. Poseidon bust right: Youthful head left. (not ill.)

IL 121. From lower slope of Kolonos Agoraioi (E 12) and an uninventoryed copy from southwestern part of Square (H-K 13-15). 20 mm.

A: As **L 265**.

B: Youthful head, left, flung back. Short curly locks. Border of dots 19 mm. in diameter. This same stamp is used with different obverses on **L 272** (*q.v.* for ill.) and on **L 322**.

The head on B is not unlike some Alexander heads. See for example an Alexander with the horn of Ammon on a tessera from Egypt, Rostovtzeff, *Bibl. Nat.*, no. 664, pl. II, 14. Cf. also **L 275**, a somewhat similar head with short curls.

L 267. Poseidon bust right: Prow (?). (not ill.)
IL 261. 20 mm. Deposit D 11:6.

A: As **L 265-L 266**.

B: Prow (?) right, square object in field above. Border of dots 13 mm. in diameter. See **L 280** for the same stamp with a different obverse.

L 268 a-e. Serapis bust right: Prow. Pl. 29.
IL 219 (ill.), 262, from deposit D 11:6. IL 590, IL 1215, from Kolonos Agoraioi (G 5 and C-D 13-14). One uninventoryed example from north of the temple of Ares (J 7). 18-25 mm.

A: As **L 249B**.

B: Prow right in small circle of dots 10 mm. in diameter, faint traces of wreath outside; perhaps whole device is a Macedonian shield.

Five uninventoryed examples on which only the Serapis stamp is legible belong either with this number or with **L 249** (one from Kolonos Agoraioi A-F 9-15, four from Southwest Area B-C 16-17).

L 269. Serapis bust facing: Uncertain. Pl. 29.
IL 1131. 16 mm. Context of 4th to 7th century A.D., southeast of the Agora (S 19).

A: Bust front, bearded, wearing modius.

See Engel, no. 98 for another example of a Serapis bust facing on an Athenian lead token. It is not the same stamp, and has a different reverse.

B: Indeterminate object in small circle of dots, 10 mm. in diameter. Possibly same as prow stamp of **L 268B**.

L 270 a-b. Seated figure left. Pl. 29.
IL 1454 (ill.), 1455. 22 mm. Late Hellenistic context with Roman disturbance, Great Drain South (C 17).

Seated figure left, with branch in left arm, right arm outstretched; snake or tree in front. Crescent in field upper left.

All very confused. Possibly Demeter in serpent car as on Athenian Imperial coins, Svoronos, pl. 94, 8, 9 (or as on coins of Hellenistic period, *ibid.*, pl. 103, no. 37) or Athena seated left, *ibid.*, pl. 87, 36-37; 88, 1-8. See **L 245** and **L 301B** for other representations of Demeter.

L 271. Bearded head right. Pl. 29.
IL 265. 21 mm. Deposit D 11:6.

Bearded head right; sword in field left; large dolphin or fish (not a countermark) in field below.

Probably same stamp as Postolacca II, no. 125, pl. LII.

L 272. Bearded head right: Youthful head left. Pl. 29.
IL 240. 17 mm. From deposit D 10:1.

A: Wreathed bearded head right, Dionysos or Zeus (?).

B: As **L 266B**.

The bearded head on face A is very like the head of Dionysos used as obverse on some Athenian bronze coins, Svoronos, pl. 25, 13-50 of the late 1st century B.C. (for date see *Hesperia*, X, 1941, pp. 224ff.).

L 273 a-c. Head right: Head right. Pl. 29.
IL 268 (ill. A), deposit D 11:6. IL 287 (ill. B), deposit D 11:7. IL 129, near northwest corner of Bouleuterion Plateia (F 10). 19 mm.

A: Head right, probably bearded, wearing wreath or fillet. Trace of small attribute or letter in field lower left.

B: Head right.

None of the stamps are clear. The head on face B is smaller than on A.

L 274. Head right. Pl. 29.
IL 130. 18×2 mm. Lower slope of Kolonos Agoraioi (F 12). Bust of youth right.

Similar to head of Hermes (**L 264**), slightly smaller in size and no trace of attribute.

L 275. Head right, countermark. Pl. 29.

IL 244. 20 mm. Deposit D 11:6.

Head right with short curls. Small snake or another lock of hair at back of neck. Countermark of dolphin at right as on **L 264**.

Much the same type as the youthful heads of **L 266** and **L 272**.

L 276. Head left, countermark. Pl. 29.

IL 1156. 22 mm. Southwest corner of Square (F 15).

Male head left with countermark of stork and lizard at bottom. Faint impression of stamp on back, illegible.

This is a countermark found on many of the tokens in the group from the Stoa of Attalos region. See below **L 317**.

L 277. Head left: Prow right. Pl. 29.

IL 1183. 25 mm. On plundered wall of Odeion (L 10).

A: Bearded head left in high relief.

B: Prow right; dot (?) in field below; in incuse stamp 13 mm. in diameter.

Cf. the tokens with bust of Serapis right, prow of ship, **L 268**. The head here too is in high relief. Clearly no modius on this token.

L 278. Boar on wheel. Pl. 29.

IL 536. 23 mm. North of Hephaisteion (D 5).

L 279. Deer. Pl. 29.

IL 1422. 19 mm. Context of 3rd and 4th centuries after Christ, near Southwest Fountain House (H 15).

Deer standing right.

L 280 a-b. Deer: Prow (?). (not ill.)

IL 272. Kolonos Agoraios, deposit D 11:6. IL 1439. Kolonos Agoraios (A-F 9-15). 17 mm.

Both examples are in poor condition.

A: As **L 279**.

B: As **L 267B**.

L 281. Horse right. Pl. 29.

IL 741. 22 mm. Southwest Area (D 16-17).

Token in very bad condition. In field lower right a star (?); traces of two symbols above (?).

L 282. Pegasos: Βάκχος (?). Pl. 29.

IL 289. 17 mm. Context of late 3rd or 4th century after Christ on Kolonos Agoraios, deposit D 11:7.

A: Pegasos galloping right; in field below, dolphin right.

B: Possibly the sprouting branch, Βάκχος, of Dionysos.

It is very like the Βάκχος on the bronze coins, Svoronos, pl. 77, 26-27, associated with the A.N.S.

silver issue of 112/1 B.C., and also like those shown on pl. 103, nos. 41-46 dated in the 3rd century B.C. by M. Thompson, *Hesperia*, XI, 1943, p. 221. Possibly late Hellenistic rather than early Roman in date.

L 283. Snake. Pl. 29.

IL 1458. 19 mm. Near southeast corner of Square (Q-T 15-17).

A snake coiled across a cicada (?). Torch and strigil (?) in field.

See **L 122** for another representation of a cicada side view.

L 284. Snake: Crossed torches. Pl. 29.

IL 338. 20 mm. Kolonos Agoraios (D 12).

A: As **L 283**.

B: Two crossed torches; in field left, a racing-torch, right, a crescent. Incuse rectangular stamp 11×13 mm.

L 285. Agonistic table. Pl. 29.

IL 1157. 24 mm. Near southwest corner of Square (F-G 14-15).

Agonistic table between two branches; owl and illegible object on table. Border of dots, 13 mm. in diameter. Illegible countermark in shape of dumb-bell has obliterated lower half of stamp.

Same subject used as reverse on many Athenian Imperial coins. Svoronos, pl. 88, 55-61, pl. 91, 1-48, some of which carry the name of festivals (Hadrianeia, Olympieia, and Panhellenia, cf. *Hesperia*, V, 1936, p. 304). On the coins an owl, bust of Athena and a wreath normally appear on the table. The illegible object to the right is probably the bust of Athena. There seems to be no room for the wreath on the token.

L 286. Boukranion. Pl. 29.

IL 1129. 20 mm. Panathenaic Way south of Square (Q-S 17-19). Filleted boukranion with star above.

Same (?) as Postolacca I, no. 246 (not illustrated).

See **L 251B** for another filleted boukranion of Roman period and **L 164-L 165** for boukrania of Hellenistic date.

L 287. Boukranion (?). Pl. 29.

IL 1225. 17 mm. South of Square (M-N 16-18).

Half of boukranion (?) only preserved; high relief.

L 288. Cluster of grapes (?). Pl. 29.

IL 712. 24 mm. Context of 3rd century after Christ (G 19-20). A thick disk with cluster (?) in relatively high relief. No details.

Cf. Postolacca II, no. 466 (pl. LII), a cluster just as crude as this. No close parallels among the published tokens, Engel, no. 174, Postolacca II, nos. 466-482.

L 289. Helmet (?) with two countermarks. Pl. 29.

IL 286. 22 mm. Deposit D 10:1. Possibly a helmet; countermark at left of dolphin in outline as on

L 252B and L 291 (see commentary on **L 264**); another countermark, illegible, at right.

L 290. Kalathos or altar: Same. Pl. 29.

IL 241. 15 mm. Deposit D 10:1. A kalathos or altar with three small objects on top. Ground line below.

The details are not clear on either side. It may represent a kalathos with three ears of wheat such as occur on some Athenian coins of the Roman period, Svoronos, pl. 94, 36 (placed with the later coins, post-Hadrianic?, *Hesperia*, V, 1936, p. 309).

The "kalathos" however is very like the "altars" on which masks rest, **L 329**. And the three "objects" above it may well have been intended as masks.

L 291 a-f. Lion's head with tenon, countermark. Pl. 29.

IL 218, 221 (ill.), 231 from deposit D 11:6. IL 127-128 from context of 3rd century after Christ at northwest corner of Bouleuterion Plateia (F 10). IL 1203 from Southwest Area (B-C 16-17). 21-27 × 5-6 mm.

Lion's head left, with tenon at right as if for attachment. In high relief, probably moulded. Countermark of dolphin, stamped in outline, as on **L 252B** and **L 289** (see commentary on **L 264**).

Probably same as Postolacca II, no. 358 (not illustrated).

The device may be borrowed from the lions' heads used so commonly at the ends of bracelets, or from the lion's head spouts. An almost identical representation exists in a small terracotta found in an Agora well of ca. 400 B.C. (Deposit Q 15:2, Inv. T 3365).

L 292 a-b. Mask facing: Illegible. Pl. 29.

IL 1162 (ill.). 18 mm. Near Bouleuterion Propylon (I 11). IL 1170. 20 mm. Context of 3rd century A.D. in front of Middle Stoa (J 12).

An illegible countermark. Both examples are badly preserved and details far from clear.

Postolacca II, no. 721, pl. LII, may be the same stamp without the countermark. For others with theater masks see Pickard-Cambridge, *Dramatic Festivals*, 1953, fig. 206, pp. 273-275.

See **L 208-L 209**.

L 293. Pine cones (?). Pl. 29.

IL 1172. 18 mm. Panathenaic Way (Q 15).

Two deep incuse stamps in outline only of pine cone-shaped objects.

L 294. Poppy head between two ears of wheat, inscribed. Pl. 29.

IL 740. 24 mm. The lower slopes of the Areopagus, deposit F 19:6. Δ in field left, left hasta of a second letter, possibly A in field right.

See **L 213** for other tokens with same subject and references thereto.

Dumont, p. 97, mentions several tokens with poppy and wheat inscribed ΔA and ΔΔΔ and suggests the restoration δαδ(οὔχος) thus associating them with Eleusis. They sound very like this token.

The context of the deposit in which this token was found is that of the late 2nd and first half of the 1st century B.C. In size and general character, however, this token is so like those of the Roman period and so unlike those of the Hellenistic period that I do not hesitate to place it here.

L 295. Rose (?). Pl. 29.

IL 526. 22 mm. Behind the Stoa of Attalos (R 12).

A disk with convex top and deep incuse stamp in outline only of a rose or possibly the letter psi.

A token published by Postolacca II, no. 123, pl. LII, seems to be identical. On the back of that, however, is a stamp of the head of Herakles.

L 296. Scroll. Pl. 29.

IL 1429. 21 mm. Lower slopes of Areopagus (E 12).

A large Latin S between two raised dots.

Perhaps the same stamp as Postolacca II, no. 786, although the illustration, pl. LII, shows only one dot.

L 297. Ship prow left. Pl. 29.

IL 822. 23 mm. Disturbed context in Great Drain (D-E 15).

See Index for other tokens from Agora with prow as type.

This may be the same as the published token, Postolacca II, no. 675, pl. LII.

L 298. Unidentified. Pl. 29.

IL 279. 17 mm. Deposit D 11:6.

Possibly a filleted thyrsos of which, however, the head is lacking.

SECTION V

L 299-L 331 ROMAN PERIOD: GROUP OF TOKENS OF 3RD CENTURY AFTER CHRIST FROM STOA OF ATTALOS AND VICINITY

Four hundred and seventy-five tokens (33 types) have been found in the Stoa of Attalos and its immediate vicinity. Two hundred and thirteen examples

(23 types) were found in 1954 in the colonnade near the north end in a trench dug below the floor level against the foundations of the piers for the interior

columns (deposit Q 7:3). The fill in the trench contained, in addition to the tokens, fragments from the marble façade of the Stoa itself, metal fittings from its woodwork, sherds dating from the middle of the 3rd century after Christ and 105 coins which run down into the reign of Gallienus (A.D. 255–268).¹ The trench was presumably dug shortly after the attack on Athens by the Herulians in A.D. 267, probably to investigate the strength of the foundation in the process of building the Late Roman Fortification Wall.²

Some 150 tokens, of which 127 were identified (14 types), were found during the excavations of the Greek Archaeological Society in 1898 in piles resting on the floors of the fourth and fifth rooms of the Stoa (numbered from the south).³ Another 262 (29 types) were found during the course of the Agora excavations in late Roman levels in the areas immediately in front of and to the south of the Stoa.⁴ All but five of the twenty-nine types found outside of the Stoa proper are represented in one or other of the Stoa groups, and of these, four share common reverses with those from the Stoa and the fifth shares a countermark.⁵ Thus it seems safe to assume that most of these tokens are contemporary with the bulk of the coins from the trench and like those found on the shop floors were in use during the last days of the Stoa, i.e. in the years immediately preceding A.D. 267.

The majority of the tokens in this group are stamped on both sides, but often the second stamp is clearly a later one and different stamps are variously combined, that is, the same obverse may be found with several different reverses. Nine types have a single countermark of a long-legged bird holding an animal by the tail, probably a stork with a lizard; two types have two of these same countermarks and two are found with both one and two countermarks. Three

have a different countermark which looks most like a snail and a rabbit. Both these countermarks are combined in a single stamp, **L 317B**.

Only one type in this group has a clear indication of its specific use. **L 329** portrays three theater masks and carries the title of one of Menander's plays, the *Theophoroumene*. This certainly was an entrance ticket to a performance of that play, most probably at the Greater Dionysia. It seems not improbable that the others were used also as tickets of admission for various games and festivals. Twenty-six of the thirty-three types in this group are connected by the use of the same countermarks or reverses, a fact which suggests that they were issued by the same authority.⁶ That is, after the first use they returned to the source and after a second stamp was added on the back, or one or more countermarks to distinguish them from the original, they were passed out again for a second or third use. This procedure would seem the natural one to follow in issuing tickets for recurring events.

Aside from the major Attic festivals such as the Panathenaia, the Dionysia and the Eleusinia many games in honor of emperors, heroes or gods were celebrated each year by the ephebes. The variety of types and the evidence of re-use within a relatively short period (for the active life of these casually stamped lead disks cannot have been long) make it tempting to suggest that many of them, perhaps all of the 26 connected types, were issued for these ephebic games.⁷

Some of the types can be interpreted as referring directly to the games, others perhaps as speaking symbols for the names of the agonothetai of the ephebes who presumably issued the admission tickets. The latest known complete ephebic inscription, *I.G.*, II², 2245 of 262/3 or 266/7⁸ lists ten games celebrated in that year: Germanikeia, Antinoeia at Eleusis, Askle-

¹ The list of the coins follows:

Illegible	4	Trebonianus Gallus, 251–253	4
Athens, 297–255 B.C.	1	Valerian, 253–260	7
Athens, Roman Imperial	21	Mariniana, 253–257	1
Marcus Aurelius, 161–180	1	Gallienus, 253–268	3
Lucius Verus, 161–169	1	Gallienus, 254–260	8
Plautilla, 202–205	1	Gallienus, 260–268	29
Julia Mamaea, 226–231	1	Gallienus, 262–267	6
Gordian III, 238–244	3	Salonina, 260–268	7
Philip I, 244–248	2	Macrian, 260–261	2
Trajan Decius, 249–251	1	Quietus, 260–261	1
Herennius Etruscus, 250–251	1		

Note that of the 101 identified coins 64 date from the reigns of Valerian and Gallienus and that only five are definitely earlier than the reign of Gordian III.

² Cf. *Agora Guide*,² pp. 81, 86–87.

³ Published by K.D. Mylonas, 'Εφ. 'Αρχ., 1901, pp. 119–120, pl. 7.

⁴ Mentioned in *Hesperia*, VI, 1937, p. 357, some illustrated, fig. 20, p. 356; and *Hesperia*, VIII, 1939, p. 213.

⁵ From the area around the Stoa only two lead tokens were found that do not tie in with the Stoa group, and only a single example of each type. These are published in the general catalogue as **L 28** and **L 295**.

⁶ **L 309**, **L 311–L 312**, **L 313**, **L 314**, **L 325**, **329** not connected.

⁷ For the games in which the ephebes took part see Graindor, "Études sur l'épébie attique sous l'empire", *Musée Belge*, XXVI, 1922, pp. 165–228. See also J.P. Shear, *Hesperia*, V, 1936, pp. 285–327, who associates the reverses of many Athenian Imperial coins with specific festivals and games.

⁸ For date see Graindor, *Chronologie*, pp. 257, 265, and *Musée Belge*, XXVI, 1922, p. 196, Wilamowitz-Moellendorff, *Der Glaube der Hellenen*, II, 1932, pp. 473, 482.

peia, Antoneia ἐπὶ Μά[ρκω], Antinoeia ἐν ἄστει, Epinikia, Athenaia, Hadriana, a second Epinikia and Theseia. The two types representing Asklepios, **L 299** and **L 300**, might well have been used at the Asklepeia. Two and possibly a third can be associated with the Theseia, Theseus and the Minotaur **L 305**, the Minotaur **L 327**, and possibly the bull **L 324** (if called the Marathonian Bull). The five stamps with Athena, **L 301–L 303**, **L 304**, **L 305–L 306**, **L 307–L 308**, **L 309**, might have been used for the Athenaia, though equally appropriate for the Panathenaia. The Nike combined with Zeus, **L 323**, would not have been inappropriate for one of the Epinikias. Two types, **L 315** and **L 316**, seem to show Commodus as Herakles; the latest attested celebration of the Commodeia, however, is in *I.G.*, II², 2208 of 212/3 or a little later.

I can see no particular ephebic connections for the seated Dionysos, **L 310**, with the inscription mentioning the ἱερὰ γερουσία, although it does carry the countermark.

The fact that this group was found in and around the Stoa of Attalos suggests a possible association with the building. This is particularly true for those found in piles on the shop floors. The tokens could have been distributed from the stoa, or brought back to the Stoa for re-stamping before another use, or possibly collected at the Stoa for admission to its upper colonnade at the time of one of the festivals. The last suggestion could scarcely be true for the 12 tickets to the *Theophoroumene* which, however, do not have the countermark. Either of the first two would seem possible but there is insufficient evidence on which to base a choice.

L 299 a–e. Asklepios seated left, countermark. Pl. 30.

IL 385 (ill.), 419, 1110 and two uninventoried from in front of Stoa (O–P 7–8). 20–23 mm.

Asklepios seated left on stool, leaning on serpent staff. In field left, tree-trunk and crescent moon; right, five stars; to left of head uncertain object. Border of dots 17 mm. in diam. Two countermarks of stork and lizard.

This seated Asklepios is a familiar type in Athens especially on votive reliefs from the 4th century B.C., such as that illustrated in *Ath. Mitt.*, II, 1877, pl. XVII. Cf. also a small relief from the Agora, S 593.

L 300 a–i. Asklepios, Hygieia, and Telesphoros, inscribed, countermark. Pl. 29.

IL 375, 384, 430 (ill.), 467, 1117 and one uninventoried from in front of Stoa (O–P 7–8). IL 1334, 1335 and one uninventoried from deposit Q 7:3. 30–33 mm. Eight examples found on Stoa shop floors, 'Εφ. 'Αρχ., 1901, no. 3.

Asklepios and Hygieia facing with small figure of Telesphoros between. In field right, palm branch; snake beside Asklepios' right leg; uncertain object in field above. Letters (no longer legible) around edge

left to right, ΕΥΤΥΧΗΣ. Border of dots 28 mm. in diam. Countermark probably of stork and lizard at bottom.

Asklepios, Hygieia, and Telesphoros are found in this same composition on Imperial coins of various cities in Asia Minor in the late 2nd and the 3rd centuries after Christ. See for example the coins of Julia Domna from Tavium, *B.M.C., Galatia, Cappadocia, and Syria*, p. 26, no. 13, pl. V, 8 and those of Septimius Severus, Maximinus, Philip I and Valerian from Cotiaem, *B.M.C., Phrygia*, pp. 167, 172–174, 177, 178, pl. XXII, 5.

The cult of Telesphoros was introduced in Athens towards the end of the 2nd century after Christ.⁹ His cult may have had some special connection with the ephebes for his name heads two ephebic lists, *I.G.*, II², 2127, line 10 and 2227, line 3 of 194/5 and 224/5 respectively (*Hesperia*, XVIII, 1949, pp. 53, 54). Telesphoros was used as a man's name also in 3rd century Athens. M. Aelius Telesphoros is named as agoranomos on a lead weight, Pernice, *Griech. Gewichte*, no. 622, and an Aurelius Telesphoros served as one of the agonothetes for the ephebic celebration of the Antinoeia ἐν ἄστει of 238/9 or 242/3, *I.G.*, II², 2242, lines 24–26.

The token is inscribed Eutyches, a common name in Athens in the 3rd century after Christ. The choice of subject therefore probably does not carry any reference to a person named Telesphoros.

L 301 a–d. Athena and olive: Demeter in car (?) Pl. 30.

IL 399 (ill. for B), 451, 1108, 1109 from in front of Stoa (O–P 7–8). 22–24 mm.

A: Athena moving to her left with shield on left arm; olive tree to her right; in field lower right a snake. Border of dots 19 mm. in diam. (see **L 303A**, for illustration).

B: Standing draped figure facing left with right arm outstretched; wheel at lower left; in field right, snake, star, and traces of wing or second figure.

The Athena stamp on face A is overstruck with a stamp of Herakles and Tripod (**L 315**). All preserved copies represent re-uses and the details are not clear on either side.

Various representations of Athena and an olive tree are found on Athenian Imperial coins; no exact parallel for this composition has been noted, but see Svoronos, pl. 84, 36–39, pl. 87, 26.

The stamp on face B may represent Demeter in the serpent car. See Svoronos, pl. 94, 19–26, for representations on Athenian Imperial coins and **L 245B** for another representation on a token. The stamp could be interpreted as Nemesis with wheel beside her. The subject but not a similar representation is used on a

⁹ Schmidt, s.v. in Roscher, *Myth. Lex.* For other references to the cult in Athens see Robinson, *Agora*, V, pp. 52–53, and notes 9, 10, 11, and Grandjouan, *Agora*, VI, p. 35 and note 17.

lead token published by Svoronos, 1900, no. 251, pl. iv, 8.

L 302. Athena and olive: Herakles and tripod. (not ill.)

IL 1320 from deposit Q 7:3. 22 mm.

A: Athena and olive, as **L 301A**.

B: Herakles and tripod, as **L 315** (*q.v.*).

L 303. Athena and olive: Group of symbols. Pl. 30.

Twelve examples: IL 447, 448, 524, 1115, 1243 and two uninventoried from in front of Stoa (O 7, P 11 and N-P 7-13). IL 1330 and two uninventoried from deposit Q 7:3. IL 1087 (ill. face A) from area of Stoa (P-R 7-130). IL 1269 from East Stoa (O 15). 18-22 mm.

A: Athena and olive tree, as **L 301A**.

B: Group of symbols, as **L 330** (*q.v.*).

The group of symbols stamp is in all examples much fresher than the Athena on face A. It seems clear that the Athena tokens were being re-used with a new stamp added on the back.

L 304. Athena and Nike, two countermarks. Pl. 30.

IL 1202 from Middle Stoa Terrace (N 12). 25 mm.

One example found on Stoa shop floors, 'Εφ. 'Αρχ., 1901, no. 6.

Athena at right with spear in left hand, Nike approaching from left with wreath. Border of dots 18 mm. in diam. Two countermarks probably of stork and lizard.

L 305 a-c. Athena bust: Theseus and Minotaur.

Pl. 30.

IL 476 (ill. face A) from in front of Stoa (O 7). IL 1325 (ill. face B), 1326 from deposit Q 7:3. 20 mm.

A: Athena bust in high crested Attic helmet. Border of dots 17-18 mm. in diam.

B: Theseus at right with sword above his head, the minotaur falling to left; star in field. Border of dots 17 mm. in diam.

The types on both faces are found on Athenian Imperial coins. In fact the combination of the two is found on one series with Athena in Attic helmet as obverse and Theseus and Minotaur as reverse, Svoronos pl. 96, 17. These relatively chunky lead tokens can scarcely have been intended to pass as coins.

L 306. Athena bust, two countermarks: Illegible.

Pl. 30.

Twenty-seven examples: IL 398, 461, 1116, 1239, 1242 from in front of north end of Stoa (O 7). IL 1094 and seven uninventoried from in front of Stoa (N-P 7-12). IL 1306, 1327 (ill.), 1373 and eleven uninventoried from deposit Q 7:3. 22-27 mm.

A: Athena bust, as **L 305**, with addition of two countermarks, of snail and rabbit (see **L 317** for countermark).

B: Illegible stamp. It seems probable that the stamp is the Theseus and Minotaur of **L 305B**. On no

examples, however, is it sufficiently well preserved to establish this as a fact.

L 307. Athena head: Bull. Pl. 30.

23 examples: IL 434 (ill. face A), 488, 628, 1236 and two uninventoried from in front of Stoa (O-P 7-9). IL 1333 and 13 uninventoried from deposit Q 7:3. IL 1121 from Stoa colonnade. IL 736 from Southwest Area (B 22). IL 1124 from central part of Square (J 13). 21-23 mm.

A: Head of Athena right in crested Corinthian helmet. Border of dots 17 mm. in diam.

B: Bull left, as **L 324A** (*q.v.*).

The Athena head is the type used as obverse on most Athenian coins of the Imperial period. It is fairly close to those found on some of the coins assigned to the 3rd century (*Hesperia*, V, 1936, pl. IX, 4-7, p. 326, fig. 30, 3). The two examples of this token found outside the area of the Stoa may be from different dies. See **L 245**, **L 246**, **L 248**, **L 249** for other tokens with Athena head in Corinthian helmet.

L 308 a-b. Athena head, countermark: Tyche(?).

(not ill.)

Two examples: IL 554 from in front of Stoa (P 9-10). IL 1088 from south of Stoa (Q-R 12-15). 24-27 mm.

A: Athena head as **L 307A** with addition of countermark, possibly of snail and rabbit.

B: Standing draped figure, possibly Tyche, as **L 322A** (*q.v.*).

L 309. Athena bust: Poseidon bust. Pl. 30.

Thirteen examples: IL 396 (ill.), 466, 553, 577, 581 and five uninventoried from in front of Stoa (O-P 7-10). IL 1332 and two uninventoried from deposit Q 7:3. 20-22 mm.

A: Bust of Athena in crested Corinthian helmet; in field, a star; lower right, prow of ship. Border of dots 14 mm. in diam.

B: Bust of Poseidon right, as **L 265-L 267**.

L 310 a-i. Dionysos seated, inscribed, countermark.

Pl. 30.

With one countermark of stork and lizard. IL 1111, in front of Stoa (O 7) 28 mm. With two countermarks of stork and lizard. IL 477, 1112 (ill.), 1113 and two uninventoried from in front of Stoa (N-P 7-13). IL 1336-7 and one uninventoried, deposit Q 7:3. 25-28 mm. Five found on Stoa shop floors, 'Εφ. 'Αρχ., 1901, no. 9.

Dionysos seated right on throne, staff in left hand, uncertain object in right. In field left, kantharos and crescent; lower right, thyrsos or cluster. Letters around edge from left to right, ΙΕΡΑΚ ΓΕΡΟΥΥ[Ι]ΑC, in exergue, right to left ΚΑΩ. Border of dots, 22 mm. in diam.

This seated Dionysos, based on the Alkamenes cult statue, is found on Athenian Imperial coins,

Svoronos, pl. 92, 8–21, and on those of the New Style. See **L 86** for similar type on a token of Hellenistic period, and commentary thereon for other uses of the type.

The inscription might be restored to read [δ] ἱερᾶς γερούσ[ι]ας [ἀρχῶν]. The letters in the exergue presumably are part of a man's name of which the kappa is probably the first letter or possibly the second. If it be the first letter one might suggest the name Κλώ[δισος].

The Sacred Gerousia in Athens was a public body established in the reign of Marcus Aurelius and Commodus which displayed a particular interest in the conduct of religious festivals.¹⁰

Marcus Clodius Pupienus Maximus, emperor in 238, might be related to an Athenian family of whom Marcus Ulpius Eubiotus Leurus was one of the most distinguished public benefactors. This possibility has been suggested because one of the sons of the latter was named Marcus Ulpius Pupienus Maximus (Oliver, *op.cit.*, p. 132). The Athenian family had some connection with the Sacred Gerousia, *ibid.*, text 31, pp. 125–141. If Klodius is in fact the name on the token on which the Sacred Gerousia also appears, he might be a hitherto unknown member of this family.

See commentary on **L 244**, for another Athenian token inscribed Γερ[ου]σίας.

L 311. Helios in quadriga. (not ill.)

Seventeen examples: IL 379, 380, 405, 409, 520 and three uninventoryed from in front of Stoa (three in P 7, one in O 8, one in O 11). IL 1338 and six uninventoryed from deposit Q 7:3. IL 370 from Kolonos Agoraios (D 6). IL 1036 from Southwest Area (D 16). 20–22 mm. (See **312A** for ill.)

Helios in spread quadriga; whip in right hand, reins in left. Border of dots 15 mm. in diameter.

This type is used as reverse on coins of Aurelian, *Rom. Imp. Coin.*, V, 1, p. 274, no. 78 and on many coins of Probus, *ibid.*, V, 2, p. 118, no. 911 et al., pl. V, 9 and 10. These examples it must be noted are later than the assumed pre- A.D. 267 date for the tokens.

L 312. Helios in quadriga: Selene in biga. Pl. 30.

Eighteen examples: IL 171, 449, 455, 508, 523, 525, 568, 585, 658, 1240 and two uninventoryed from in front of Stoa (N–P 7–12). IL 1339 (ill.) and two uninventoryed from deposit Q 7:3. IL 365 from Kolonos Agoraios (E 6). One uninventoryed from central part of Square (M–O 9–11) and one from Southwest Area (B–C 16–17). 20–23 mm. Twenty found on the Stoa shop floors, 'Εφ. 'Αρχ., 1901, no. 5.

A: Helios, as **L 311**.

B: Selene in biga drawn by bulls, left; small wings or scarf on shoulder, torch in right hand, reins

in left; in field three stars, one above, two below. Border of dots 16 mm. in diameter.

Engel published a copy of this token, no. 53.

This same stamp of Selene occurs on an irregular piece of lead, probably used as a sealing, **L 335** below.

Selene (or Diana or Luna) in a biga drawn by bulls is a not uncommon type in Roman Imperial times, used for example on coins of Caracalla and Salonina (*Rom. Imp. Coin.*, IV, 1, p. 254, no. 284, pl. XII, 19; V, 1, p. 198, no. 63).

L 313 a–d. Helios bust: Uncertain representation.

Pl. 30.

Four examples: IL 479 and one uninventoryed from in front of Stoa (O 7). IL 1323 (ill.), 1324 from deposit Q 7:3. 19 mm.

A: Male bust left rayed; protome of horse in field lower left, palm branch in field right. Border of dots 12 mm. in diam.

B: Uncertain representation.

See **L 261** for another representation of rayed head of Helios.

L 314 a–b. Hephaistos head: Themistokles on galley.

Pl. 30.

Two examples: IL 463, 1118 (ill.) from in front of Stoa (O–P 7–8). 21 mm. One example, probably same, found on Stoa shop floors, 'Εφ. 'Αρχ., 1901, no. 8.

A: Head of Hephaistos left, as **L 262**.

B: Figure facing front standing on small ship right; uncertain object in left hand; two dolphins (?) below ship. Border of dots 16 mm. in diam.

On face B the details are far from clear. The figure almost certainly, however, represents Themistokles holding a trophy standing on a galley. The stamp corresponds closely to the scene used as reverse on some Athenian Imperial coins, Svoronos, pl. 97, cf. especially nos. 10 and 11.

L 315. Herakles and tripod. (not ill.)

94 examples (without countermark): IL 376, 400, 411, 441, 450, 452, 453, 471, 698 and 12 uninventoryed from in front of Stoa (N–P 7–13). IL 1318, 1319 and 70 uninventoryed from deposit Q 7:3. IL 1090 from Southwest Area (D 18). 21–25 mm.

31 examples with countermark of stork and lizard: IL 377, 421, 459, 521, 1249 and seven uninventoryed from in front of Stoa (N–P 7–13). IL 1321 and 17 uninventoryed from deposit Q 7:3. IL 351 from Kolonos Agoraios (D 6). 21–25 mm.

Nude male figure, laureate (?), seated left on rock, facing a tripod from which a snake arises; uncertain object in right hand. Border of dots 17 mm. in diam. (See **L 316A**, for illustration.)

The type, the young Herakles seated left on a rock facing a tripod, goes back well into the Greek period, found for example on coins of Kroton as early as the 4th century B.C. Much the same type is found

¹⁰ J. H. Oliver, *The Sacred Gerousia, Hesperia*, Supplement VI, 1941, pp. 5 ff. See also B. D. Meritt, *Hesperia*, XXX, 1961, pp. 231–236, no. 31, and XXXII, 1963, pp. 26–30, no. 27.

on an inscribed Roman token (Rostovtzeff, *Bibl. Nat.*, no. 416, pl. XII, 1): Herakles seated left on chair or throne with skyphos in left hand and tripod in front. The inscription reads **CE-RTI** and the tessera is classed as a *tessera cognominibus vir. signata*. It may be noted that the reverse of this Roman token is a standing Neptune with dolphin and trident similar to the Triton on **L 320**.

This Athenian type may possibly represent Commodus as Herakles as he is shown in a similar pose for example on a coin from Alexandria (*B.M.C., Alexandria and the Nomes*, no. 1411, pl. VI). See commentary on **L 316**.

For other occurrences of this same stamp overstruck on earlier types or used with a stamped reverse see **L 301**, **L 302**, **L 316**, **L 317**.

L 316 a-c. Herakles and tripod: Bust of youth. Pl. 30.

IL 428, 1244 (ill.) from in front of Stoa (N-P 7-13). IL 318 from southwest corner of Square, deposit F 13:2. 19-21 mm.

A: Herakles and tripod, as **L 315**.

B: Bust of youth left; club in field behind. Border of dots 17 mm. in diam.

The long face and relatively flat back of the head resemble the youthful heads of Commodus as shown on coins issued during the joint reigns of Marcus Aurelius and Commodus (*B.M.C., Rom. Emp.*, IV, pl. 84, nos. 13, 14; pl. 85, nos. 5, 6; pl. 88, no. 15 and especially pl. 89, no. 1). This token may well represent Commodus in the guise of Herakles. Medallions of Commodus issued between 177 and 180 show him as a young Herakles (*ibid.*, p. cxvii). For further examples of Commodus posing as Herakles see commentary on **L 315**.

L 317 a-i. Herakles and tripod: Three countermarks. Pl. 30.

Nine examples: IL 584 (ill. as face B) from in front of Stoa (N-P 7-13). IL 1322 and seven uninventoried from deposit Q 7:3. 22-26 mm.

A: Herakles and tripod, as **L 315**.

B: Three countermarks: a) a stork holding lizard by the tail, b) a snail and rabbit (?), c) a plump pitcher or an owl.

The stork with lizard is used by itself as a countermark on 14 types: **L 276**, **L 299**, **L 300**, **L 304**, **L 310**, **L 315**, **L 319**, **L 320**, **L 321**, **L 323**, **L 326**, **L 327**, **L 328**, **L 330**. The snail and rabbit is used certainly on one type, **L 306**, and possibly on two others, **L 308** and **L 322**.

The first countermark, a), is clearly a long-legged bird holding an animal by the tail. The impressions are far from clear and it could be either a stork or crane with lizard or mouse. It closely resembles a gem with stork and lizard.¹¹

¹¹ Imhoof-Blumer und Keller, *Tier- und Pflanzenbilder*, Leipzig, 1889, pl. XXII, 5.

L 318. Herakles head: Bust of Minotaur. Pl. 30.

Twelve examples: IL 436 (ill. face A), 437, 444, 454, 490, 501, 660 from in front of Stoa (O-P 7-8). IL 1328 (ill. face B) and four uninventoried from deposit Q 7:3. 19-22 mm.

A: Bearded head right, club in field behind. Border of dots 15 mm. in diam.

B: Bust of Minotaur, as **L 327** (*q.v.*).

The fact that the head on face A is bearded makes the identification as Herakles almost inevitable. The club is also an attribute of Theseus, but Theseus is never shown with a beard in this period. (Roscher, *Myth. Lex.*, s.v., p. 746 and Svoronos, *Monnaies*, pl. 89, no. 25, pl. 90, nos. 45, 47, *et. al.*)

L 319. Serapis, countermark. (not ill.)

One example with one countermark of stork and lizard at bottom: IL 1342 from deposit Q 7:3.

Three examples with one countermark in center of back: IL 383, 1106 from in front of Stoa (O-P 7); one uninventoried from deposit Q 7:3.

Nine examples with two countermarks of stork and lizard on front: IL 389, 420, 1105 from in front of Stoa (O-P 7-8). IL 1252 from southwest of Stoa (N-Q 12-14). IL 1343 and four uninventoried from deposit Q 7:3. 22-25 mm.

Serapis standing, semi-draped, wearing modius, head l., r. arm raised, staff in l. hand; in field r. crested serpent, l. scrolls (see **L 320A** for illustration).

See **L 263B** for another use of this well-known Serapis type, but from a different die.

Note that all the examples of this stamp on which the back is not also stamped have one or two countermarks of stork and lizard.

L 320. Serapis: Triton, inscribed. Pl. 30.

Five examples without countermark: IL 469, 1103 (ill. face B a), from in front of Stoa (O 7). IL 1340 and two uninventoried from deposit Q 7:3. 21-22 mm. Ten examples found on Stoa shop floors, 'Eφ. 'Aρχ., 1901, no. 12.

84 examples with countermark of stork and lizard at bottom of face B: IL 378, 382, 387, 388, 397, 402, 403, 406 (ill. face A), 407, 408, 424, 425, 426, 427, 438-440, 458, 460, 468, 470, 472-475, 487, 489, 509, 542, 622, 665, 1081, 1093, 1104 (ill. face B b), 1241 and 29 uninventoried from in front of Stoa (N-P 7-13). IL 1341 and 13 uninventoried from deposit Q 7:3. IL 25, 43-46 and one uninventoried from south of Square (I 17 and K-N 6-9). 20-24 mm. 44 examples found on Stoa shop floors, 'Eφ. 'Aρχ., 1901, no. 13.

A: Serapis, as **L 319**, but without countermark.

B: Triton with attributes and stance of Poseidon: bearded figure with fish-tail legs, dolphin on outstretched right hand, trident, in left. Around figure left to right ΠΟΣΕΙ. Border of dots 15 mm. in diameter.

In all cases the triton is the fresher and so presumably the later of the two stamps. Two uses of this type are attested, one without and one with the countermark of stork and lizard.

The legend, probably an abbreviation for a name such as Poseidonios, would seem to identify the figure in spite of the fish-tails as Poseidon himself, rather than with one of the lesser sea gods or tritons, such as Briareus or Aigaion normally shown with fish-tail legs (D-S, s.v. Briareus, fig. 881). One need not be surprised to see Poseidon shown with fish-tail legs in Athens in the 2nd or 3rd centuries after Christ, for the tritons with their fish-tail legs placed in the Antonine period at the north entrance to the Odeion in the Agora have the body and head of Poseidon copied from the Parthenon west pediment (*Hesperia*, XIX, 1950, pp. 103ff.). The pose with trident in one hand and dolphin on the other is a well known Poseidon type found on gems and coins of the Imperial period (Overbeck, *Kunstmyth.*, text III, p. 283, type III).¹²

L 321 a-g. Serapis: Rosette, countermark. Pl. 30.

Seven examples: IL 386, 429, 464, 659 and two uninventoryed from in front of Stoa (N-P 7-8). IL 1347 (ill. face B) from deposit Q 7:3. 20-24 mm. Seven examples found on Stoa shop floors, 'Εφ. 'Αρχ., 1901, no. 11.

A: Serapis, as **L 319**, without countermark.

B: Five-petalled rosette. Countermark of stork and lizard below.

The rosette is obviously the later stamp; Serapis is partially obliterated.

L 322. Tyche (?): Youthful head left. Pl. 30.

Twelve examples: IL 410, 528, 538, 539 (ill. face A), 543, 592, 629, 1095, 1096, 1421 and two uninventoryed from in front of Stoa (N-P 7-13). 17-20 mm. One example found on Stoa shop floors, 'Εφ. 'Αρχ., 1901, no. 4.

Two examples with countermark probably snail and rabbit in center of face B: IL 478, 576 from in front of Stoa (O-P 7-10). Diam. 19-20 mm.

¹² L. Valerius Acisculus, a moneyer in Rome in about 45 B.C., used on some of his coins an anguipedic giant facing, which in spite of snakes instead of fishes as legs is quite similar to our triton (Grueber, *Coins of the Roman Republic*, III, pl. LIII, no. 10). This same moneyer also issued coins with a radiate head of Helios on one side and Selene in a biga on the other. One of the types of tokens in our group under discussion has Helios in a spread quadriga on one side, and Selene in a biga on the other. Both are common types but neither has any very obvious Athenian connection. Babelon (*Rom. Rep.*, II, pp. 514-518) suggested that all three were symbols of the Valeria clan. Grueber (*op. cit.*, I, p. 534, note 2) rejects Babelon's suggestions. It is perhaps no more than a curious coincidence that types similar to three of the unusual types issued by L. Valerius Acisculus should be used some three hundred years later on lead tokens in Athens which may well date from the reign of Valerian the emperor.

A: Standing draped figure, facing, head left, crescent-shaped object in left hand, cornucopia or torch in right; in field right, palm branch, lower left uncertain object. Border of dots 14 mm. in diam.

B: Youthful head flung back, as **L 266B** and **L 272B** (q.v.).

Note that stamp A is also used as reverse on **L 308**. The impressions of stamp A are all much worn and the attributes far from certain.

L 323. Zeus: Nike. Pl. 30.

Fourteen examples without countermark: IL 381 (ill.), 422, 442, 457, 1107 and four uninventoryed from in front of Stoa (O-P 7-8). IL 1344 and three uninventoryed from deposit Q 7:3. IL 24 from south of Square (F-H 16-17). 20-22 mm. Eleven examples on Stoa shop floors, 'Εφ. 'Αρχ., 1901, no. 10.

Two examples with countermark of stork and lizard on face A: IL 1345 and one uninventoryed from deposit Q 7:3.

A: Zeus seated left on throne, Nike in right hand, staff in left; in field right thunderbolt, left star, crescent below throne. Border of dots 17 mm. in diameter.

B: Nude winged figure in biga drawn to left by two horses, whip in right hand: in field upper right star; wavy ground line. Border of dots 16 mm. in diameter.

This Zeus type, the Olympian cult statue, occurs as a reverse on Athenian Imperial coins, Svoronos, pl. 92, 1-2, and as reverse on many Roman Imperial coins of the 3rd century, e.g. on coins of Valerian (*Rom. Imp. Coin.*, V, 1, p. 55) and of Gallienus (*ibid.*, pp. 91, 173).

Nike in a biga, either left or right, is also a common reverse on Roman Imperial coins, e.g. on those of Valerian (*ibid.*, pp. 49, 59) and of Gallienus (*ibid.*, pp. 131, 136, 140, 162).

L 324 a-c. Bull: Helmet. Pl. 30.

Three examples: IL 423, 435, 1238 (ill.) from in front of Stoa (O-P 7-8). 18-20 mm. Nine found on Stoa shop floors, 'Εφ. 'Αρχ., 1901, no. 2.

A: Bull standing left; in field lower left uncertain small object; above star or single letter.

B: Corinthian helmet, as **L 328** (q.v.).

Stamp A also occurs as reverse with an Athena head, **L 307**.

The animal is perhaps the Marathonian bull of Theseus's exploit. The group of Theseus and the bull is used as reverse on Athenian coins of the Imperial period (Svoronos, pl. 95, nos. 17-21). The minotaur who appears on the coins only with Theseus is shown alone on one of these tokens (**L 327**).

L 325. Eagle left. Pl. 30.

Twenty examples: IL 395, 465, 537, 547, 582, 583, 586, 649, 661, 1092, 1237, and four uninventoryed

from in front of the Stoa (N-P 7-12). IL 1346 (ill.) and four uninventoried from deposit Q 7:3. 18-22 mm.

Eagle standing left, head turned back, wreath (?) in beak. In field right, filleted boukranion; left, star; lower left, branch. Border of dots 15 mm. in diameter.

The backs are smooth except on two examples which have traces of an earlier illegible stamp. All copies of this token are much worn.

L 326. Lion's head, inscribed, countermark. Pl. 30.

Thirteen examples: IL 480, 519, 569 from in front of Stoa (O-P 7-12). IL 1314, 1315 (ill. a), 1316 (ill. b), 1317 and six uninventoried from deposit Q 7:3. 18-20 mm.

Lion's head with open mouth right. Inscription around edge in front of head AHMNIQ. Border of dots 14 mm. in diameter. Countermark of stork and lizard.

A similar lion's head on a published token of smaller size, Svoronos, 1900, no. 148a, pl. II, 30, is inscribed Λ Ε Ω and assigned by Svoronos to the tribe Leontis.

The name Lemnios is found in an epebe list (*I.G.*, II², 2055, line 16) of A.D. 145/6.

L 327 a-c. Bust of Minotaur, countermark. (not ill.)

Three examples: IL 1329 and one uninventoried from deposit Q 7:3; one uninventoried from in front of Stoa (N-P 7-13). 20 mm.

Bust of Minotaur, half left; in field at either side a star. Border of dots 15 mm. in diam. Countermark of stork and lizard. (Same stamp without countermark combined with Herakles, **L 318**, *q.v.* for illustration.)

The bust of the Minotaur here is very like that of the full size Minotaur shown with Theseus, **L 305 B**.

L 328. Helmet, countermark. (not ill.)

IL 1119 from in front of Stoa (O 7). Diam. 24 mm.

Crested Corinthian helmet right; two stars below; in field right an owl. Countermark of stork and lizard lower left (same stamp without countermark combined with bull, **L 324**, *q.v.* for illustration).

L 329 a-f. Three masks, inscribed. Pl. 30.

IL 1311 (ill.), 1312, 1313 (ill.) and three uninventoried examples from deposit Q 7:3. 26-27 mm.

Six examples on shop floors, 'Εφ. 'Αρχ., 1901, no. 1.

Three theater masks on altars. Inscription in two lines ΘΕΟΦΟΡΟΥ ΜΕΝΗ. Border of dots 20 mm. in diameter.

An example of this token, probably in the Numismatic collection of the National Museum at Athens, has been published and illustrated in many books on the theater.¹³

Obviously this token is an entrance ticket to a production of Menander's *Theophoroumene* probably at the city Dionysia. The presence of these tokens in this group, which seems to date from the middle of the 3rd century, suggests that the Menander play was performed in Athens at least as late as the first half of the 3rd century after Christ.

L 330 a-j. Group of symbols, countermark. Pl. 30.

IL 404, 431, 432, 433 (ill.), 456, 1114 and three uninventoried from in front of Stoa (O-P 7-8). IL 1331 from deposit Q 7:3. 22-24 mm.

Group of symbols: at bottom dolphin swimming r. with poppy head at r., ear of wheat at l.; at upper r. a kantharos with bird (?) standing r. in cup; star at top. Border of dots 17 mm. in diam. Countermark of stork and lizard, lower left.

Same stamp without countermark is used as reverse with Athena and olive tree, **L 303**.

L 331. Group of symbols: Uncertain representation. (not ill.)

IL 625 from west side of Square (H 11-12). 18mm.

A: Group of symbols, as **L 330**, without countermark.

B: Uncertain representation, clearly not the Athena and olive of **L 303**.

¹³ E.g., Benndorf, p. 609, fig. no. 23; M. Bieber, *Denkmäler zum Theaterwesen*, 1920, p. 84, fig. 88; Pickard-Cambridge, *Dramatic Festivals*, fig. 206, no. 4. Most recently illustrated in the periodical *Horizon* of August 1959, accompanying Gilbert Highet's translation of Menander's *Curmudgeon*. The inscription was read and restored by Postolacca (II, no. 732, see p. 310) as Θεοφορου(μένη) Μενά(υδρου) but the final letter is clearly eta as pointed out by Mylonas, 'Εφ. 'Αρχ., 1901.

SECTION VI

L 332-L 336 RELATED LEAD OBJECTS, INSCRIBED OR STAMPED

L 332. Inscribed Disk. Pl. 31.

IL 915. 15×1 mm. Context of 2nd century B.C., deposit C 18:14.

A thin lead disk with two letters, gamma and alpha, scratched on it.

L 333. Sealing with monogram. Pl. 31.

IL 1201. 27×9 mm. Early Byzantine context in Southwest Area (D 17).

Three disks of which the top and bottom are joined by a stem set through a hole in the middle disk. Monogram stamped on top disk .

Seals of this type have been found in Sicily together with some unused examples. These consisted of a lead rod with a ring at one end and a cone at the other. The cone was set through a hole in the object to be marked, possibly a piece of material, passed through the ring and then pressed together with heavy

pincers stamped on one or both sides (D-S, *s.v.* "tessera," p. 132, ill. 6825-6827; *Annali*, 1864, pp. 343-355, *Monumenti*, VIII, tav. XI, and 1866, pp. 18-28. Most of those published in *Annali* are republished in *I.G.*, XIV, 1890, no. 2415, nos. 1-25).

L 334. Sealing with monogram. Pl. 31.

IL 1097. 23×6 mm. Context of 4th and 5th centuries after Christ on Panathenaic Way (P 12).

Two disks fastened together by means of a central stem. Monogram or letters stamped on upper disk: .

There is no certain trace of a third disk which would normally be present in the cone-and-ring type of seal such as **L 333**.

L 335. Sealing with stamp of Selene. (not ill.)

IL 527. 24×16×3 mm. Context of 3rd and 4th centuries after Christ, in front of Stoa of Attalos (P 11).

An irregular piece of lead with very uneven back, probably used as a sealing attached to some object. The stamp of Selene in a biga is the same as that found on a group of lead tokens, **L 312B**.

For other lead sealings of the Greek and Roman period found in the Agora see the validating stamps on measures (Weights and Measures, **LW 17**).

L 336. Lead strips stamped with a kernos. Pl. 31.

IL 591a-u, IL 617a-u. From a well at south end of Kolonos Agoraios, dumped fill of first quarter of 3rd century B.C., deposit B 13:8.

Of the 42 lead strips, 20 have a rectangular tab or side flange, 22 are plain. Those with the tab are 73-76 mm. long, those without 64-66 mm. long. The strips are 15 mm. wide and 2 mm. thick.

The stamp, in the approximate center of each strip, is an uncovered kernos with two verticals, probably spears of wheat, set in it, enclosed in a wreath of wheat. A lead token published by Engel, no. 189, pl. VI, shows a similar kernos with two or three verticals in it, but it lacks the enclosing wreath. See tokens **L 203-L 205** for references to kernoi on tokens and coins.

The lead of these strips is so thin as to make it unlikely that they were intended for use in their present flat state. Conceivably they were designed to be wrapped around, or attached in some way to, an object such as the handle of a pot, thus serving as a kind of seal or marker. It is curious, however, to find the lead stamped in advance if they were to serve any such purpose, for other sealings such as **L 333** and **L 334** and those found on public measures were apparently all stamped after the lead was in place on the object to be marked.

CLAY TOKENS AND SEAL IMPRESSIONS

The forty-six objects published below include all the ancient small terracotta disks with stamped designs found during the excavations of the Athenian Agora.¹ Some are carefully made circular disks with smooth surfaces front and back, others are fairly regular ovals, still others are irregular ovals or circles with marked variation in thickness. Some have slightly roughened back surfaces, some nicks on the edges. Some are glazed on one or both sides, others unglazed. Ten are stamped on both sides, the rest on one side only. One, C 17 (Pl. 32), is pierced horizontally with two holes. More than one example has been found of four types.

Many of the stamps, as shown by the oval shape and the sharp details in design, are impressions of engraved metal rings or of gems. In classical Greece metal (gold, silver or bronze) was the normal material for signet rings before the time of Alexander.² The subjects of the stamps naturally enough correspond closely to the motifs found on rings, gems, coins and other small objects.

Most of these clay tokens and seal impressions from the Agora date from the 4th and first half of the 3rd centuries B.C.

Stamped clay disks such as these have been found in various parts of the ancient world but in relatively small numbers. In Athens, for example, Svoronos, writing in 1905,³ stated that 81, including duplicates, were all that he could find in Athens at that time and of those only 49 were certainly from Athens or the Piraeus. An additional 51 were acquired by the Numismatic Museum in Athens in 1929, 1930 and 1931.⁴ Five were found on the Pnyx in the early thirties.⁵ Only 46 clay disks were found in the Agora as compared with some 900 lead tokens.

Some few clay tokens have been published from other sites and museums. At Seleucia on the Tigris 72 unpierced stamped clay disks were found. These date from the 1st and 2nd centuries after Christ and are called token sealings. Nineteen clay models of coins of Hellenistic date also from Seleucia may well have been used for the same purpose as the token sealings.⁶ Thirty-six objects at the British Museum are catalogued as terracotta seals and impressions of gems. At least four of these are pierced for strings by which they were attached or appended to documents or goods, so they do not correspond to the unpierced disks.⁷ Only one, E 112 from Larissa, was found on the Greek mainland.

¹ Eight clay models of single faces of ancient coins found in surface fill with other objects believed to be part of the collection of the French consul, Fr. S. Fauvel (*Agora Guide*², p. 31), are apparently modern copies made by or for Fauvel and are therefore not included.

² *Antike Gemmen*, III, pp. 130–131 and Marshall, *Finger Rings*, p. xxxiii.

³ *J.I.A.N.*, VIII, 1905, p. 323.

⁴ *Ἀρχ. Δελτ.*, XIII, 1930–1931, Παράρτημα, pp. 32, 36.

⁵ *Pnyx*, I, pp. 104–108.

⁶ McDowell, *Stamped Objects from Seleucia*, token sealings, pp. 231–241, models of coins, pp. 241–250. See Frank E. Brown, *A.J.A.*, XLII, 1938, p. 616, for the suggestion that the coin models, like the token sealings, must have been used as some kind of tesserae.

⁷ Walters, *Terracottas*, pp. 443–446, E 93–128. Of these 12 are called impressions from gems, 3 seals or gem impressions, 2 perhaps tickets and 19 seals. It is not clear from the descriptions how many of those called seals are pierced. E 122 from Naukratis is described as with string holes, but three from Myndus, E 96, 97, 114, were also pierced, *Yale Class. St.*, III, 1932, pp. 61–62, note 6.

Various suggestions have been made of the ways in which these clay tokens may have been used. The suggestions include use as tokens to be exchanged for pay (*symbola*), as sealings attached to documents or the like, as tokens of identification, as counters for checking units delivered or collected, as theater tickets, or as records of gems.⁸ Some of the examples from the Agora may well have been used in some of these ways. It seems clear from the differences among the disks that they were designed for different uses. The solid firm disks with clearly identified types; for example, could have been easily handled and quickly checked just as safely as could the lead ones whereas the thin unglazed pieces could not have been so used. Many of the Agora examples, as will be seen in the catalogue, were found in and around the public buildings, along with official weights, measures, ballots and other such public anti-quinities. This of course is not decisive proof that the tokens too were used by the city government, but it is suggestive.

The well made disks with a single large letter as type on one side, C 2-C 5 (Pl. 31), are probably to be associated with the lead and bronze tokens with similar large letters as type. They may well have been the tokens or *symbola* used in the law courts.⁹ The usual material for these would seem to have been bronze in the 4th century, lead in Hellenistic times. On one or more occasions in the 4th century clay may have been substituted.

Some of the other more solid tokens, especially those of which more than one copy has been found, C 1, C 15, C 19 and C 23 (Pls. 31, 32), could be the *symbola* given to the Athenian citizens when they attended meetings of the *ekklesia* or the *boule* to be exchanged later for the pay due them. It has been suggested that the bulk of the lead tokens of Hellenistic date are in fact these *ekklesiastic* and *bouleutic symbola* (see above, Lead Tokens, pp. 77, 80). Clay may have been used at times in the 4th century (above, p. 84, note 34).

The Agora specimens, with one exception C 17 (Pl. 32) which is of Roman date and probably of Roman origin, are not pierced so do not belong to the category of clay sealings attached by strings to documents or goods such as those of Hellenistic date found in large numbers at Selinus in Sicily, in Egypt and in Babylonia at Seleucia and Orchoi (Uruk-Warka).¹⁰ On the clay seals used on documents the impressions of the lines of papyrus or string holes are said to be always clear. Since sealings of wax or clay were used very generally in Athens on documents of all sorts,¹¹ the disks have been carefully checked for any visible signs of attachment. Some do have slightly roughened backs and nicks on the edges that might possibly have been made by strings or wires; see especially some examples of C 15, C 19 and C 23. It is barely possible that these could have been glued or attached in some way to tablets or papyrus rolls. But since most of the disks have been fired and some glazed, they could not have been attached while the clay was still pliable. It seems improbable that any of the clay tokens in the Agora are sealings.

Tokens of identification were used by the state, by officials, and by private citizens, and almost any one of the clay tokens, preferably one of which only one copy is known, is a possible

⁸ Suggested by Gladys R. Davidson, *Pnyx*, I, pp. 104-105.

⁹ See above, p. 84, note 33 and L 1-L 19 (Pl. 19). 18 clay tokens from Athens with single letters have been published: *J.I.A.N.*, VIII, 1905, pp. 325, 338, nos. 1, 2, 3, 4, 5, 75; *Ἀρχ. Δελτ.*, XIII, 1930-31, Παράρτημα, pp. 32, 36; *Pnyx*, I, p. 108, no. 18. Another 39, in the Numismatic Museum, Mme. Varouka, curator of coins, has kindly let me examine. Their use in the *dikastic* courts will be discussed more fully in the forthcoming publication of the bronze *tesserae* from the Agora. It may be noted however that three of the clay tokens have the letter or mark **Π** as do some of the bronze ones that have been associated with the courts, *Hesperia*, XXIX, 1960, pp. 393-401.

¹⁰ For a general discussion of such sealings see Rostovtzeff, "Seleucid Babylonia," *Yale Class. St.*, III, 1932, pp. 5-17. Those from Selinus, *Not. Sc.*, 1883, pp. 287-314, pls. 7-15; from Egypt, *J.H.S.*, XXXVI, 1916, pp. 87-101; from Seleucia, McDowell, *Stamped Objects*, pp. 22-24, nos. AIIa 1-36, AIIb 1-17; from Orchoi, Rostovtzeff, *op. cit.*, pp. 44-48, nos. 67-81. See also those from Myndus and Naukratis cited above, note 7. One from Priene, Wiegand, *Priene*, p. 465, no. 235.

¹¹ For the use of seals in Athens, see Bonner, "Use and Effect of Attic Seals," *Cl. Phil.*, III, 1908, pp. 399-407. Also Dumont, *Rev. Arch.*, XXII (N.S. XI), 1870-71, pp. 35-39; he states that clay seals, always with the impression of papyrus or string holes, were beginning to enrich the Athenian collections. I have found no trace of these.

candidate for this category.¹² An inscribed circular disk from Athens, reading Ἀντίδωρος Θριά (σιος) Ἱππάρχ(χος) is presumably an example of an official identification token of a hipparch.¹³

The suggestion that some of the tokens may have been used as counters to check in numbers of items delivered or collected at shops or warehouses is appealing. It is not impossible that some of those of which more than one copy has been found were used in some such way rather than as ekklesiastic or bouletic symbola.

Clay disks seem to have been used occasionally as theater tickets, but no example from the Agora seems a likely candidate.

Two very thin disks stamped with gorgon heads and originally gilded were probably used as grave jewelry, C 24 and C 25 (Pl. 32).

CATALOGUE

The tokens stamped on both sides, C 1–C 9, are placed at the head of the catalogue. Those stamped on one side only, C 10–C 25, are arranged by subjects thus: figures, standing and seated, heads, animals, miscellaneous. C 26 is a token from the Pnyx excavations in 1934.

The letter number reference, such as B 20, for the place of finding is to the grid square in which it was found; see Agora plan, Plate 36. When no context is mentioned, the token came from a badly disturbed or modern context. The clay is not mentioned if it seems to be typical Attic. The measurements usually given are the maximum diameter and thickness. In some few cases where the disk is markedly oval, but the original dimensions of the stamp are not clear, the width as well as the length is included.

STAMPED ON BOTH SIDES

C 1 a–b. Alpha: Standing figure. Pl. 31.

MC 81, MC 695. 13–14 × 6–7 mm. **a** from context of second half of 4th to early 3rd century B.C., in well west of Tholos, deposit F 11:2. **b** from context of 4th and early 3rd century B.C. in Southwest Area, deposit C 19:5c.

Traces of red glaze on both sides. One face smaller than the other (10 vs. 13–14 mm.), apparently the two disks made separately and then put together.

A: The letter alpha enclosed in a circle.

B: Standing draped figure, left, holding uncertain object (spindle or thyrsos?) in raised right hand. Oval stamp, 7 × 12 mm.

C 2. Kappa: Crab. Pl. 31.

MC 1039. 15 × 4 mm. From Panathenaic Way, south of Agora (ca. S 18).

Traces of black glaze on face A. Well made disk.

A: The letter kappa in an incuse stamp, 11 × 13 mm.

B: A crab.

A clay token with a kappa on one side, a winged figure on the other, was found on the Pnyx (*Pnyx*, I, p. 107, fig. 48, no. 18). It does not seem to be from the same stamp.

A dikastic symbolon (?).

C 3. Kappa: Uncertain. Pl. 31.

T 3286. 18 × 4 mm. Context Hellenistic disturbed, on floor of Civic Offices (I 12).

Solid well made disk with smooth flat surfaces on both sides, i.e., no trace of edge of stamps, orange buff clay.

A: The letter kappa made with double lines.

B: Uncertain solid, large design, possibly a thorax, frog or winged insect.

A dikastic symbolon (?).

C 4. Rho: Cock. Pl. 31.

MC 673. 25 × 5 mm. Context of 4th century B.C. in Southwest Area (B 20).

Solid well made disk, smooth flat surfaces as on

C 3, orange buff clay.

A: The letter rho retrograde in double lines.

B: Cock, right, on ground line.

Two clay tokens in the Numismatic Museum in Athens have a similar double-lined retrograde rho, but are stamped on the back with a horse (Ἄρχ. Δελτ., 1931–1932, Παράρτημα, p. 36, fig. 9, the second example unpublished).

A dikastic symbolon (?).

C 5. Upsilon: Female head right. Pl. 31.

MC 359. 17 × 4 mm. Roman context in Great Drain southeast of Tholos (H–I 12).

Solid well made disk as **C 3** and **C 4**, orange buff clay.

A: The letter upsilon.

B: Female head right, with pendant earring (?) and close-fitting hair apparently brushed up behind. Oval stamp 12 × 17 mm. Impression from gem or metal finger ring.

¹² Bonner, *op. cit.*, pp. 400–401, on the use of such tokens. Three official symbola, identification tokens, of a different type have been found in the Agora, rectangular in shape and cut on a jagged line, *Hesperia*, XX, 1951, pp. 51–52, pl. 25, c.

¹³ *Rev. Arch.*, XXII (N.S. XI), 1870–71, p. 35.

Four unpublished tokens at the Numismatic Museum in Athens, with the letter psi as obverse have this same stamp of female head right as reverse. The published token, *J.I.A.N.*, VIII, 1905, p. 325, no. 5, is probably the same. A token with an upsilon has a dove or cock on the back, *op.cit.*, p. 325, no. 3.

A dikastic symbolon (?).

C 6. Herakles stealing tripod: Youth with maiden seated on his lap. Pl. 32.

MC 95. 16×13×4 mm. Northeast slope of Areopagus (ca. M 24).

Oval disk. Nick at left and bottom of face A. Black glaze on face A only, partly peeled.

A: Herakles moving left, head turned back, club (?) in right hand, tripod in left. Just below the right hand, part of a snake with raised head and, between the legs, a thin line, probably the leg of an animal. (Note that the glaze has peeled in a wide band along the line of the left leg causing the leg to appear much wider in the picture than it is.)

B: Youth seated left with maiden, right, seated on his lap; a petasos hanging from the youth's shoulders.

On face A the horizontal line of the snake's body and the raised head make it difficult to believe that the tufted tail of Herakles' lion skin was intended. That normally hangs down. Further the animal's leg seems too thin to be interpreted as a lion's foot. A gem in the British Museum (Walters, *Gems*, no. 620, pl. XI) shows Herakles in similar pose stealing the tripod, with Kerberos running left at his farther side, shown as a dog with serpents rising from his back and his tail ending in a serpent. On the gem one of the serpents rising from the back is in the same position below the right hand as the serpent on the token. But the gem shows the head of the dog directly below, and there is no trace of a dog's head in that position on the token. Conceivably a dog's head could have been shown on the other side below the tripod, where the details of the stamp have vanished with the glaze. And Kerberos, if it really be he, would be moving right instead of left. The gem is classified as archaic Etruscan by Walters, *loc. cit.*, as early Ionian by Furtwängler, *Antike Gemmen*, II, commentary on pl. VIII, no. 9.

A youth with a woman seated on his lap, very similar to the stamp on face B, is also found on two clay tokens at the Numismatic Museum in Athens (*J.I.A.N.*, VIII, 1905, p. 328, no. 19). They are not from the same stamp as this token and have a hunting dog stamped on the other side. This same composition, but in reverse, is shown on an engraved silver ring in the British Museum (Marshall, *Finger Rings*, no. 1092, pl. XXVII) and on a clay sealing from Selinus, dated pre-249 B.C. (*Not. Sc.*, 1883, pl. VIII, no. 1). On this last example the youth seems also to have

his petasos swinging on his shoulders. All are very much the same. The two at the Numismatic Museum seem to be from the same stamp, but none of the others seem to be identical, and no one seems to have been made from the ring.

C 7. Janiform head: Kantharos. Pl. 32.

T 9334. 18×14×7 mm. From under north end of Stoa of Attalos, context probably of second half of 4th century B.C. (Q 8).

A solid oval disk with chip missing in edge on one side, nick on other. Black glaze, much peeled, on face B only.

A: Bearded head left, female head right, lion's head above, long-legged long-necked bird below. The head and upper part of body of the bird serve as separator of the two heads, and the tail as the beard of the male head. Fine workmanship.

B: Kantharos, possibly lidded, in incuse stamp, 13×10 mm.

The design on face A is very like that on a scarab from the Carthaginian necropolis of Tharros in Sardinia (Walters, *Gems*, no. 428). The gem, dated ca. 500 B.C., has the bearded head right, female head left, with a goose between just like the long-legged bird on the token. A head of Silenus across the top corresponds to our lion's head. There is also a small boar's head at the left. The two heads on the token, in their dignity and apparent importance, however, are more like the Janiform heads used on coins of Tenedos, especially those of the group assigned to the period 450–387 B.C. (*B.M.C.*, *Troas*, p. 92, nos. 11–13, pl. XVII, nos. 6, 7, 8). Wroth, *ibid.*, p. xlvi, suggested, with some reservations, that the two on the coin type might be Zeus and Hera, whereas J. Marcadé identifies them as Dionysos and Kore (*B.C.H.*, LXXVI, 1952, pp. 610–611). In Athens this combination of a bearded male head and a female head back to back is also found on a black-figured lekythos of ca. 500 B.C. (*B.C.H.*, LXXVI, 1952, pp. 597–604), and on some plastic head vases of the 5th century B.C. (*J.H.S.*, XLIX, 1929, pp. 60–64).

No close parallels for the shape of the kantharos on face B have been noted among existing examples in clay. With its squat plump body, wide flaring rim and free-swinging handles, it probably represents a metal original.

C 8. Man stooping right (?): Hand. Pl. 32.

MC 145. 16×4 mm. Context of 5th and 4th century B.C., south of Tholos (G 12).

Fairly regular oval disk, clay dark brown to black from burning. Two small nicks on edge.

A: The impression is far from clear: possibly a man bending over to right, club in field. Oval stamp 7×12 mm.

B: Hand and wrist. A hand is found as a stamp on lead tokens; see L 187.

C 9. Palmette: Palmette. Pl. 32.

MC 194. 16×7 mm. South of Square E 14.

A slightly angular chunky disk. Badly worn black glaze all over. A horizontal groove along one edge.

Palmette stamped on both sides. The palmettes are very alike, but the stamps so badly worn that one cannot be certain whether they are identical or not.

STAMPED ON ONE SIDE ONLY

C 10. Two Erotes on altar. Pl. 32.

MC 799. 15×2–5 mm. Context of 4th century B.C. in Southwest Area (D 17).

A round disk tapering in thickness from top to bottom; finished back surface with two parallel ridges; nick in edge at right. Fine Attic clay, unbaked (?).

Two erotes squatting on altar; volutes on altar and wreath around it. Oval stamp, 11×13 mm.

Delicate workmanship, impression from gem.

C 11. Man in naiskos. Pl. 32.

MC 803. 14×4 mm. Context of late 5th century B.C., southwest of Square (ca. D 16).

Well made disk with smooth back. Thin glaze on front only. Attic clay.

Bearded man clad in short chiton stands right in naiskos. He seems to be wearing a broad flat hat with tassel hanging down behind. He holds an indeterminate object in his outstretched hands. Note a simple palmette in the pediment.

Two clay tokens with this same stamp are in the Numismatic Museum at Athens (*J.I.A.N.*, VIII, 1905, p. 329, no. 28).

C 12. Nude Male sacrificing. Pl. 32.

MC 395. 20×7 mm. In the Strategeion (F 12).

A solid disk with smooth back; a chip missing from edge at each side and small chip missing on impression from back of head. Fine Attic clay.

A nude bearded man, right, with ram (?) in front of him, grasping ram's head with left hand, ram's tail with right. Oval impression 13×16 mm.

Perhaps it is Odysseus sacrificing a ram before his trip to the underworld. The same subject, but different composition, is found on an Etruscan gem, *Antike Gemmen*, I, pl. LXIV, no. 29.

C 13. Standing Figure, head left. Pl. 32.

MC 693. 24×7 mm. Hellenistic context in Southwest Area (B 18).

Thick oval disk with uneven convex back. Gritty reddish buff clay, burned or stained gray at surface. Oval stamp 16×19 mm.

A figure, semi-draped, half left, mantle or scarf blown above head; transparent drapery across and beside the legs. At right end of mantle a round disk, at left a star (?). A poor or much worn impression of a signet ring or gem of good workmanship.

The details of head and upper body are not clear enough to show whether the figure is male or female.

Apparently it is semi, not fully, draped. The round disk and the star and the halo-like scarf all suggest Selene, but she is almost always shown fully draped. The only example I have found of Selene with bare breasts is on a black-figured vase in the Hermitage collection (D-S, s.v. "Luna," p. 1389, fig. 4653; for full discussion of representations of Selene see Roscher, *Myth. Lex.*, s.v. Mondgöttin, pp. 3129–3147).

If the figure is a semi-draped male it might be Helios with sun disk and star, but Helios is not usually shown with the wind-blown scarf. He does have a scarf, however, on a red-figured Apulian amphora in Naples (*Monumenti*, II, pls. XXX, XXXI, XXXII) and also on a gem of the Greco-Roman period (*Antike Gemmen*, I, pl. XLII, no. 27). There are no visible traces of the sun's rays either on the disk or on the head. They might have been on the original from which this impression was made.

C 14. Warrior and lion. Pl. 32.

MC 271. 18×15×4 mm. Context of 4th century B.C., on the northwest slopes of Kolonos Agoraios (D 5).

An oval disk with slightly concave back. Thin black glaze on obverse, spots of glaze on back.

A kneeling warrior with helmet, shield and spear, attacked from left by lion.

This motif of the warrior kneeling behind his shield is also found on one of the clay sealings from Selinus, *Not. Sc.*, 1883, pl. VIII, no. 42. The lion is missing there.

C 15 a–e. Figure seated on prow. Pl. 32.

SS 2, SS 305, MC 89, MC 96, MC 168. 16–20×3–6 mm. **a** found just east of the Hellenistic Metroon (I 10); the remaining four further south, three within six meters of each other (F–G 13), just across the Great Drain from the Strategeion in Hellenistic contexts, and the fifth in excavated earth from this same general region (C–G 13–16).

Fairly well made circular disks with flat backs and thin black glaze on both sides. The clay of **a** and **c** is burned gray. Deep nick on **a** with glaze in it, two nicks on **b**, one on **d**. Circular stamp ca. 15 mm. in diameter.

Prow right with small nude figure, knees drawn up, seated on forecastle.

The composition is very like that of the relief on the grave stele of Dromokleides at the National Museum in Athens, no. 752, of the early 4th century B.C., which shows him seated in similar pose on (or behind) the high prow of a ship (Conze, *Attische Grabreliefs*, II, no. 623, pl. 122).

C 16. Athena bust right. Pl. 32.

MC 48. 15×3 mm. Hellenistic context, west end of Middle Stoa (I 13).

A small round disk with finger print on convex back. Fine Attic clay, unbaked (?).

Bust of Athena right, wearing Corinthian helmet and aegis; long curls. An oval stamp, 8×12 mm.

Good workmanship, impression from gem.

C 17. Two busts facing each other. Pl. 32.

MC 570. 16×5 mm. Late Roman context in Southwest Area (A 20–21).

A round disk with smooth back, pierced with two holes horizontally. Dark brown clay.

Female bust at right, hair in bun low on neck, possibly wearing a stephane. Male bust at left. Uncertain long oval object above.

The motif of two portrait heads or busts facing is relatively common in Roman Imperial times. When found on coins, usually as reverses, they are portraits of members of the emperor's family, such as Nero and Agrippina, or the son and daughter of Vitellius, or the parents of Hadrian (Mattingly, *Coins of the Roman Empire in the British Museum*, I, pl. 38, nos. 1–3, pl. 60, no. 22, II, pl. 59, no. 3). Portraits of private individuals in the same composition are also known. See, for example, five rings at the British Museum, dating from the 2nd to the 4th centuries after Christ (Marshall, *Finger Rings*, nos. 82, 206, 208, 273, 1149).

The stamp on the token is very like the coin showing the children of Vitellius. The impression however, is not clear enough to suggest a positive identification and so to date the token in the year 69 after Christ.

With the two horizontal piercings for strings, this is the only certain example in the group of a seal that was appended to an object. It probably came from Rome and is of Roman date.

C 18. Boukranion. Pl. 32.

MC 966. 17×6 mm. Context of 4th cent. B.C., beneath the north end of the Stoa of Attalos (Q 8).

A round disk, slightly concave back with traces of finger prints. Fine orange buff clay.

Filletted boukranion in high relief. There are no traces of the edge of the stamp.

C 19 a–l. Eagle left, inscribed. Pl. 32.

MC 87, 122, 400, 376, 191, 367, 192, 88, 368, 138, SS 75, MC 291. 15–21 mm. × 5–7 mm. Ten were found in the vicinity of the Tholos (F–H 11–12): **a** and **b** in a well *ca.* 15 m. northwest of Tholos, deposit F 11:2, in context of third quarter of 4th and early 3rd centuries, **c** and **d** close to the wall of the Tholos at west and southeast in contexts of late 5th to late 4th and late 4th to 3rd centuries; **e** and **f** between the Tholos and Metroon in contexts of first half of 4th century and 4th century disturbed; **g** northwest of Tholos close to **a** and **b**, context of 3rd and 2nd centuries; **h** about ten meters west of Tholos in Roman context; **i** by a cover slab of Great Drain *ca.* 12 m. southeast of

Tholos in context of late 4th and early 3rd centuries; **j** *ca.* 20 m. southwest of Tholos. Two are from the north end of Kolonos Agoraios: **k** from a cistern west of the Stoa of Zeus, deposit H 6:9, in context of the late 4th century; **l** from a well north of west end of Hephaisteion, deposit D 6:7, in Roman context.

Considerable variety in size and quality of disks, from a small chunky one with smooth back such as **b** (15×7 mm.) to the irregular oval piece **l** (max. dim. 21 mm.) with thickness tapering from 7 to 3 mm. The backs of 7 (**c**, **e**, **f**, **i**, **j**, **k**, **l**) are a little uneven with traces of slight ridges and/or scratched lines. One, **b**, has a distinct horizontal groove in the edge at the top, of which the surface is glazed, and three, **c**, **e**, and **f**, have clear nicks in the edges. One, **g**, is burned black. Poor black to red glaze on both sides.

Eagle standing left on nose of stag's head with long horn to left, head turned back. In field right, standing draped female figure with two torches. In field left, inscription, from top to bottom ΣΩΤΙΛ. Oval stamp 13×15 mm.

The eagle left on the stag's head with branch-like horns is exactly like a coin type of Kroton well illustrated in the *Weber Collection* I, pl. 39, no. 1016, dated *ca.* 420–390.

The figure with the two torches might be Artemis or Demeter. A similar representation is found on some of the clay sealings from Selinus, *Not. Sc.*, 1883, pl. IX, nos. 88, 89, 90.

The first three letters of the inscription are clear, ΣΩΤ. The next letter looks most like a retrograde nu, could perhaps be read as iota alpha, less convincingly as an eta. The last letter seems to be a diagonal stroke, possibly the lower hasta of a sigma. A suggested reading Σωτήρ is tempting. It may be noted that one of the clay sealings from Selinus is inscribed Διός [Σ] ωτήρος, *Not. Sc.*, 1883, pl. XIV, no. 362. A feminine name Σωτιάς is known, but it seems an unlikely suggestion.

C 20. Eagle right. Pl. 32.

MC 727. 16×6 mm. Context of 4th century B.C., Southwest Area (B 19).

Well made disk, fine buff clay, smooth back.

An eagle right, standing on base, head turned back to left. Simple thunderbolt in field.

C 21. Insect. Pl. 32.

SS 268. 12×4 mm. Southwest of Square (G 13).

Well made disk, pinkish buff clay, smooth back, possibly unbaked. Nick in one side. Oval stamp 8×12 mm.

An insect, cicada or fly, with large diaphanous wings. Branch in field right. Delicate workmanship, probably a gem impression.

C 22. Lion's head. Pl. 32.

MC 396. 19×7–4 mm. Near south side of temple of Ares (J–K 8). Smooth back, tapering from top to

bottom. Chip from bottom and back missing. Black glaze on left half of disk both front and back. Nick on edge, upper left, with glaze in it.

Lion's head facing, shaggy mane coming down to chin on either side.

C 23 a-f. Peacock. Pl. 32.

MC 278, 279, 280, 281, 292, 293. 20-21 × 15-17 × 3-7 mm. Context of second and third quarters of 4th century, very occasional fragment of 3rd century B.C., well on south end of Kolonos Agoraios, deposit C 12:2.

Irregular oval disks of uneven thickness tapering from top to bottom. Smooth back. Clay dark gray to black from burning. A sharp nick on edge of **b**, less certain nicks on **c**, **d**, and **e**. Oval stamp 12 × at least 16 mm. (nowhere fully preserved).

Peacock left, perching on branch (?); protome of panther (?) in front; traces of something, possibly an epsilon facing up, below beak of peacock. The branch is suggested by two faint lines behind the body.

A gem (Overbeck, *Kunstmyth.*, II, Gemmentafel V, 9) shows a peacock perching in an olive tree to which Io is chained, while Hermes kills Argos.

On the backs of two of the disks, **e** and **f**, a large delta is painted in black glaze.

For peacocks in Greece see Frazer, Commentary on *Pausanias' Description of Greece*, III, p. 186. Apparently they were relatively rare in 5th century Athens, for a man named Demos who had some peacocks exhibited them once a month and people came in crowds to see them, Athenaeus IX, p. 367, c, d.

C 24. Gorgon-head. Pl. 32.

MC 251. 24 × 4-1 mm. Context of early 3rd century B.C., in a cistern on south end of Kolonos Agoraios, deposit D 11:2.

Very thin disk of fine buff clay, traces of red sizing for gold leaf on the front. Two small holes at center of flat back surface.

Gorgon-head with protruding tongue, a double ring of raised dots around the edge.

This is probably an ornament or button made as grave jewelry. The two tiny holes on the back will have held a wire ring by which it could be sewn to cloth. A similar thin disk, found at Keos, with an Athena head stamped on it, has the wire ring still preserved (*Hesperia*, XXXI, 1962, p. 282, pl. 102, K). Gilded disks such as this have been found in graves. A tomb of the late 4th century B.C. at Sedes in Macedonia, for example, contained 24 disks of varying technique and size with gorgon-heads, 5 with stars and 8 with an Athena head facing (Ἀρχ. Ἐφ., 1937-1938, part 3, pp. 892-893, fig. 28). Kotzias, *ibid.*, p. 895, suggests that they were glued or sewn to the dress or shroud of the corpse.

C 25. Gorgon-head. Pl. 32.

MC 986. 17 × 1.5 mm. The west end of the Middle Stoa (ca. H 13).

Thin disk of orange buff clay, traces of gilding.

As preceding, except for smaller size and absence of holes for wire ring. Presumably this one would have been glued to the cloth or perhaps just placed loose in the grave.

TOKEN FROM THE PNYX

C 26. Standing figure right. Pl. 32.

Pnyx T 146. 20 × 6 mm. Found on the Pnyx at east end of the East Stoa.

Solid oval disk with slightly convex back. Black glaze, much worn, on front.

Bearded figure right with crested helmet (?). Left hand grasping head of animal (?) whose body is behind the legs of the man.

CONCORDANCE OF INVENTORY AND CATALOGUE NUMBERS

Inv.	Cat.	Inv.	Cat.	Inv.	Cat.	Inv.	Cat.
L 24	L 323 a	IL 224	L 256 a	IL 273	L 256 b	IL 387	<i>id.</i> L 320
25	L 320 a	225		274	L 251 b	388	
40	L 242	226		275		389	<i>id.</i> L 319
43		227		276		393	<i>id.</i> L 263
44	<i>id.</i> L 320	228	<i>id.</i> L 264	277	<i>id.</i> L 264	395	L 325 a
45		229		278		396	L 309 a
46		230		279	L 298	397	<i>id.</i> L 320
54	L 7	231	L 291 e	280		398	L 306 a
57	L 18	232		281		399	L 301 a
61	L 166	233		282	<i>id.</i> L 264	400	<i>id.</i> L 315
112	L 94 a	234		283		401	L 28
113	L 181	235		284	L 212	402	
115	L 247	236	<i>id.</i> L 264	285	<i>id.</i> L 264	403	<i>id.</i> L 320
117	L 249 a	237		286	L 289	404	L 330 a
121	L 266	238		287	L 273 c	405	<i>id.</i> L 311
127	L 291 a	239		288	L 102	406	
128	L 291 b	240	L 272	289	L 282	407	<i>id.</i> L 320
129	L 273 a	241	L 290	290	L 245	408	
130	L 274	242		292	<i>id.</i> L 263	409	<i>id.</i> L 311
150	L 193	243	<i>id.</i> L 264	294	L 251 c	410	L 322 a
157	L 249 b	244	L 275	305	L 117 a	411	<i>id.</i> L 315
158	L 264 a	245		306	L 117 b	417	L 249 c
166	L 196	246		317	L 127	418	L 1
170	L 23	247		318	L 316 a	419	L 299 b
171	L 312 a	248	<i>id.</i> L 264	322	L 26	420	<i>id.</i> L 319
199	L 251 a	249		335	<i>id.</i> L 264	421	<i>id.</i> L 315
200	L 263 a	250		338	L 284	422	<i>id.</i> L 323
201	L 250 a	251		350	L 88	423	L 324 a
202	<i>id.</i> L 263	253	L 250 f	351	L 315 a	424	
203	L 250 b	255		352	L 134	425	
204	L 250 c	256	<i>id.</i> L 264	355	L 74	426	<i>id.</i> L 320
205		257	L 265	356	L 111 a	427	
206	<i>id.</i> L 263	258	L 250 g	363	L 174	428	L 316 b
207		259		365	<i>id.</i> L 312	429	L 321 b
208		260	<i>id.</i> L 264	370	L 311 a	430	L 300 c
209	L 250 d	261	L 267	375	L 300 a	431	L 330 b
211	<i>id.</i> L 263	262	L 268 b	376		432	L 330 c
212	L 250 e	263		377	<i>id.</i> L 315	433	L 330 d
213	<i>id.</i> L 263	264	<i>id.</i> L 264	378	<i>id.</i> L 320	434	L 307 a
215	<i>id.</i> L 263	265	L 271	379		435	L 324 b
217	<i>id.</i> L 264	266		380	<i>id.</i> L 311	436	L 318 a
218	L 291 c	267	<i>id.</i> L 264	381	<i>id.</i> L 323	437	<i>id.</i> L 318
219	L 268 a	268	L 273 b	382	<i>id.</i> L 320	438	
220	<i>id.</i> L 264	269		383	L 319 a	439	<i>id.</i> L 320
221	L 291 d	270		384	L 300 b	440	
222		271	<i>id.</i> L 264	385	L 299 a	441	<i>id.</i> L 315
223	<i>id.</i> L 264	272	L 280 a	386	L 321 a	442	<i>id.</i> L 323

<i>Inv.</i>	<i>Cat.</i>	<i>Inv.</i>	<i>Cat.</i>	<i>Inv.</i>	<i>Cat.</i>	<i>Inv.</i>	<i>Cat.</i>
IL 444	<i>id.</i> L 318	IL 538	<i>id.</i> L 322	IL 741	L 281	IL 868	L 197
447	L 303 a	539}	L 157	779	L 119	870	L 148
448	<i>id.</i> L 303	540	<i>id.</i> L 320	780	L 63	873	L 166 b
449	<i>id.</i> L 312	542	<i>id.</i> L 322	781	L 33	874	L 167 a
450	<i>id.</i> L 315	543	<i>id.</i> L 325	782	L 60 a	875	L 166 c
451	L 301 b	547	<i>id.</i> L 309	783	L 106 a	876	L 207
452}	<i>id.</i> L 315	553	L 308 a	784	L 61 a	877	L 209
453}	<i>id.</i> L 318	554	<i>id.</i> L 312	785	L 57 a	878	L 94 b
454	<i>id.</i> L 312	568	<i>id.</i> L 326	786	L 106 b	882	L 179
455	L 330 e	569	<i>id.</i> L 322	787	L 72 a	883	L 80
456	<i>id.</i> L 323	576	<i>id.</i> L 309	788	L 100	885	L 203 a
457	<i>id.</i> L 320	577}	L 317 a	789	L 58	886	L 128 a
458	<i>id.</i> L 315	581}	<i>id.</i> L 325	790	L 142 a	887	L 128 b
459	<i>id.</i> L 320	582}	L 312	792	L 142 b	888	L 228
460	<i>id.</i> L 306	583}	L 312	793	L 51	889	L 136 a
461	L 314 a	584	<i>id.</i> L 325	794	L 64	890	L 129 a
463	L 321 c	585	L 12	795	L 36 a	891	L 129 b
464	<i>id.</i> L 309	586	L 243	796	L 35	892	L 203 b
465	<i>id.</i> L 300 d	587	L 268 c	797	L 154	893	L 167 b
466	<i>id.</i> L 320	588	<i>id.</i> L 322	798	L 142 c	894	L 109
467	<i>id.</i> L 320	590	L 244	799	L 98 a	895	L 113 a
468}	<i>id.</i> L 315	592	L 90	800	L 190	896	L 98 b
469}	<i>id.</i> L 320	612	<i>id.</i> L 320	801	L 238	897	L 137
470}	<i>id.</i> L 315	615	L 144 a	802	L 60 b	903	L 227 a
471	L 331	622	L 331	803	L 151	910	L 56 a
472}	<i>id.</i> L 320	624	<i>id.</i> L 307	804	L 112 a	911	L 156 a
473}	L 305 a	625	<i>id.</i> L 322	805	L 57 c	912	L 61 c
474}	L 310 a	628	L 204	806	L 72 b	916	L 83
475}	<i>id.</i> L 322	629	L 161 a	807	L 36 b	917	L 49 a
476	<i>id.</i> L 313 a	646	L 219	808	L 130	918	L 49 b
477	L 326 a	647	<i>id.</i> L 325	809	L 76 a	919	L 49 c
478	<i>id.</i> L 320	648	L 233	810	L 101	920	L 49 d
479	<i>id.</i> L 307	649	L 225 a	811	L 59	921	L 49 e
480	<i>id.</i> L 318	651	<i>id.</i> L 312	812	L 61 b	922	L 43 a
487	<i>id.</i> L 320	656	L 321 d	813	L 42 a	923	L 43 b
488	<i>id.</i> L 318	658	<i>id.</i> L 318	814	L 106 c	924	L 43 c
489	L 182	659	<i>id.</i> L 325	815	L 160	925	L 50 a
490	<i>id.</i> L 318	660	<i>id.</i> L 320	816	L 226	926	L 50 b
491	<i>id.</i> L 263	661	L 210	817	L 201	927	L 50 c
501	<i>id.</i> L 320	665	L 257 a	818	L 124	928	L 45 a
504	<i>id.</i> L 312	671	L 161 b	819	L 230	929	L 45 b
507	<i>id.</i> L 320	695	<i>id.</i> L 315	820	L 144 b	930	L 53 a
508	<i>id.</i> L 326	697	<i>id.</i> L 263	821	L 297	931	L 53 b
509	<i>id.</i> L 311	698	L 231	822	L 262	932	L 56 b
511	<i>id.</i> L 315	699	L 288	823	L 168	933	L 56 c
519	<i>id.</i> L 312	704	L 97	830	L 227 b	934	L 75
520	<i>id.</i> L 303	712	L 13	831	L 27 b	935	L 47 a
521	<i>id.</i> L 312	713	L 34	832	L 8	936	L 105
523	<i>id.</i> L 312	716	L 189	834	L 258	937	L 55
524	<i>id.</i> L 295	722	L 22	835	L 21	938	L 48 a
525	<i>id.</i> L 322	723	<i>id.</i> L 307	837	L 135 a	939	L 162
526	L 227 e	730	L 132	838	L 217	940	L 53 c
528	L 278	736	L 14	859	L 146	941	L 2
532	<i>id.</i> L 325	737	L 294	861	L 62	943	L 49 h
536		738		866	L 20	944	L 93
537		740		867		945	L 129 c

<i>Inv.</i>	<i>Cat.</i>	<i>Inv.</i>	<i>Cat.</i>	<i>Inv.</i>	<i>Cat.</i>	<i>Inv.</i>	<i>Cat.</i>
IL 946	L 184	IL 1115	<i>id.</i> L 303	IL 1177	L 215	IL 1238	L 324 c
969	L 99	1116	<i>id.</i> L 306	1178	L 82	1239	<i>id.</i> L 306
974	L 10	1117	L 300 e	1179	L 180	1240	<i>id.</i> L 312
977	L 95	1118	L 314 b	1180	L 211	1241	<i>id.</i> L 320
978	L 46	1119	L 328	1181	L 91	1242	<i>id.</i> L 306
979	L 56 d	1121	<i>id.</i> L 307	1182	L 120	1243	<i>id.</i> L 303
980	L 71	1122	L 227 c	1183	L 277	1244	L 316 c
981	L 54 a	1123	L 224	1184	L 86	1247	L 188 b
982	L 48 b	1124	<i>id.</i> L 307	1185	L 139	1248	L 188 a
983	L 177	1126	L 107	1186	L 39	1249	<i>id.</i> L 315
984	L 49 f	1129	L 286	1187	L 76 b	1250	L 103
985	L 44	1130	L 140	1188	L 19	1251	L 192
986	L 54 b	1131	L 269	1189	L 77	1252	<i>id.</i> L 319
987	L 48 c	1132	L 78	1190	L 246	1253	L 118
988	L 229	1133	L 194	1191	L 249 d	1258	L 104
989	L 49 g	1134	L 73	1192	L 85	1263	L 111 c
990	L 237	1135	L 155 a	1193	L 116 c	1269	<i>id.</i> L 303
991	L 52	1136	L 155 b	1194	L 150	1270	L 254
992	L 42 b	1137	L 115	1195	L 152	1275	L 183
1010	L 5	1138	L 222	1196	L 126	1299	L 69
1015	L 138	1139	L 252	1197	L 206	1306	<i>id.</i> L 306
1016	L 199	1140	L 163	1198	L 185	1311	L 329 a
1020	L 84	1141	L 143	1199	L 173	1312	L 329 b
1021	L 66	1142	L 208	1200	L 172 a	1313	L 329 c
1022	L 37	1143	L 110	1202	L 304	1314	
1024	L 149	1144	L 92	1203	L 291 f	1315	
1025	L 116 a	1145	L 112 b	1205	L 96	1316	<i>id.</i> L 326
1026	L 195	1146	L 125	1206	L 176	1317	
1029	L 108	1147	L 170	1207	L 172 b	1318	
1036	<i>id.</i> L 311	1148	L 214	1208	L 178	1319	<i>id.</i> L 315
1040	L 67	1149	L 205	1209	L 47 b	1320	L 302
1047	L 232	1150	L 187	1210	L 40	1321	<i>id.</i> L 315
1074	L 202	1151	L 113 b	1211	L 81	1322	L 317 b
1080	L 255	1152	L 89	1212	L 241	1323	L 313 b
1081	<i>id.</i> L 320	1153	L 221	1213	L 49 i	1324	L 313 c
1086	L 248	1154	L 27 a	1214	L 116 b	1325	L 305 b
1087	<i>id.</i> L 303	1155	L 65	1215	L 268 d	1326	L 305 c
1088	L 308 b	1156	L 276	1216	L 261	1327	<i>id.</i> L 306
1090	<i>id.</i> L 315	1157	L 285	1217	L 114	1328	<i>id.</i> L 318
1092	<i>id.</i> L 325	1158	L 164	1218	L 169	1329	L 327 a
1093	<i>id.</i> L 320	1159	L 235	1219	L 186	1330	<i>id.</i> L 303
1094	<i>id.</i> L 306	1160	L 41	1220	L 16	1331	L 330 g
1095 } 1096 }	<i>id.</i> L 322	1162	L 292 a	1221	L 145	1332	<i>id.</i> L 309
1103 } 1104 }	<i>id.</i> L 320	1163	L 70	1222	L 111 b	1333	<i>id.</i> L 307
1105 } 1106 }	<i>id.</i> L 319	1164	L 159	1223	L 15	1334	L 300 f
1107	<i>id.</i> L 323	1165	L 213	1224	L 260	1335	L 300 g
1108	L 301 c	1166	L 121	1225	L 287	1336	L 310 e
1109	L 301 d	1167	L 158	1226	L 25	1337	L 310 f
1110	L 299 c	1168	L 38	1227	L 141	1338	<i>id.</i> L 311
1111	L 310 b	1169	L 239	1228	L 216	1339	<i>id.</i> L 312
1112	L 310 c	1170	L 292 b	1229	L 68	1340	<i>id.</i> L 320
1113	L 310 d	1171	L 123	1230	L 234	1341	
1114	L 330 f	1172	L 293	1231	L 31	1342	
		1173	L 9	1233	L 220	1343	<i>id.</i> L 319
		1174	L 3	1236	<i>id.</i> L 307	1344	
		1175	L 240	1237	<i>id.</i> L 325	1345	<i>id.</i> L 328

<i>Inv.</i>	<i>Cat.</i>	<i>Inv.</i>	<i>Cat.</i>	<i>Inv.</i>	<i>Cat.</i>	<i>Inv.</i>	<i>Cat.</i>
IL 1346	<i>id.</i> L 325	IL 1442	L 253	MC 89	C 15 c	MC 395	C 12
1347	L 321 e	1443	L 87	MC 95	C 6	MC 396	C 22
1348	L 259	1444	L 227 d	MC 96	C 15 d	MC 400	C 19 c
1366	L 198	1445	L 135 b	MC 122	C 19 b	MC 570	C 17
1372	L 172 c	1447	L 218	MC 138	C 19 j	MC 673	C 4
1373	<i>id.</i> L 306	1448	L 122	MC 145	C 8	MC 693	C 13
1403	L 191	1451	L 225 b	MC 168	C 15 e	MC 695	C 1 b
1404	L 153	1452	L 79	MC 191	C 19 e	MC 727	C 20
1405	L 175	1453	L 30	MC 192	C 19 g	MC 799	C 10
1406	L 29	1454	L 270 a	MC 194	C 9	MC 803	C 11
1407	L 32	1455	L 270 b	MC 251	C 24	MC 966	C 18
1409	L 223	1456	L 165	MC 271	C 14	MC 986	C 25
1410	L 4	1458	L 283	MC 278	C 23 a	MC 1039	C 2
1415	L 133	1459	L 24	MC 279	C 23 b		
1421	<i>id.</i> L 322	1463	L 17	MC 280	C 23 c	SS 2	C 15 a
1422	L 279	1466	L 236	MC 281	C 23 d	SS 75	C 19 k
1423	L 131	1467	L 257 b	MC 291	C 19 l	SS 268	C 21
1429	L 296	1468	L 171	MC 292	C 23 e	SS 305	C 15 b
1430	L 147			MC 293	C 23 f		
1437	L 11	MC 48	C 16	MC 359	C 5	T 3286	C 3
1438	L 200	MC 81	C 1 a	MC 367	C 19 f	T 3334	C 7
1439	L 280 b	MC 87	C 19 a	MC 368	C 19 i		
1440	L 251 d	MC 88	C 19 h	MC 376	C 19 d	Pnyx T 146	C 26
1441	L 6						

ADDENDUM

IL 527	L 335	IL 915	L 332
591 }	336	1097	334
617 }		1201	333

NOTES ON PLACES OF FINDING AND DEPOSIT LIST

GREAT DRAIN

The majority of the Hellenistic tokens were found in sand and gravel at the bottom of the Great Drain. As already noted in the introduction the sherds and coins from this gravel were a mixed lot of the 3rd, 2nd and early 1st centuries B.C. with an occasional piece of early or late Roman date. Only a few spots showed no trace of disturbance; these are considered closed deposits in the usual sense of the word and are listed below by deposit number. In two cases, however, a group of similar tokens were found together in a limited area; these are also discussed as separate deposits (B 20:9 and C 18:14) although neither was free from disturbance.

All the tokens from the Great Drain are listed below by area or deposit number. They are divided into three sections geographically from south to north: those from the southern branch of the Great Drain (Great Drain South), through the industrial area south of the bridge across Piraeus Street (A–D 20–16); those from the bridge north to the Agora boundary stone (D–G 13–16); those from the area of the Tholos and just to the north (H–I 11–12). In each section the deposits are listed first. The large number of tokens from the southern branch as compared with those from the northern stretch through the Agora proper is due no doubt to the fact that so little Hellenistic gravel deposit was found in place in the northern section.

GREAT DRAIN SOUTH (A–D 16–20) Total 126.

A–B 19–20:1 Hellenistic filling in drain, filled up probably shortly after 86 B.C. but containing much earlier material.

L 42 a, L 128 a and b, L 129 a and b, L 136, L 167 b, L 203 a and b, L 228.

B 20:9 Late Hellenistic sandy fill in two pits, two meters apart, at the bottom of the Drain. 189 coins were found in this deposit and of these more than one third, 77, were Delos, Athenian Cleruchy *post* 166 B.C. (Svoronos, pls. 106, 107). The latest specifically dated coin is an A.N.S. bronze (V–25–39 no. 14) of the type illustrated by Svoronos on pl. 81, nos. 33–39. This has been associated with the silver issue of Demetrios-Agathippos (*Hesperia*, II, 1933, pl. VII, class II i), now dated by Margaret Thompson to the year 131/0 B.C.¹

Most of the sherds from this section of the Great Drain were of the late 2nd century B.C. Probably most of the 36 inventoried tokens from these pits are,

¹ Identified coins from this deposit: Unspecified Greek 29, Athens late 4th and 3rd cent. 36, Athens New Style 196/5–88/7 B.C. 30, Eleusis in name of Eleusis 2, Eleusis in name of Athens 5, Delos Athenian Cleruchy *post* 166 B.C. 77, Chalkis 369–336 B.C. 1, Megara 307–243 B.C. 1, Imbros *post* Alexander 1, Boeotia 288–244 B.C. 1, Sicyon 250–146 B.C. 2, Euboea 196–146 B.C. 1, Rhodes 166–88 B.C. 1, Thespieae *ca.* 146–27 B.C. 1 (notebook entries NN V–23–39 nos. 14–189, V–24–39 nos. 1–8, V–25–39 nos. 1–87. Discrepancy in numbers is due to the fact that many of the lead tokens were originally entered as coins and that the totally illegible coins are not included in the count.)

like the coins and sherds, of the late 2nd century. Note that a high proportion of the tokens are stamped on both sides.

L 30	L 61 a and b	L 106 a and b
L 33	L 63	L 112 a
L 35	L 64	L 119
L 36 a and b	L 72 a and b	L 130
L 51	L 76 a	L 142 a, b and c
L 57 a, b and c	L 79	L 151
L 58	L 98 a	L 154
L 59	L 100	L 190
L 60 a and b	L 101	L 238

plus 3 with illegible stamps on both sides and one with illegible stamp on one side only.

C 18:14 Sand and gravel deposit under tile channel in line of Great Drain South. From a length of three meters in the bottom of the Great Drain 45 lead tokens and 87 identifiable coins were catalogued. Twenty-five of the tokens (9 types) are inscribed EP and four (one type) EPMI. These have been published as a group and dated to the middle or third quarter of the 2nd century B.C. because of the close correspondence between the subjects used as stamps to the added symbols on Athenian New Style coins of that date (see Section II of catalogue for references). But since the fill was a drain accumulation and not a closed deposit the tokens not obviously connected with those inscribed EP are published in the general section of the catalogue (Section III) although some may be contemporary with the special group. The few sherds from this gravel are described as Hellen-

istic, probably late with one or two pieces of the early Roman period. The 87 identified coins are: Unspecified Greek 30, Athens 3rd century 21, Athens New Style 14, Delos Athenian Cleruchy *post* 166 B.C. 16, Boeotia 338–315 B.C. 1, 229–197 B.C. 1, Orchomenos 146–27 B.C. 1, Antigonos Gonatas 277–239 B.C. 2, Chios *post* 84 B.C. 1 (notebook entries NN VIII–1–47 nos. 10–17, VIII–2–47 nos. 1–32, VIII–4–47 nos. 21–62, VIII–5–47 nos. 21–32, four illegible coins not listed above).²

L 43 a–c	L 52	L 83
L 44	L 53 a–c	L 105
L 45 a–b	L 54 a–b	L 156 a–b
L 46 a–b	L 55	L 162
L 47 a	L 56 a–d	L 177
L 48 a–c	L 61 c	L 229
L 49 a–h	L 71	L 237
L 50 a–c	L 75	L 332
B 20	L 76 b, L 106 c, L 160	
C 19	L 2, L 10, L 49 h, L 98 b, L 109, L 113 a, L 137, L 227 a	
C 18	L 93, L 129 a, L 184	
C 17	L 270 a, L 270 b	
D 17	L 146, L 217	
D 16 (south of bridge)	L 4, L 20, L 62, L 94 b, L 116 c, L 126, L 148, L 150, L 166 b, L 166 c, L 167 a, L 185, L 206, L 207, L 209, L 223 a	

GREAT DRAIN, FROM BRIDGE NORTH TO AGORA
BOUNDARY STONE (D–G 13–16) Total 31.

D 16 (north of bridge)	L 37, L 66, L 116 a, L 116 b, L 149, L 172 a, L 173, L 195
D 15	L 89, L 113 b, L 208
D–E 15	L 112 b, L 125, L 214, L 297
E 15	L 143, L 163, L 170, L 187, L 205
E 14	L 110
E–F 14	L 92
F 14	L 115, L 222
F–G 13	L 74
G 13	L 8, L 73, L 111 a, L 155 a, L 155 b, L 181

GREAT DRAIN, REGION OF THOLOS AND JUST TO
NORTH (H–I 11–12) Total 11.

H 12:1 Filling of last quarter of 2nd century B.C.	L 161 b, L 224, L 227 c.
H 12:4 Pocket beside drain, filling of late 3rd century after Christ.	L 213, L 247.
H 12:19 Pocket in floor of Drain, 3rd to 2nd century B.C.	L 161 a, L 204, L 210, L 219.
H 12	L 159
I 11	L 94

AGORA DEPOSITS

Deposits (other than those of the Great Drain, listed above) from which tokens were catalogued are listed below in the normal alphabetical order.

A 14:1 Well. From lower use filling of 2nd century B.C.

L 104.

A 14:2 Cistern. From upper dumped filling, early 4th century after Christ.

L 243.

A 18:8 Shaft. From filling of end of 4th to early 3rd century B.C.

L 27 b, L 168, L 227 b.

A 20:9 Filling. From filling of 5th, 4th and some of 3rd centuries B.C.

L 108.

A–B 19–20:1 See Great Drain.

² See *Hesperia*, XX, 1951, p. 266, for suggestion that coins in drain deposits are in general much earlier than the time of the accumulation of the deposits themselves.

B 13:8 Well. Dumped fill of first quarter of 3rd century B.C.

L 336.

B 14:2 Well. From dumped filling of 4th century after Christ.

L 114.

B 20:9 See Great Drain.

C 12:2 Well on south end of Kolonos Agoraios. Fill of second and third quarters of 4th century B.C., dumped in 3rd century B.C.

C 23 a, b, c, d, e, f.

C 18:14 See Great Drain.

C 19:5c Fill associated with a house in the southwest industrial area, upper level mixed 4th to 3rd century B.C.

C 1 b.

D 6:7 Well north of west end of Hephaisteion. Roman context.

C 19 l.

D 10:1, D 11:6 and D 11:7

These three deposits would seem to be part of the same fill, essentially the debris left by the Herulian destruction with an occasional sherd or coin of the late 3rd or early 4th century after Christ. The cistern of D 10:1 in which 22 identified tokens were found lies 15 meters northwest of the corner of the Roman house where 60 tokens, deposit D 11:6, were found, and deposit D 11:7, from which 8 tokens were identified, is the general debris over that same house. Examples of two of the same types were found in the cistern and the house, **L 251** and **L 263** and a countermark of a dolphin was found on types in both places (see commentary on **L 264**). Further the largest number of a single type in each is a representation of Hermes, **L 263** from D 10:1 and **L 264** from D 11:6. Therefore it seems safe to assume that the bulk of these tokens belong together and date from the years immediately preceding the Herulian destruction in A.D. 267. See commentary on **L 264**.

D 10:1 Cistern. Dumped filling, probably debris of Herulian destruction. Of the 19 coins from the cistern one was modern Greek, five were of the 4th century after Christ, five of the 3rd century, two of the second half of the 1st and six were pre-Roman. Those of the 3rd century were: one of Philip, 244–249, two of Gallienus, 253–268, one of Posthumus, 258–267, and one identified simply as 3rd century. There was no clear stratification in the fill, but the coins of the 4th century were limited to the upper levels whereas the tokens were all found in the lower levels in which the latest coins were those of Gallienus.

22 identified tokens: **L 202**, **L 250 a–g**, **L 251 a**, 9 ex. of **L 263**, **L 265**, **L 272**, **L 289**, **L 290**.

D 11:6 Pocket. Pocket of soft fill at corner of Roman house, cf. D 11:7, destruction debris over house.

60 tokens (11 types): **L 251 b–c**, **L 256 a–b**, 45 ex. of **L 264**, **L 267**, **L 268 a–b**, **L 271**, **L 273 a**, **L 275**, **L 280 a**, **L 291 c–e**, **L 298**.

D 11:7 Filling. Herulian destruction debris over Roman house. Of the 22 coins found in this filling 16 were pre-Roman, two of the 1st century after Christ, one of Valerian, 253–259, one of Salonina and one of Gallienus, both 253–268, and one of Probus, 276–282.

Eight identified tokens: **L 102**, **L 212**, **L 245**, one ex. of **L 263**, two ex. of **L 264**, **L 273 c**, **L 282**.

D 11:2 Cistern on the south end of Kolonos Agoraios. Context of early 3rd century B.C.

C 24.

D 12:1 Well. From use filling of first half of 1st to early 2nd century after Christ.

L 169.

D 16:7 Well. Filling as late as 6th century after Christ.

L 133.

F 11:2 Cistern shaft (well) west of Tholos. Dumped filling representing accumulation from third quarter of 4th century to ca. 290 B.C.

L 193; **C 1 a**, **C 19 a, b**.

F 12:4 Well. Filling of late Roman times, mixed to 4th century after Christ.

L 249 b, **L 264**.

F 13:2 Well. Earth from well, 1st to 4th centuries after Christ.

L 316 c.

F 16:2 Well. From dumped filling of 4th and 5th centuries after Christ.

L 262.

F 19:6 Well. Refuse accumulated from end of 2nd into 2nd quarter of 1st century B.C.

L 294.

G–H 5:1 Filling. Filling behind the north end of the Stoa of Zeus; from the lower filling, 3rd to 2nd centuries B.C.

L 107.

G–H 11–12 Investigations in the area of the Tholos: From level chiefly of 6th and 5th centuries B.C., but with some material as late as early 3rd century B.C.:

L 144 a.

From level with late Roman disturbance:

L 90, **L 331**.

H 6:9 Cistern system west of Stoa of Zeus. Dumped fill of end of 4th century B.C., perhaps from the Metroon (*Hesperia*, VI, 1937, p. 207).

C 19 k.

H 12:1 See Great Drain.

H 12:4 See Great Drain.

H 12:19 See Great Drain.

H 13:3 Filling. Filling over steps of Middle Stoa and road to west: late Hellenistic to early Roman with slight late Roman disturbance.

L 82, **L 180**, **L 215**, **L 227 d**, **L 240**.

K 18:1 Well. From lowest use filling of late 1st to early 2nd century after Christ.

L 15.

M 18:2 Filling. From filling of late 2nd century B.C. on Areopagus north slope.

L 25.

N 18:3 Cistern. Dumped filling of 3rd century B.C.

L 12.

O 17:2 Dealer's Dump. Modern filling containing debris apparently from a dealer's shop.

L 135 b.

P 19:1 Well. Use filling of 3rd century after Christ.

L 257 a.

Q 7:3 Filling. Debris of Herulian destruction in trench behind stylobate of Stoa of Attalos, opposite piers 21 and 22 (for further details see introductory note to Section V of catalogue)

L 300, 3 ex.	L 309, 3 ex.
L 302	L 310, 3 ex.
L 303, 3 ex.	L 311, 7 ex.
L 305, 2 ex.	L 312, 3 ex.
L 306, 14 ex.	L 313, 2 ex.
L 307, 14 ex.	L 315, 90 ex.

L 317, 8 ex.	L 325, 5 ex.
L 318, 5 ex.	L 326, 10 ex.
L 319, 7 ex.	L 327, 2 ex.
L 320, 17 ex.	L 329, 6 ex.
L 321	L 330
L 323, 6 ex.	

S 19:9 Well. Filling in mouth of undug well, 4th to 7th centuries after Christ.

L 269.

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Some words are listed here in both Ionic and Attic alphabets, since both are used. A few words, marked with asterisks, are listed in the Ionic alphabet, even though some examples employ the Attic alphabet, because many of them are partially restored and so can not be assigned to one or the other. Various abbreviated words are written in full, even when no example shows the complete form.

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]ακρ: DM 58

]αντ[: DM 70

Δ.Α.Σ: 24, LW 63–65

δ(): LW 85

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έμ[: DM 1

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]εσ[: DM 72

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μετρονόμων: 21, LW 17, LW 31

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μνᾶ μετρονόμων: LW 10

μνᾶ <φ>ασίμη: BW 6

μ[: DM 11

νο(μίσματα): BW 8

όγδοον: 7, 12

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]ον[: DM 71

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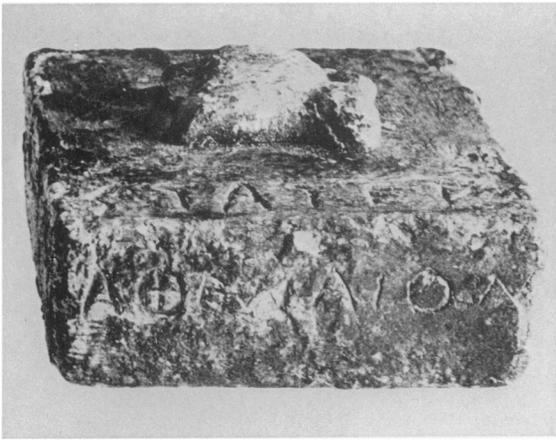
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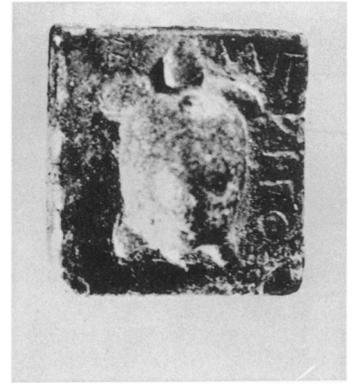
PLATES



BW 1



BW 2



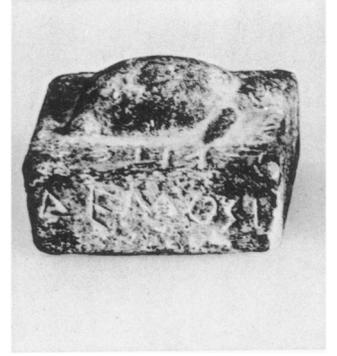
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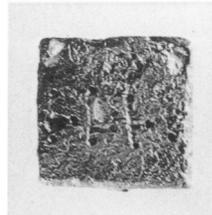
BW 1



BW 2



BW 3



BW 7



BW 9



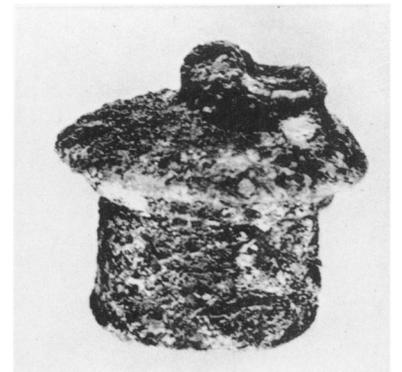
BW 8



BW 4



BW 5



BW 11



BW 6 obverse



BW 6 reverse



BW 12

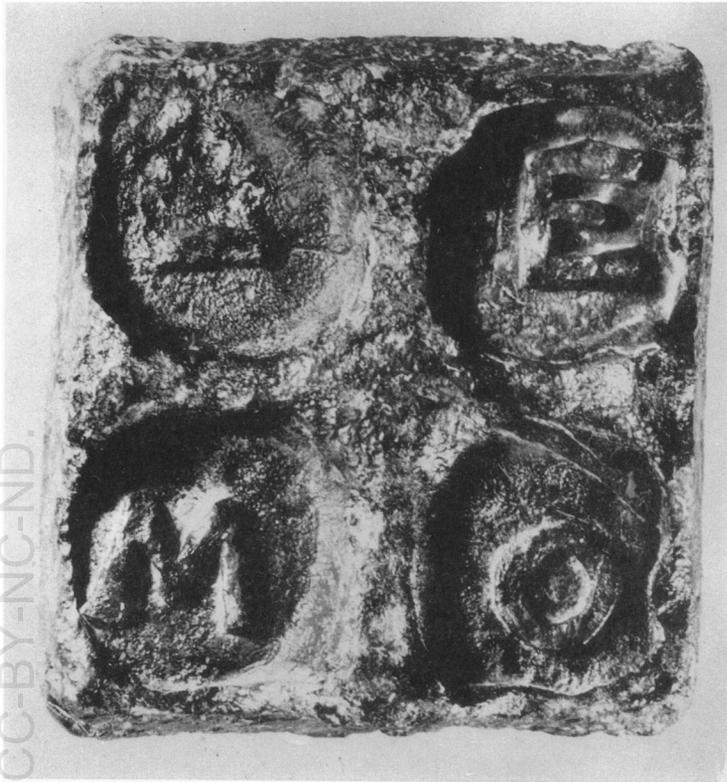


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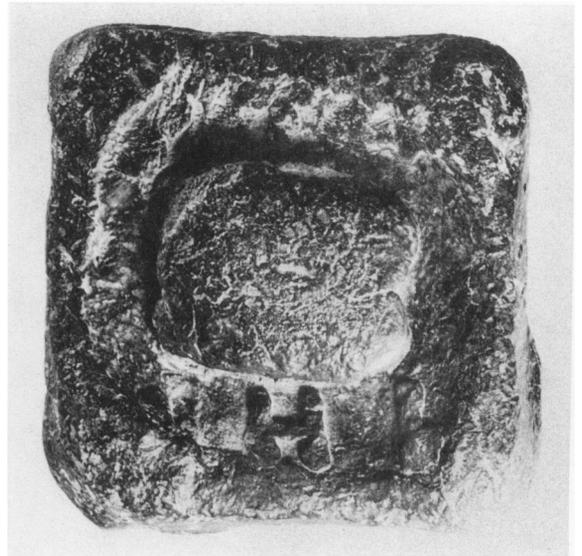


BW 14

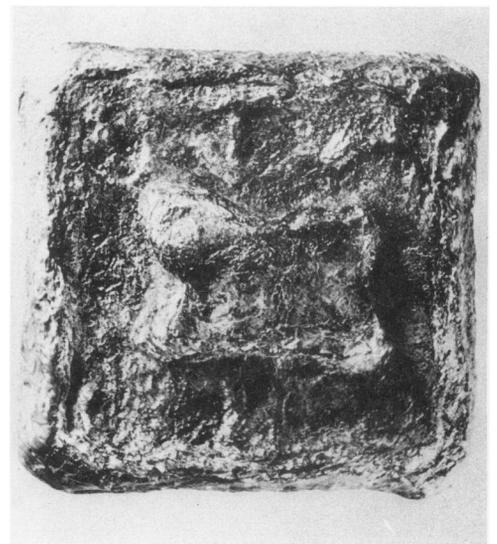
PLATE 2



LW 1



LW 3



LW 6

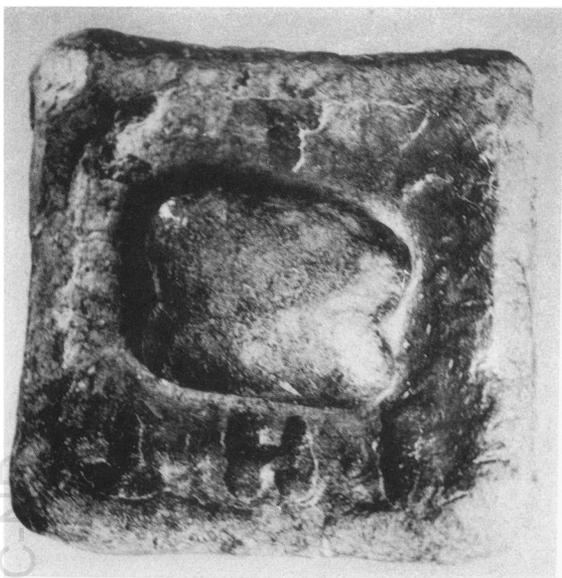


LW 2

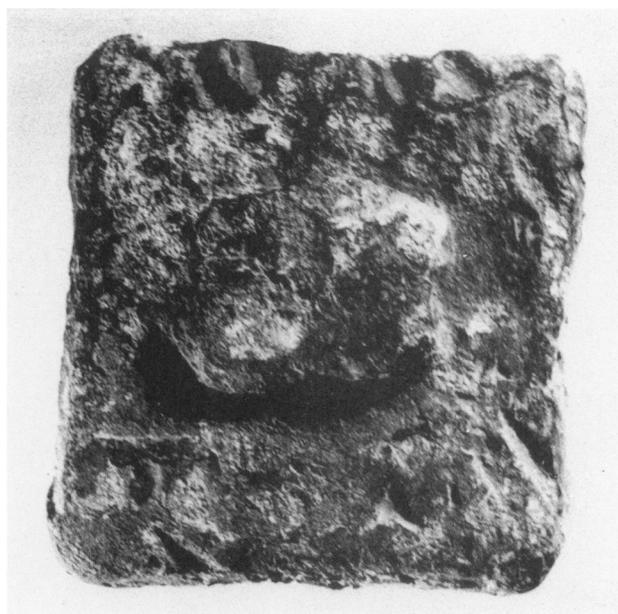


LW 7

Lead Weights: Wheel and Astragalos (1:1)



LW 4



LW 5



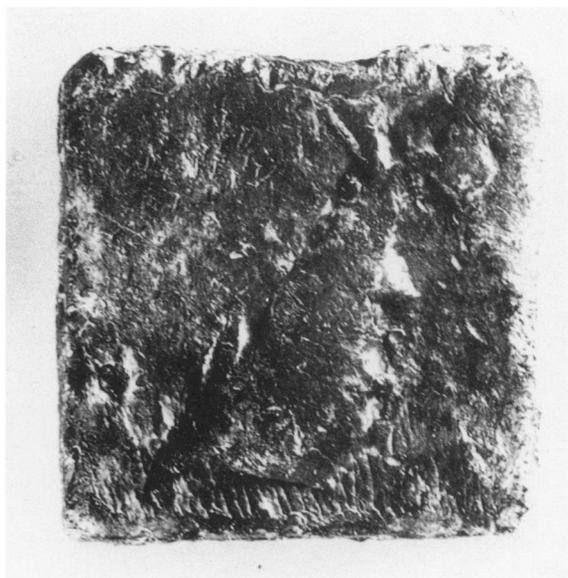
LW 8



LW 9



LW 10



LW 11

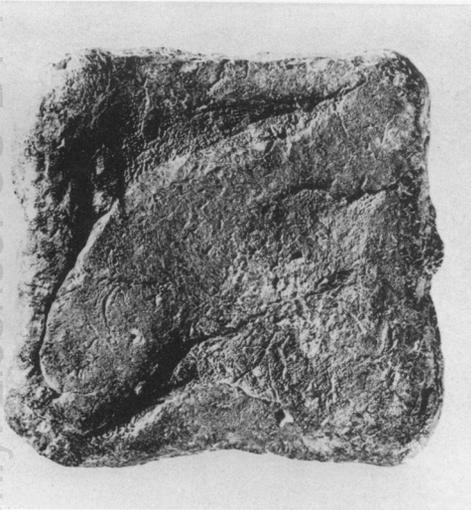
PLATE 4



LW 12



LW 13



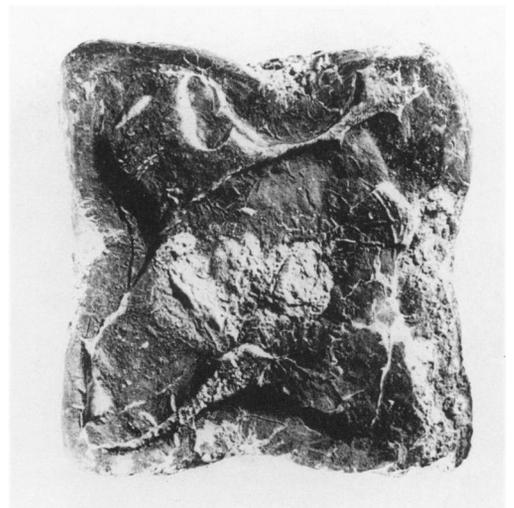
LW 14



LW 15



Burgon Amphora
(*Mon. dell. Inst.*, X, pl. 48)



LW 16

Lead Weights: Dolphin (1:1)



Pernice, No. 6



Athens, Imperial Style



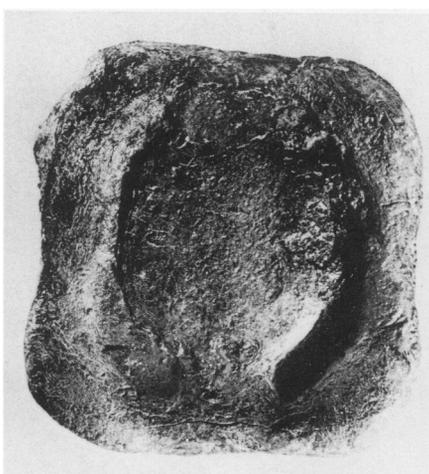
Stamp on DM 66



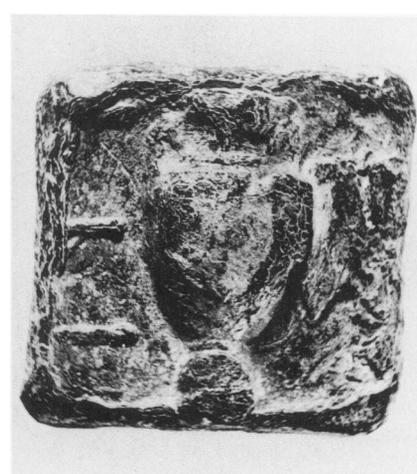
LW 17



LW 18



LW 19



LW 20



LW 21



LW 22

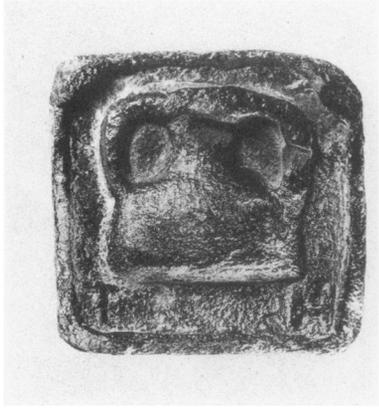


LW 23

Lead Weights: Amphora (1:1)

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PLATE 6



LW 24



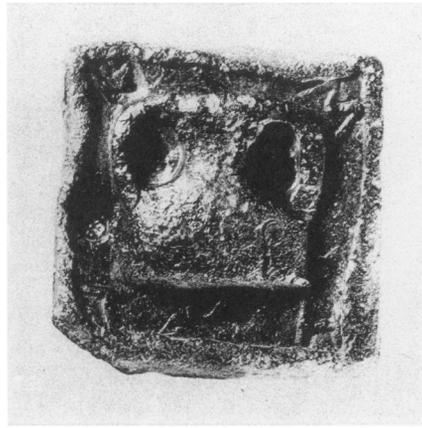
LW 25



LW 26



LW 27



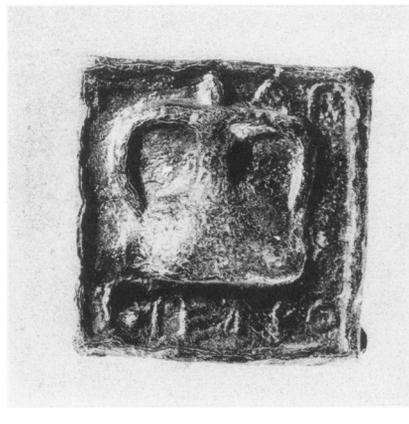
LW 28



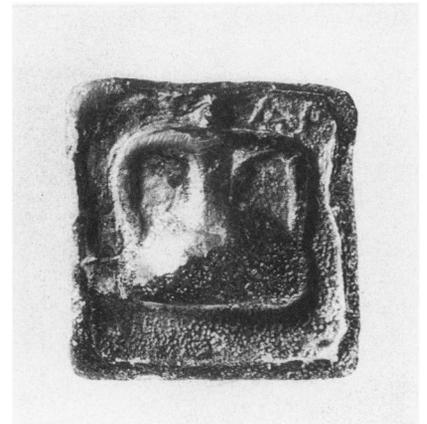
LW 29



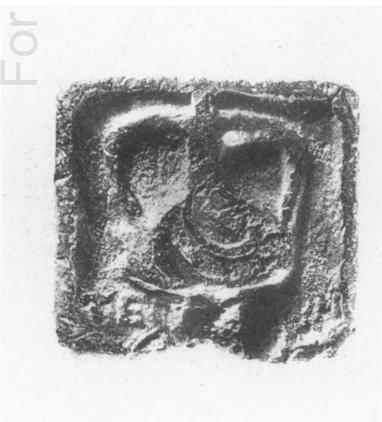
LW 30



LW 31



LW 32



LW 33



ca. 590 B.C.



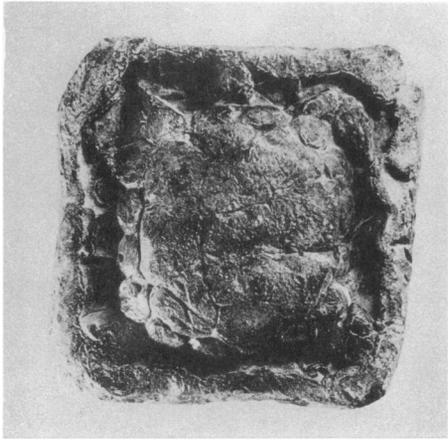
ca. 180 B.C.



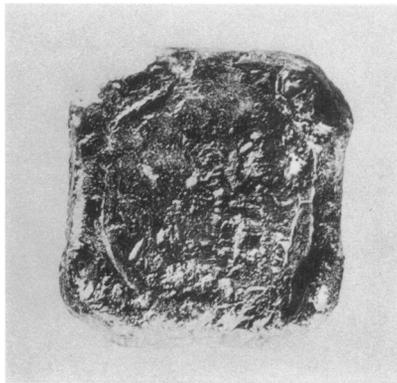
2nd century B.C.
1st century B.C.

Amphoras on Athenian Coins

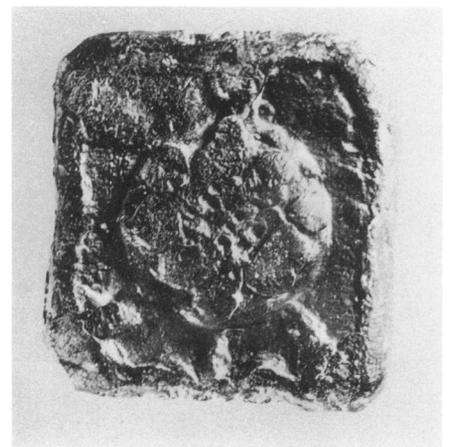
Lead Weights: Half-Amphora, LW 24-29; Late Amphora, LW 30-33 (1:1)



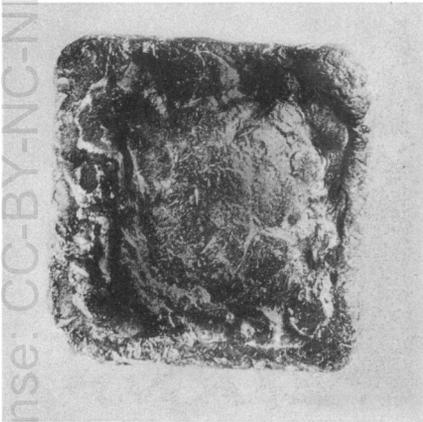
LW 34



LW 35



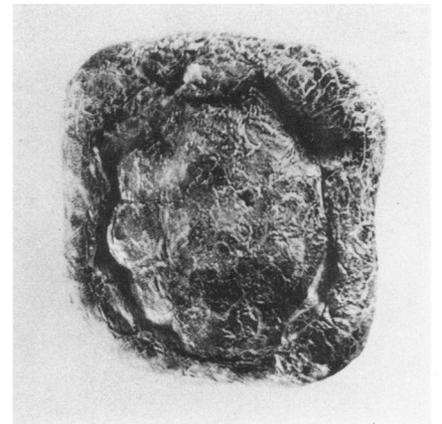
LW 36



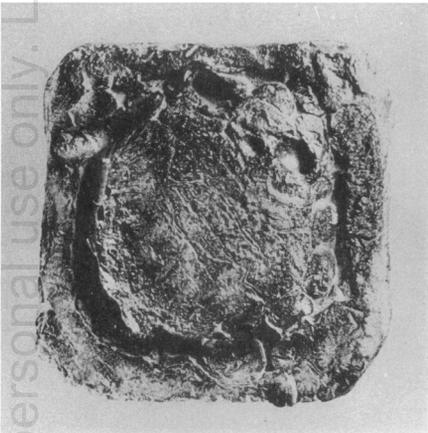
LW 37



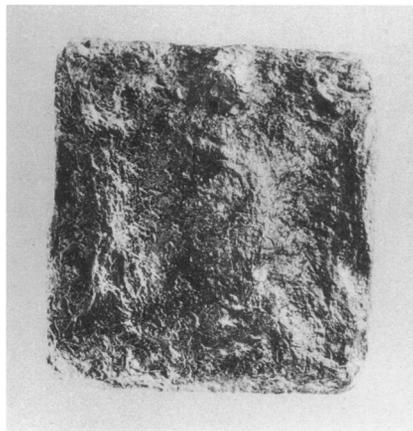
LW 38



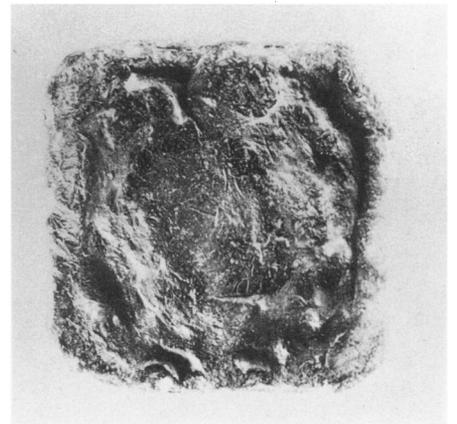
LW 39



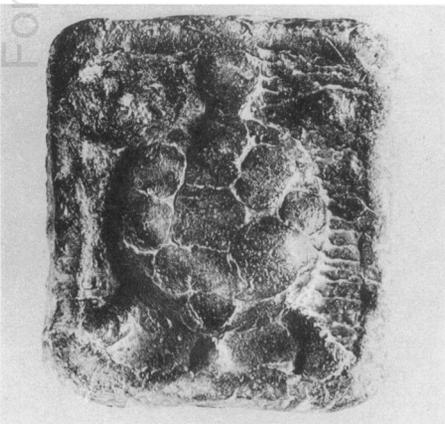
LW 40



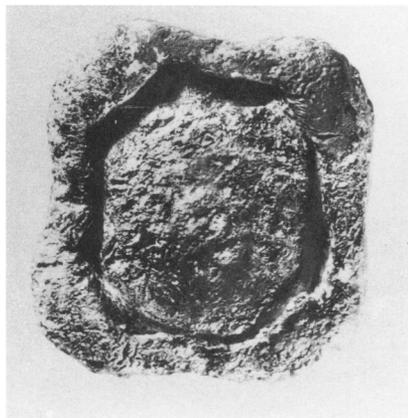
LW 41



LW 42



LW 43



LW 44



550-480 B.C.

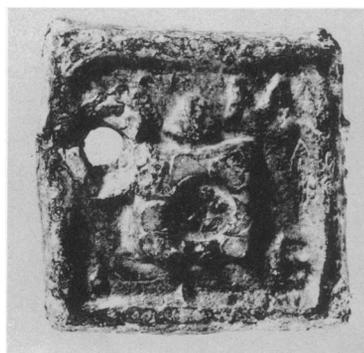


ca. 404 B.C.

Aeginetan Coins

Lead Weights: Tortoise (1:1)

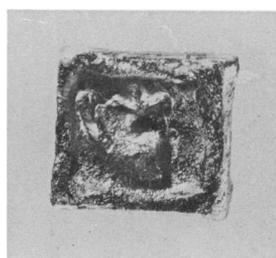
PLATE 8



LW 45



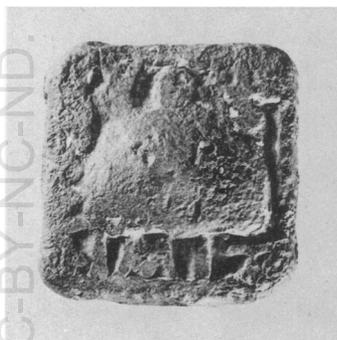
LW 46



LW 55



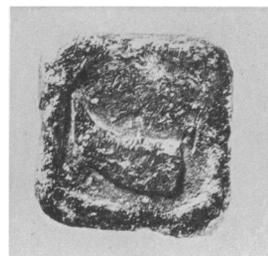
LW 56



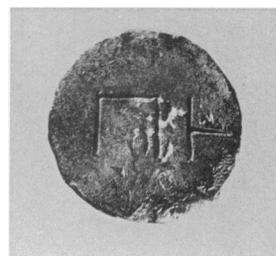
LW 47



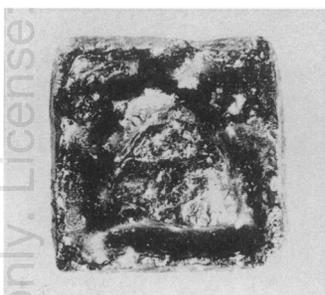
LW 48



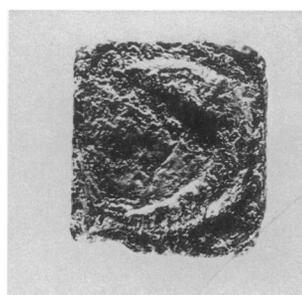
LW 57



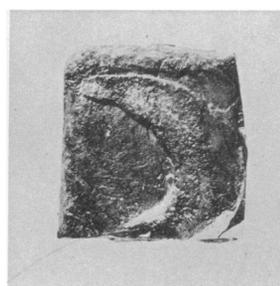
LW 59



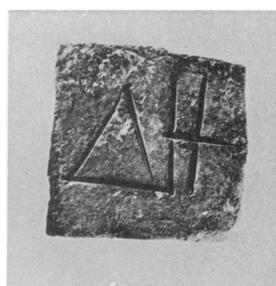
LW 49



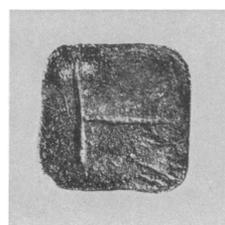
LW 50



LW 58 obverse



LW 58 reverse



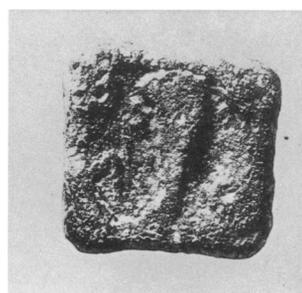
LW 60



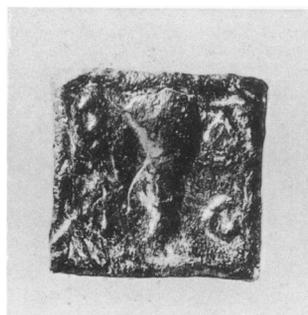
LW 61



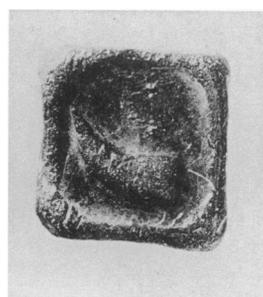
LW 51



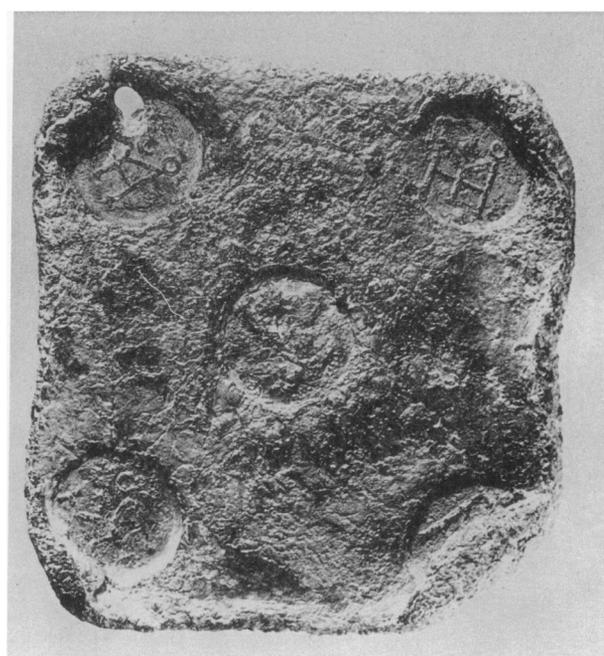
LW 52



LW 53



LW 54

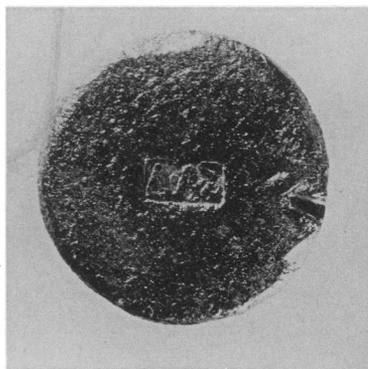


LW 62

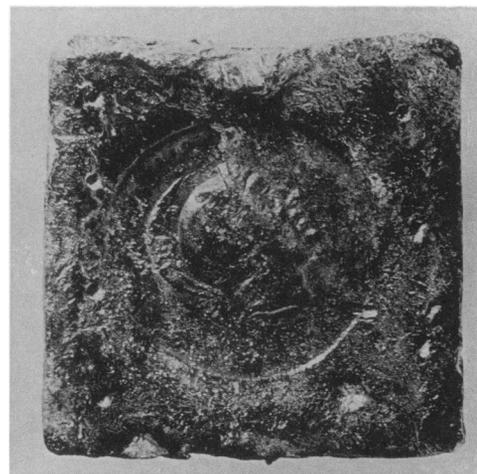
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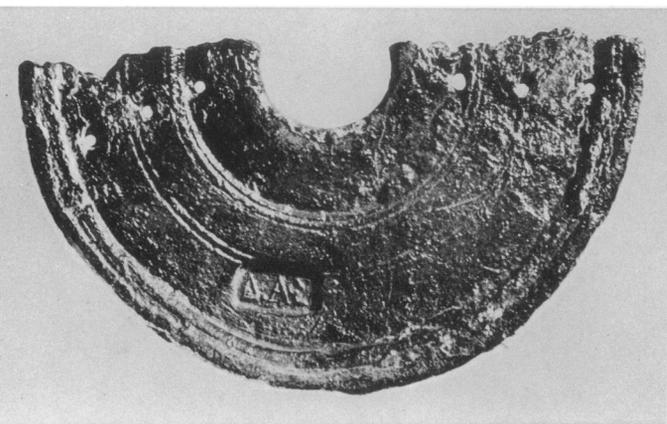
LW 63



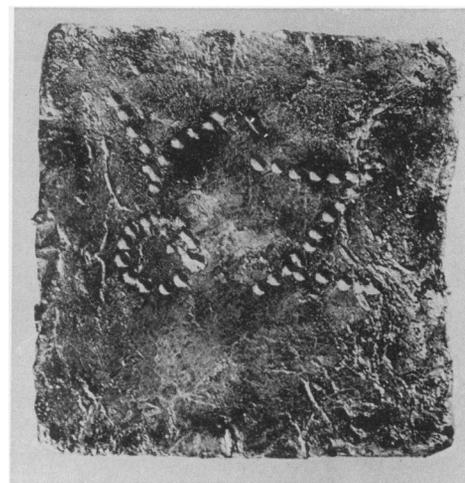
LW 64



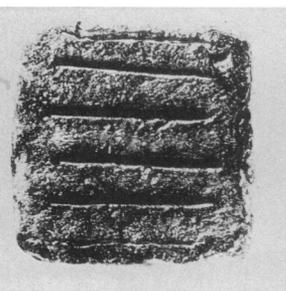
LW 66 obverse



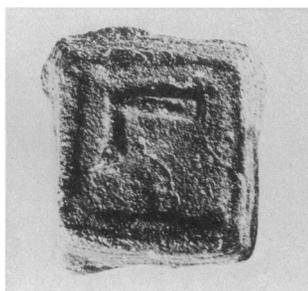
LW 65



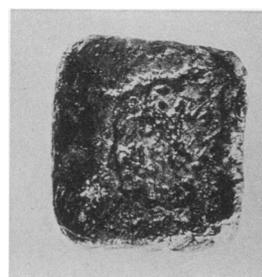
LW 66 reverse



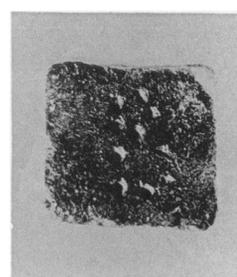
LW 67



LW 68



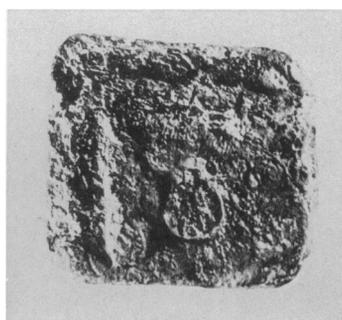
LW 71



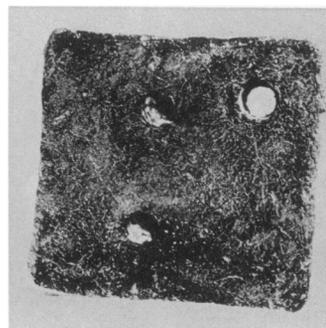
LW 73



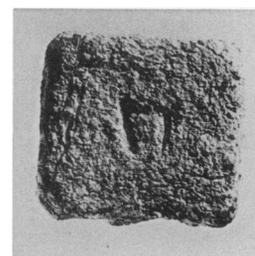
LW 69



LW 70



LW 72

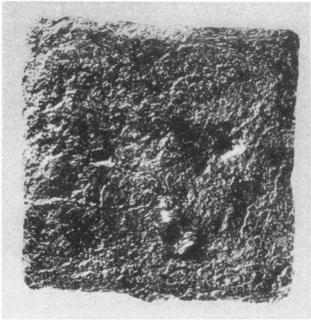


LW 75

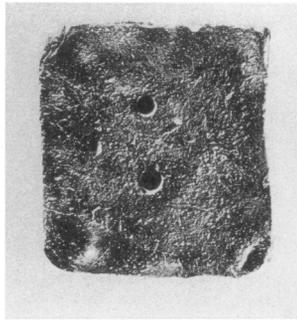
Lead Weights: Roman Standard (1:1)

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PLATE 10



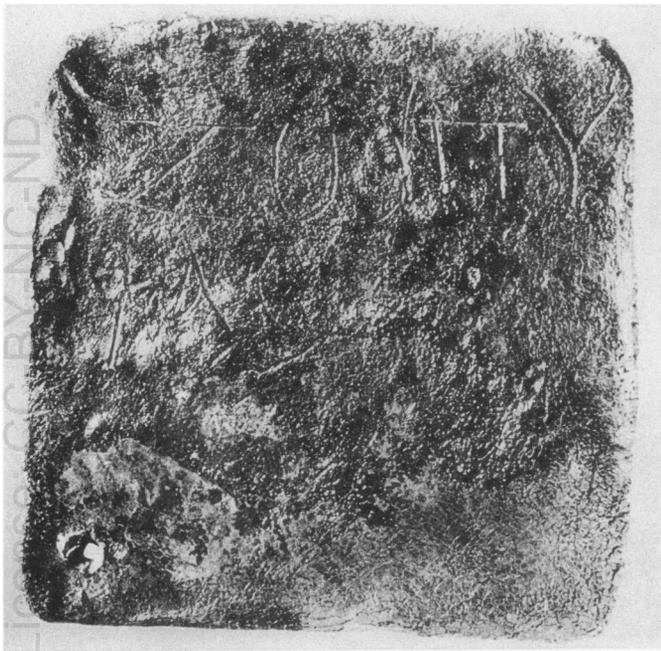
LW 74



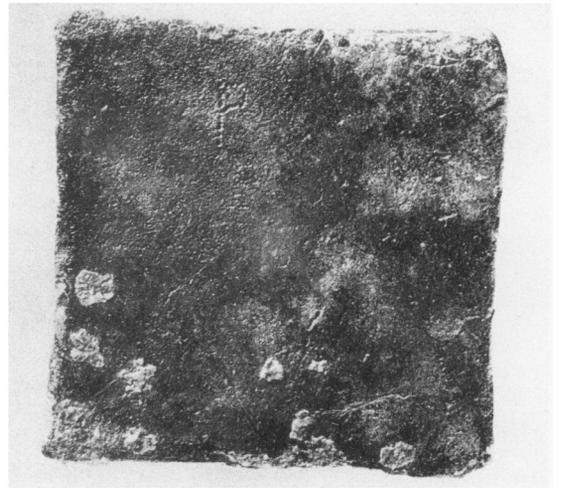
LW 76



LW 77



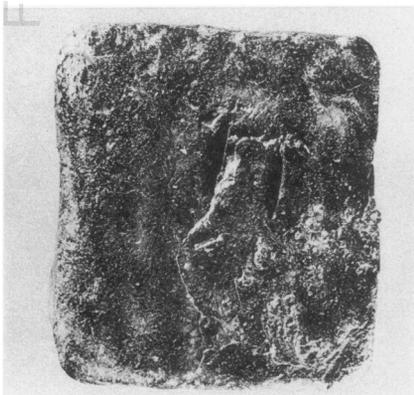
LW 78



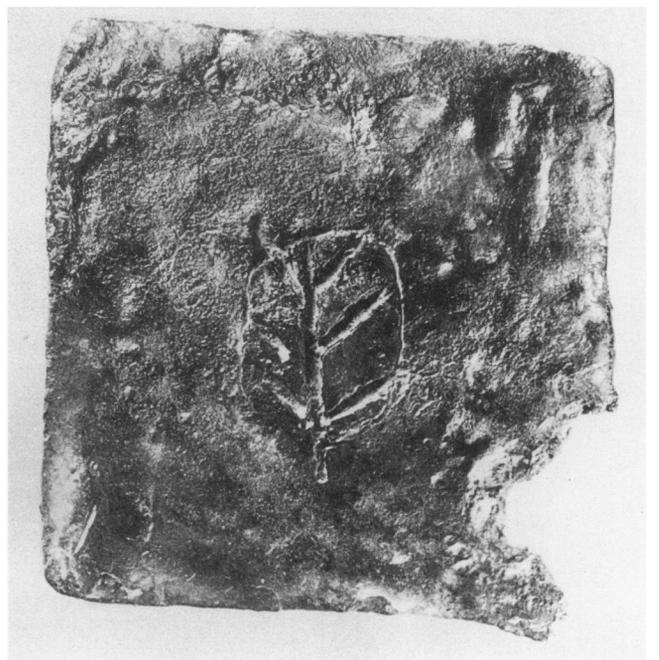
LW 79



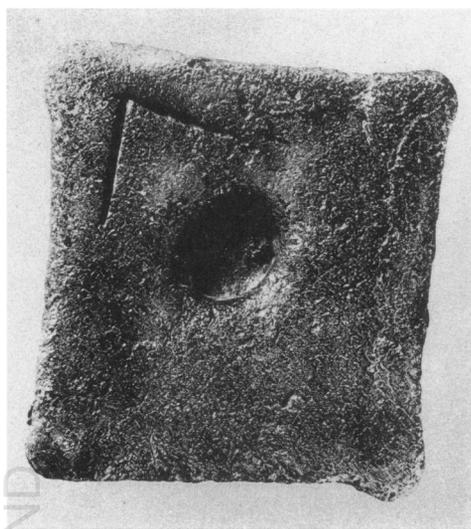
LW 80



LW 81



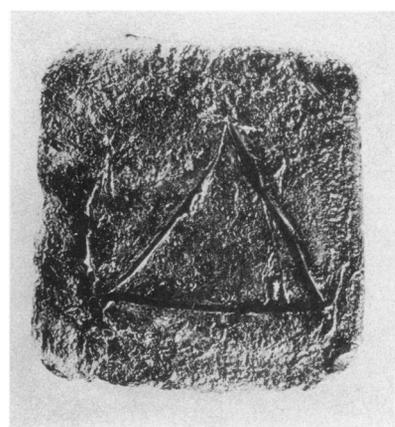
LW 82



LW 83

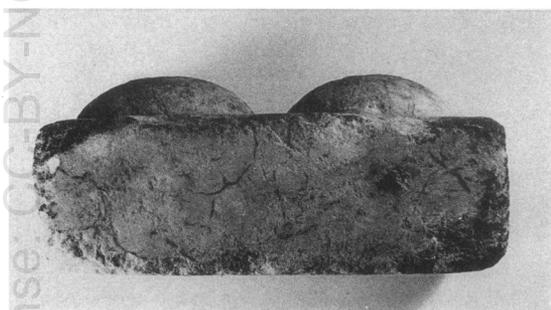


LW 84

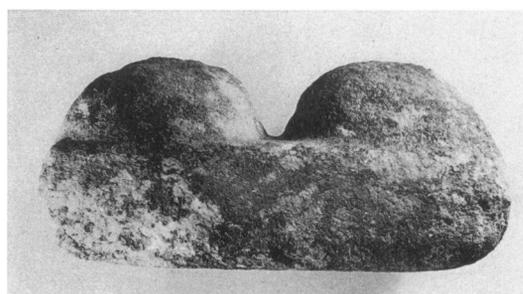


LW 85

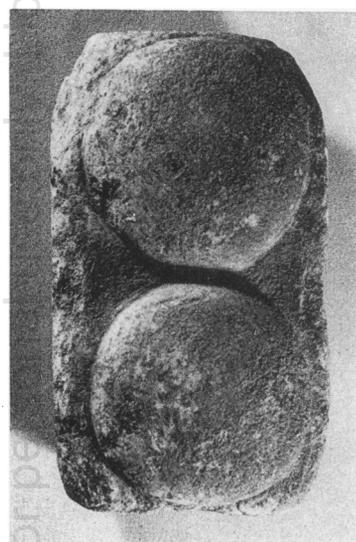
Lead Weights: Marked, but Uncertain Standard (1:1)



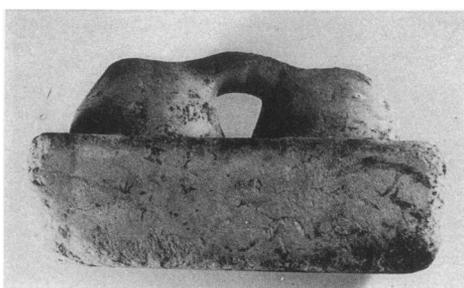
SW 1



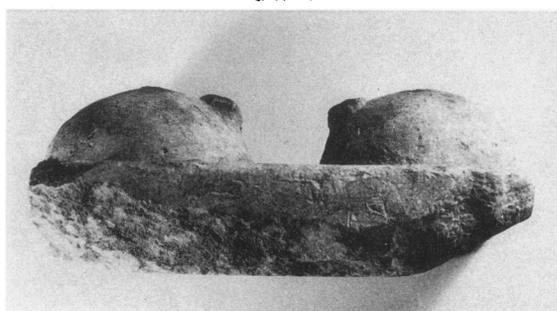
SW 2



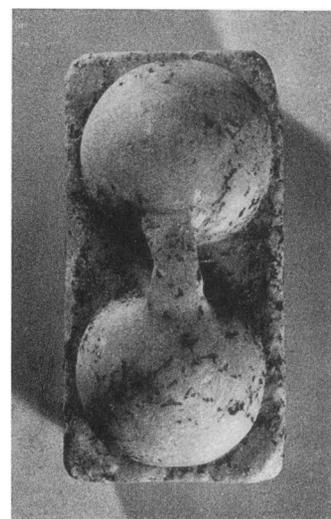
SW 3



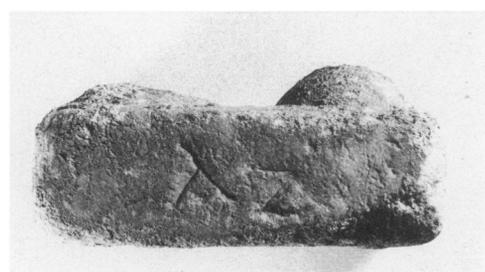
SW 4



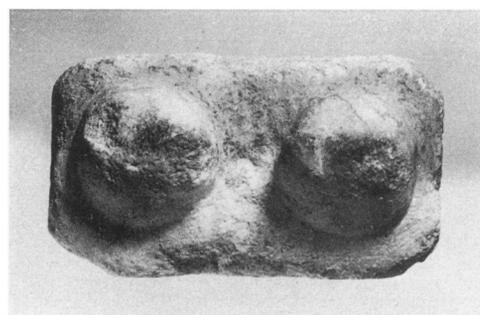
SW 5



SW 6



SW 7

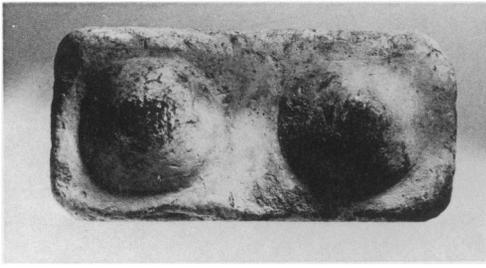


SW 8

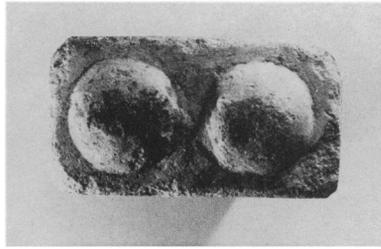
Stone Weights (1:3)

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PLATE 12



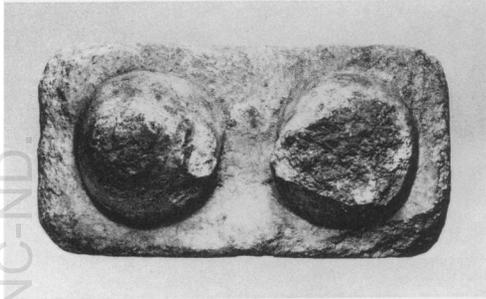
SW 9



SW 15



SW 18



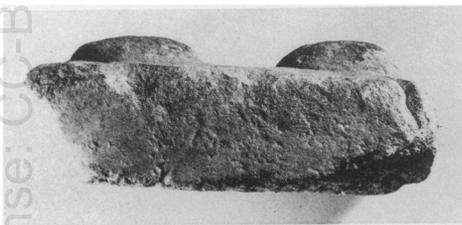
SW 10



SW 16



SW 23



SW 11



SW 17



SW 21



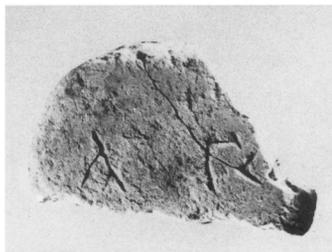
SW 12



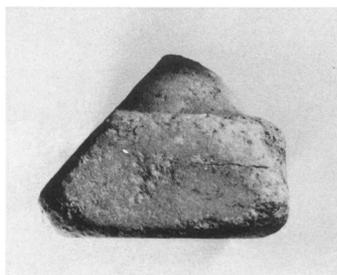
SW 19



SW 13



SW 20



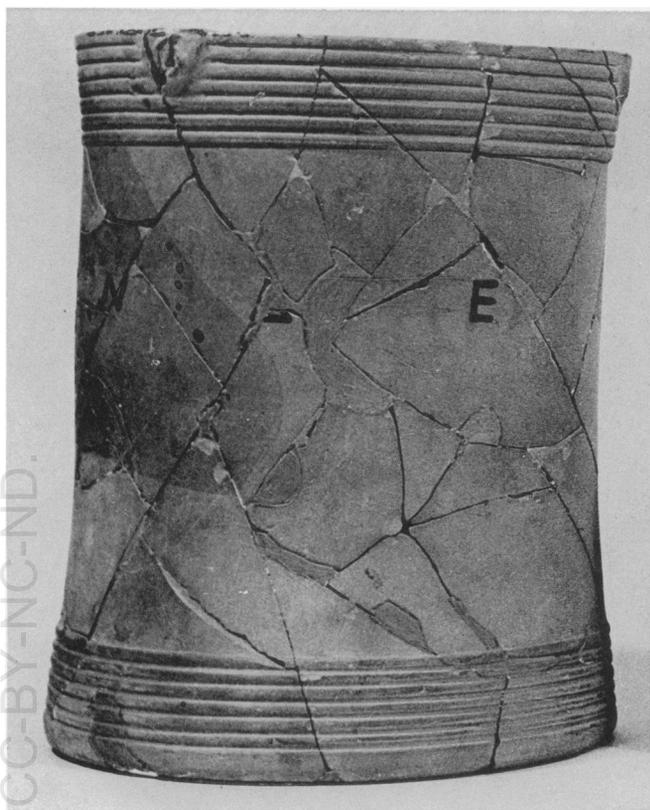
SW 14



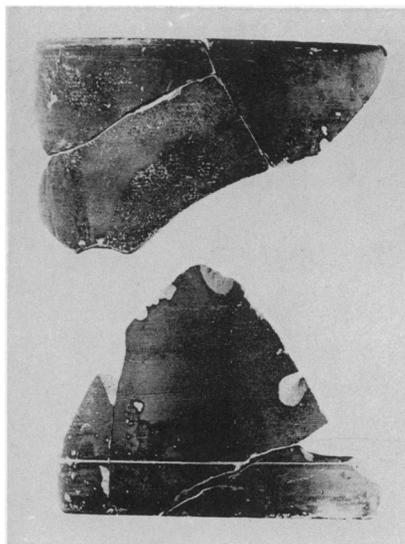
SW 22



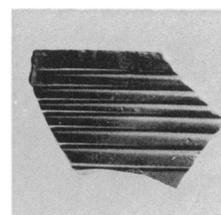
SW 28



North Slope Measure



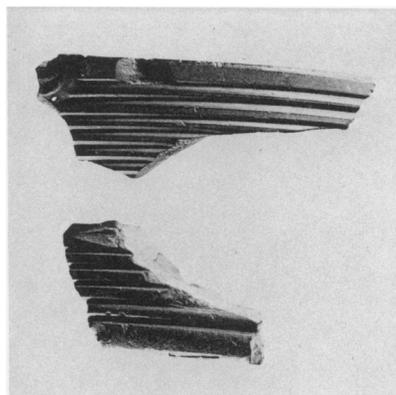
DM 1



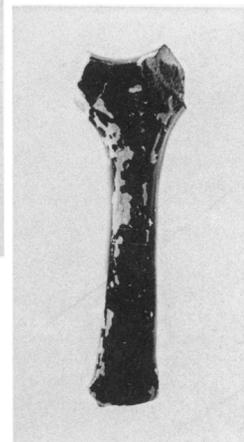
DM 9



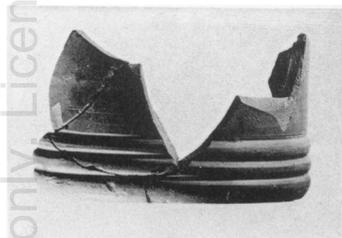
DM 21



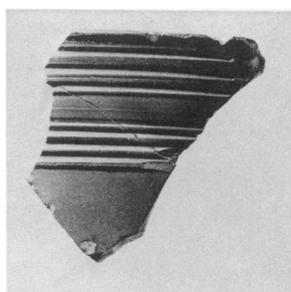
DM 4



DM 24



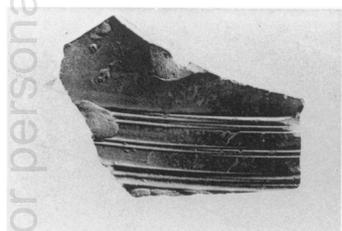
DM 10



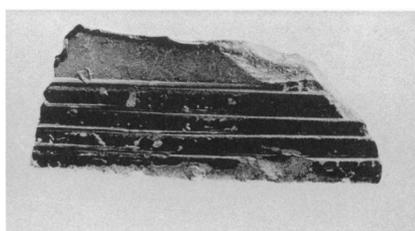
DM 25



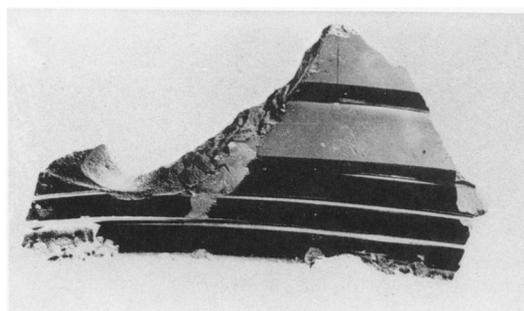
DM 22



DM 26



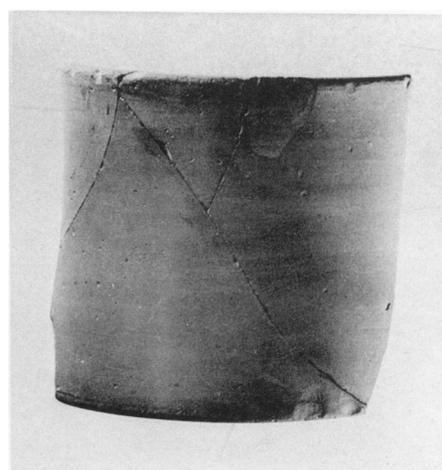
DM 30



DM 32



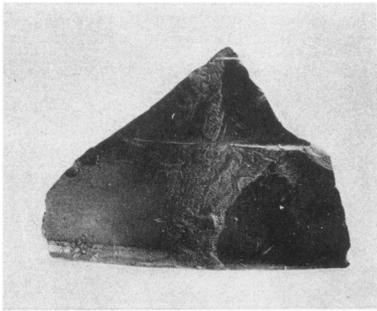
DM 36



DM 39

Dry Measures (1:2)

PLATE 14



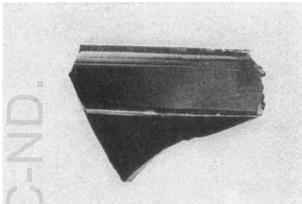
DM 40



DM 42



DM 43



DM 41



DM 44



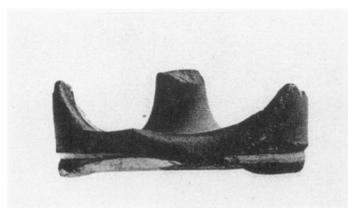
DM 45



DM 49



DM 51



DM 57



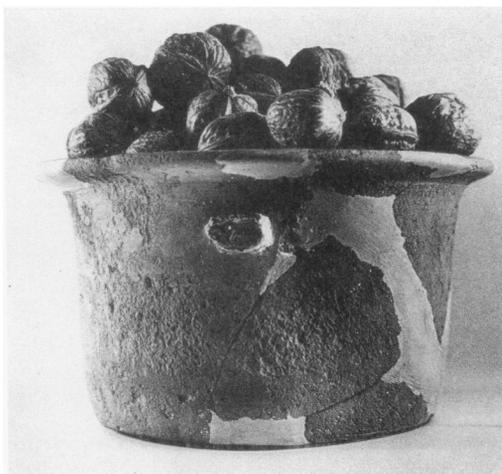
DM 64



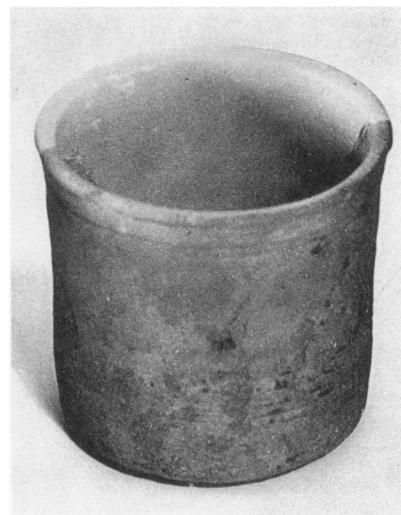
Athens National Museum Measure



DM 65 (1:2)



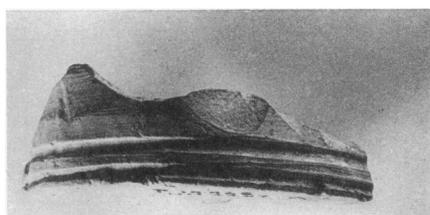
DM 66 (1:3)



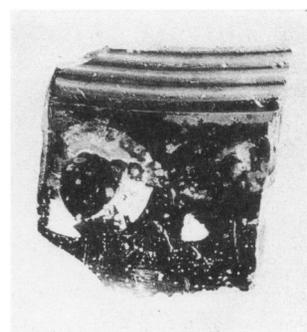
DM 67 (1:3)



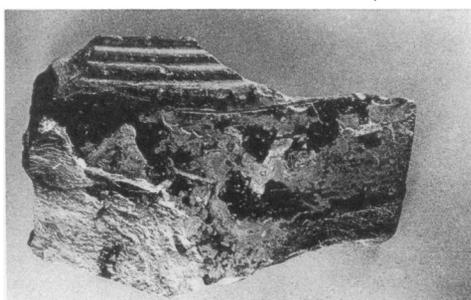
DM 68 (1:3)



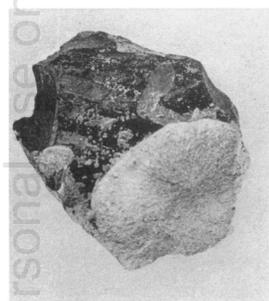
DM 69 (1:3)



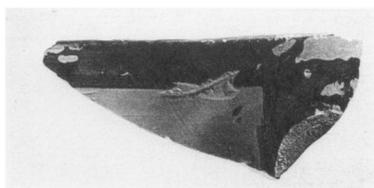
DM 71 (1:2)



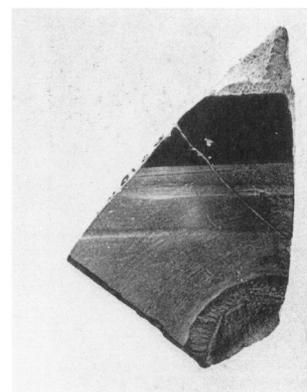
DM 70 (1:2)



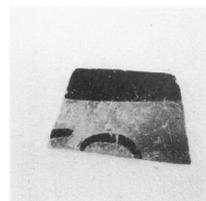
DM 72 (1:2)



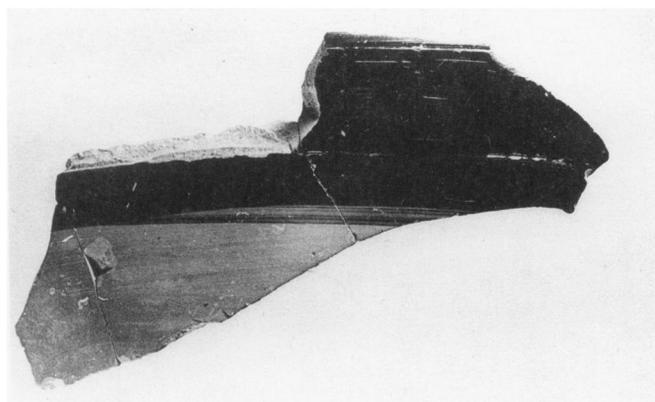
DM 73 (1:2)



DM 74b (1:2)



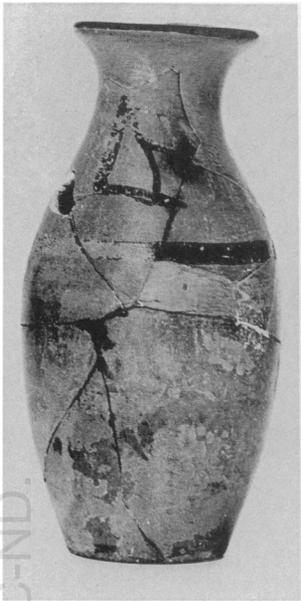
DM 75 (1:2)



DM 74a (1:2)

Dry Measures

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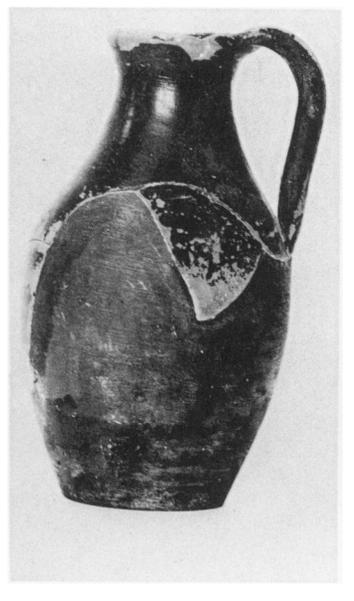
LM 1



LM 2



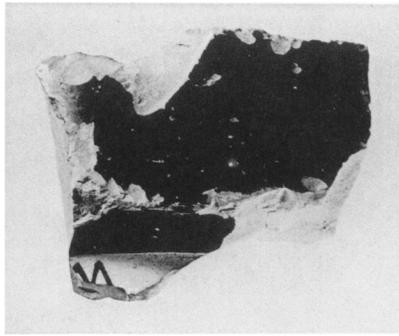
LM 3



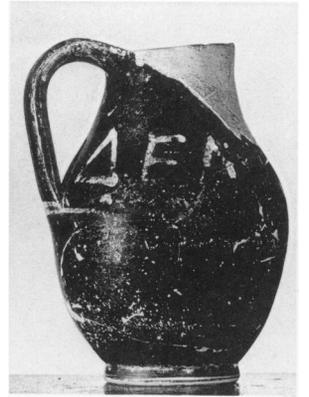
LM 6



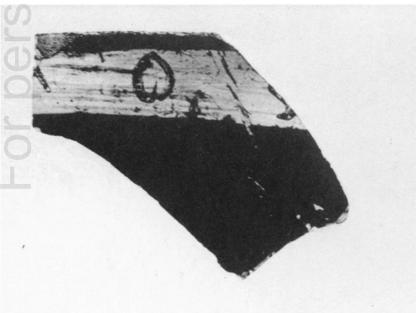
LM 8



LM 11



Berlin Museum Olpe

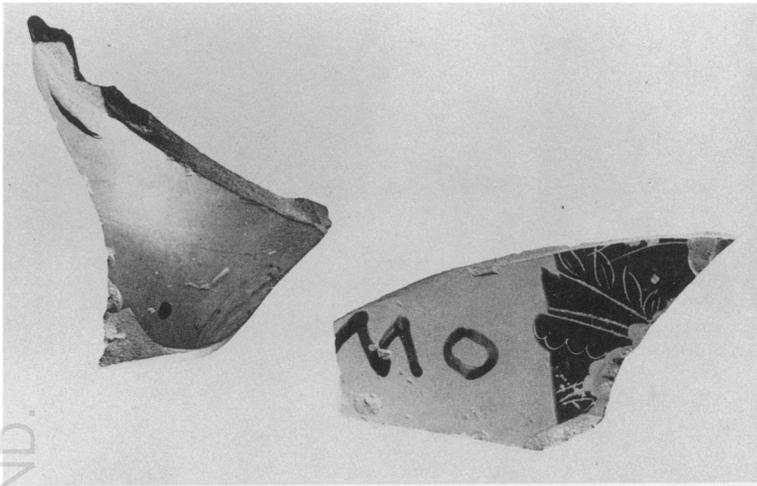


LM 10

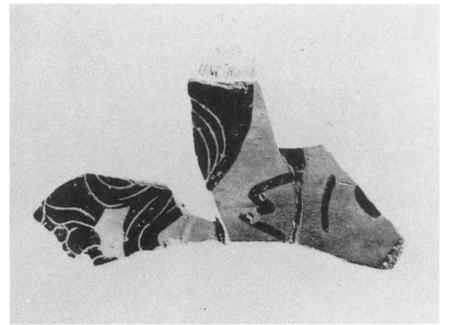


Klepsydra (P 2084, 1:3)

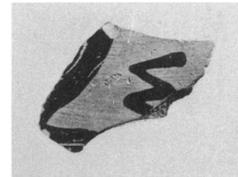
Liquid Measures (1:2)



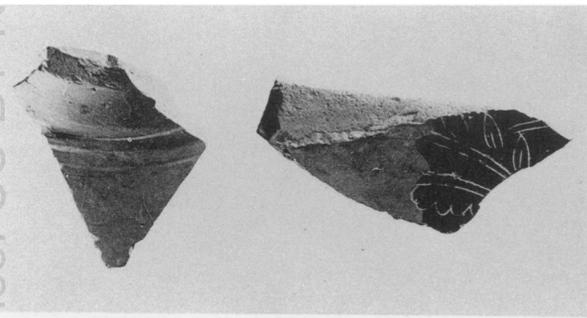
LM 12



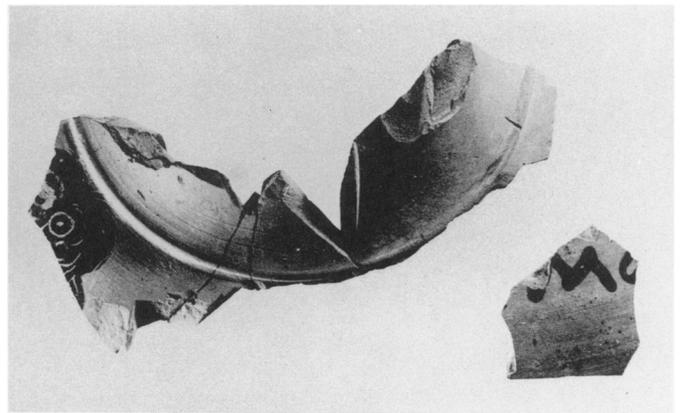
LM 14



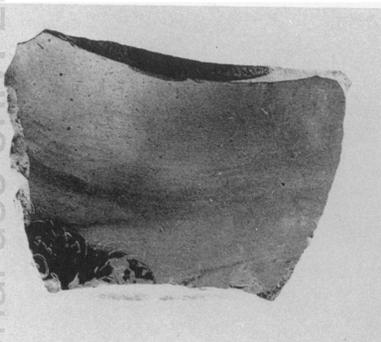
LM 15



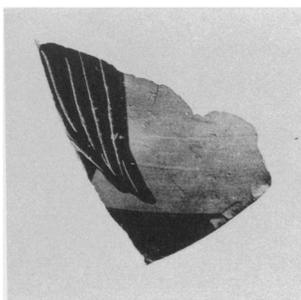
LM 13



LM 16



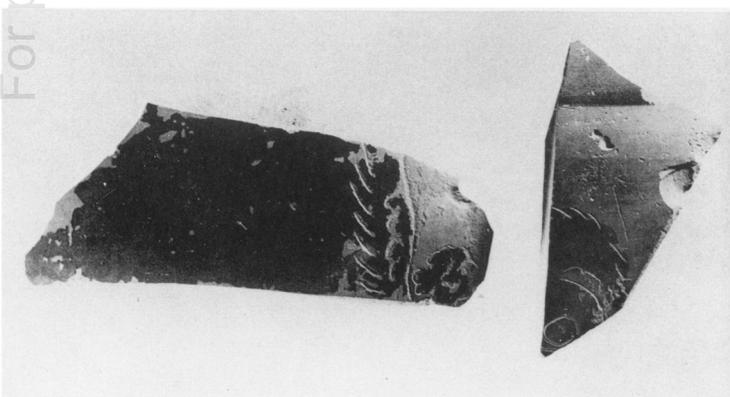
LM 17



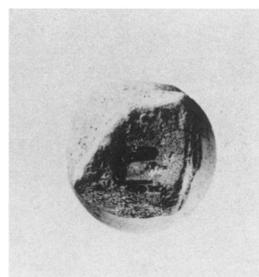
LM 18



LM 20



LM 19



LM 30



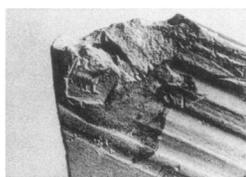
LM 31

Liquid Measures (1:2)

PLATE 18



DM 4



DM 5



DM 23



DM 44



DM 44



DM 48



DM 51



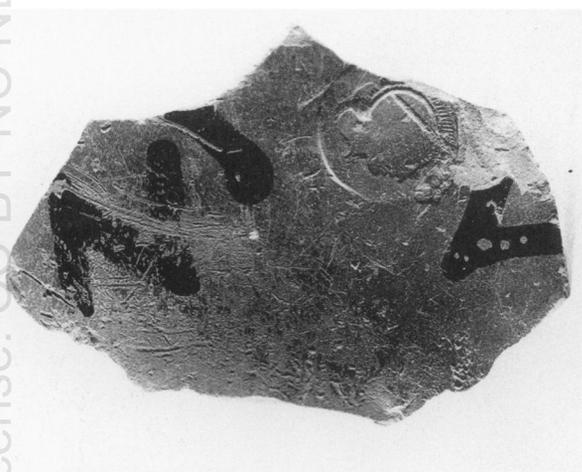
DM 61



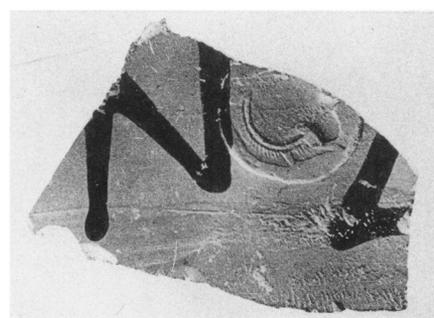
DM 45



DM 66



DM 59



DM 63



LM 21



LM 23



LM 24



LM 25



LM 27



LM 22



LM 26



LM 28



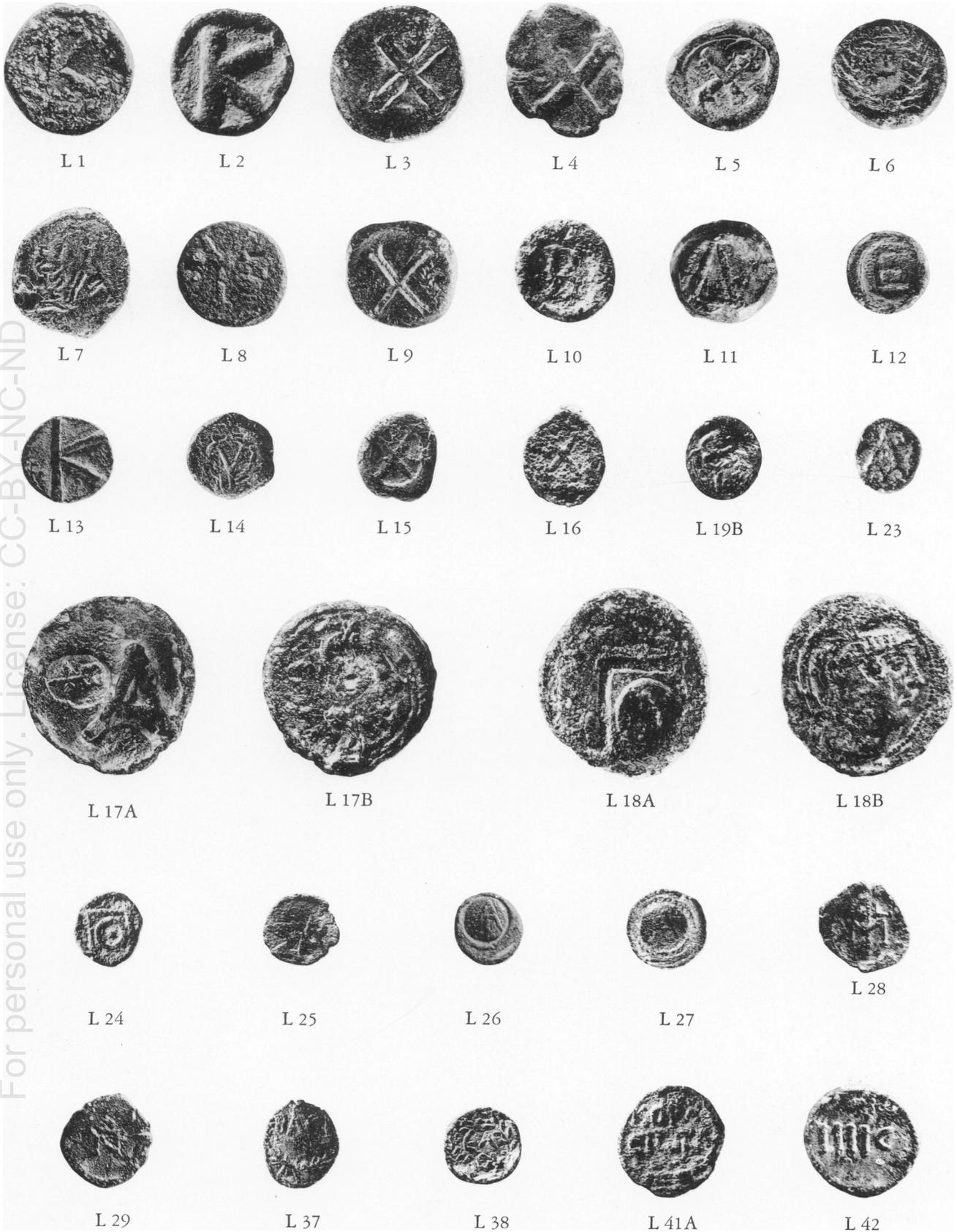
Athenian Coins



Athens National Museum Measure

Stamps on Measures (1:1)

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Lead Tokens (1:1)

PLATE 20



Lead Tokens (2:1)



Lead Tokens (2:1)

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Lead Tokens (2:1)

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L 106



L 107



L 108



L 109



L 110



L 111



L 112



L 113



L 114



L 115



L 116



L 117



L 118



L 119



L 120



L 122



L 123



L 124



L 125



L 126



L 127



L 128



L 129



L 130

Lead Tokens (2:1)

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PLATE 24



L 131



L 133



L 135



L 136



L 132



L 134



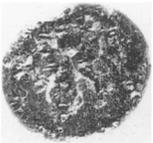
L 137



L 138



L 139



L 141



L 142



L 143



L 144



L 146



L 147



L 148



L 149



L 150



L 151



L 152



L 153



L 155



L 156

Lead Tokens (2:1)



L 157



L 158



L 159



L 160



L 161



L 162



L 163



L 165



L 166



L 164



L 167



L 168



L 169



L 170



L 171



L 172



L 173



L 174



L 175



L 176



L 177



L 178



L 179



L 180

Lead Tokens (2:1)

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PLATE 26



L 181



L 182



L 183



L 184



L 187



L 188



L 189



L 190



L 191



L 192



L 193



L 194



L 195



L 196



L 197



L 198



L 199



L 200



L 201



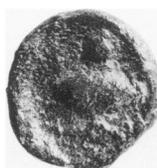
L 202



L 203



L 204



L 205



L 206

Lead Tokens (2:1)

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L 207



L 208



L 209



L 210



L 211



L 213



L 214



L 215



L 216



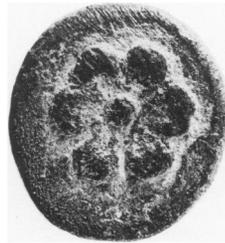
L 217



L 218



L 219



L 220



L 221



L 222



L 224



L 225



L 227



L 228



L 226



L 229



L 230

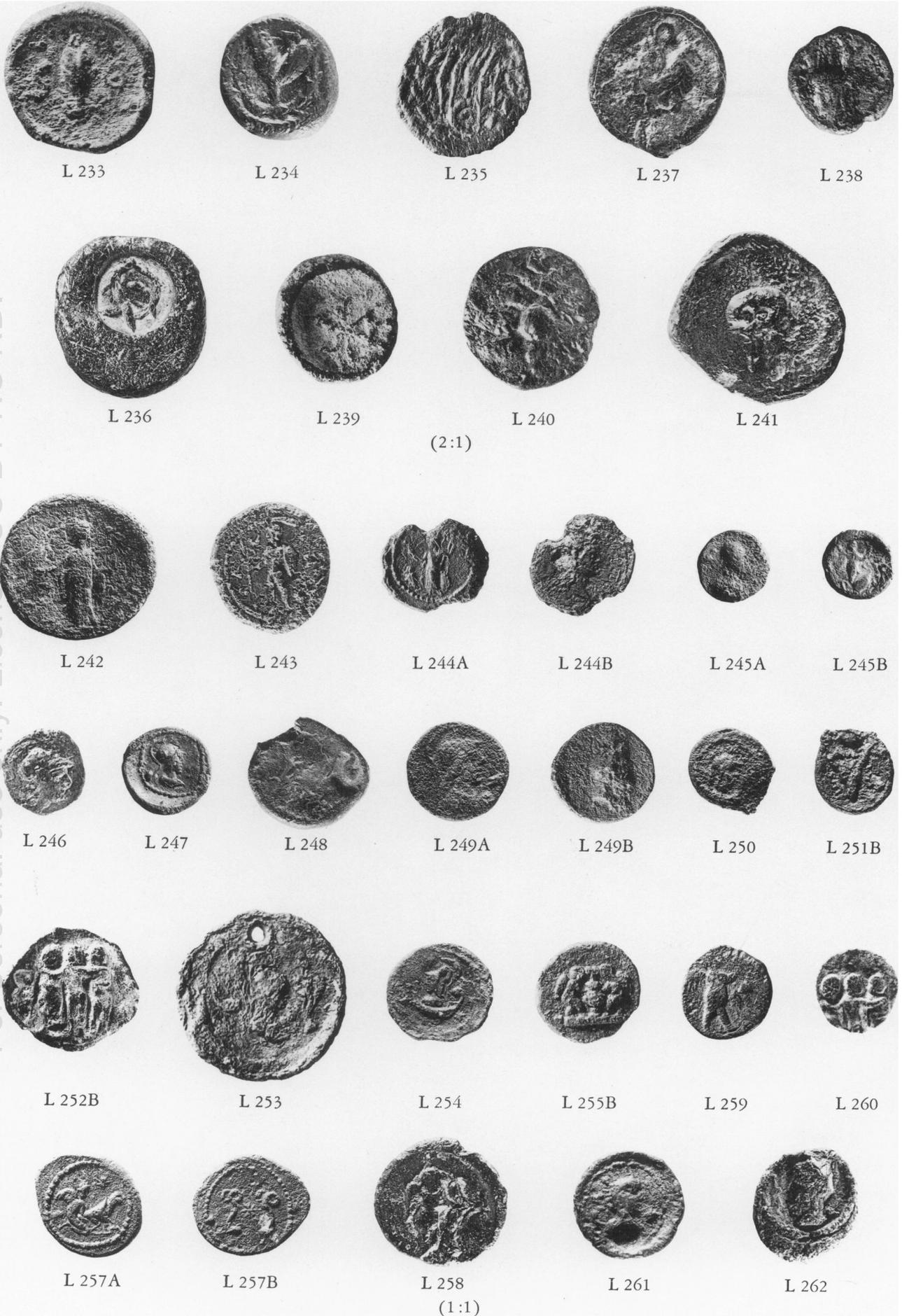


L 231



L 232

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Lead Tokens

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Lead Tokens (1:1)

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Lead Tokens (1:1)



L 332



L 333



L 334



L 336

Lead Tokens (1:1, except 336)



C 1A



C 1B



C 2A



C 2B



C 3A



C 4A



C 4B



C 5B



C 5A

Clay Tokens (1:1)

PLATE 32



C 6A



C 6B



C 7A



C 7B



C 8A



C 8B



C 9



C 10



C 11



C 12



C 13



C 14



C 14 (2:1)



C 15



C 16



C 17



C 18



C 19



C 20



C 21



C 22



C 23



C 24

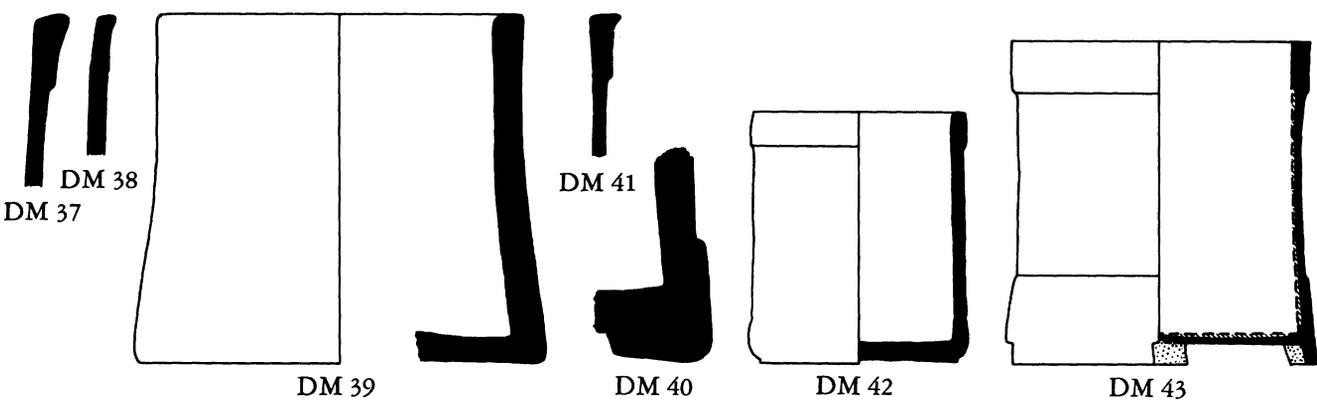
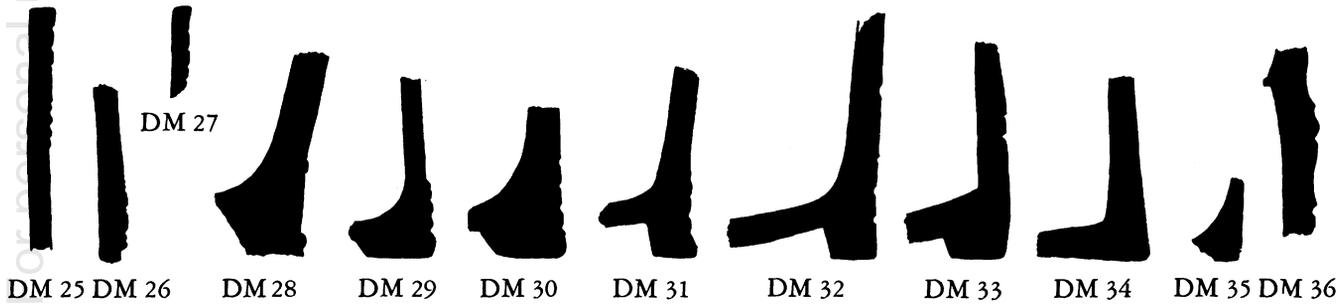
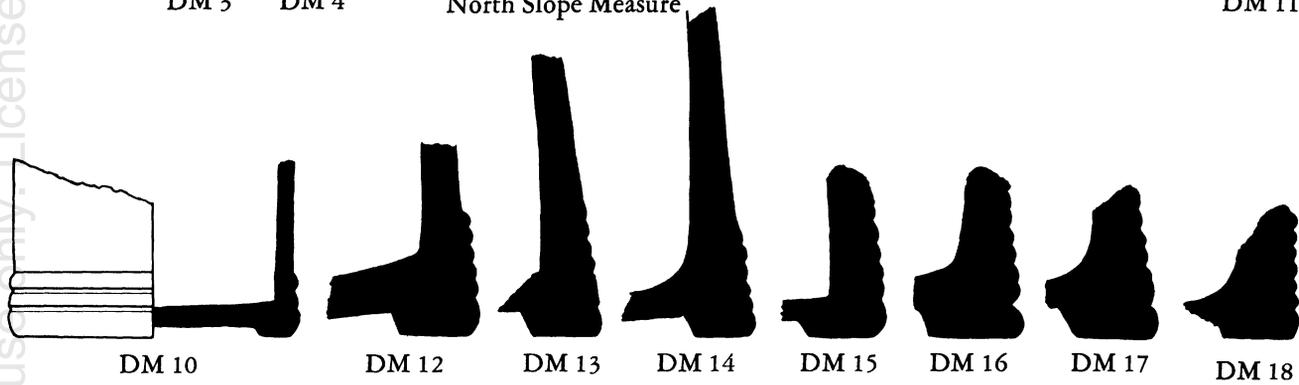
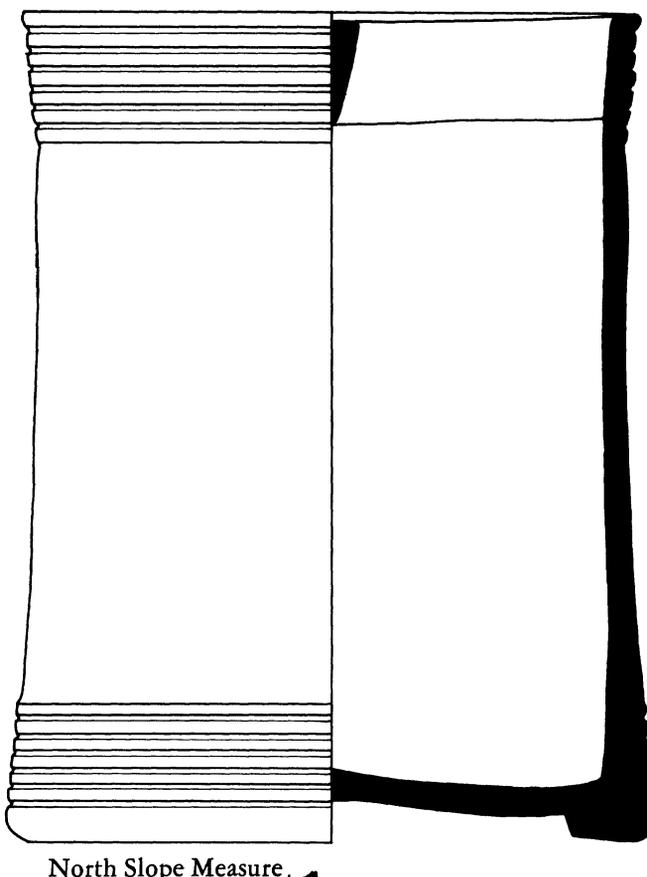
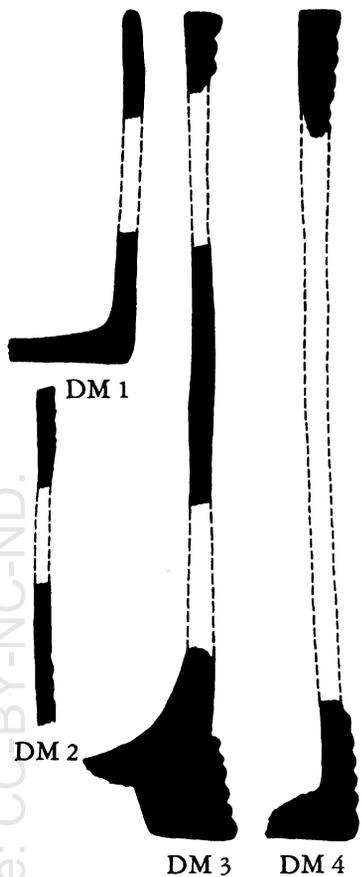


C 25



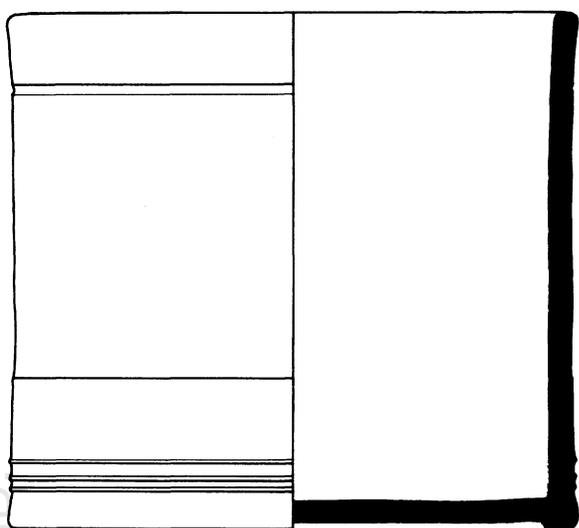
C 26

Clay Tokens (1:1)

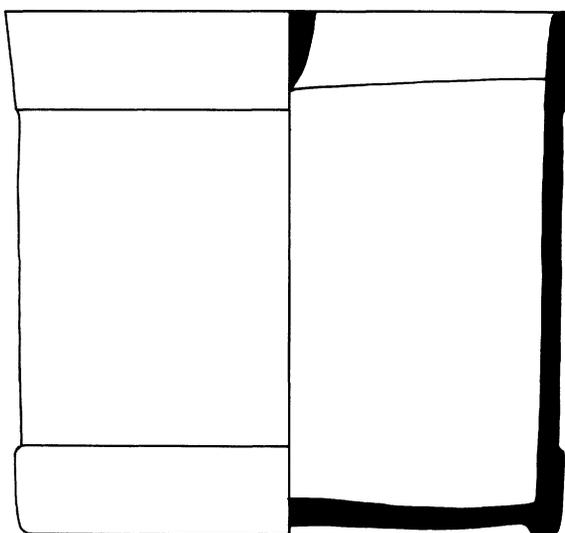


Dry Measures

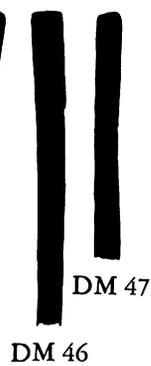
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DM 44

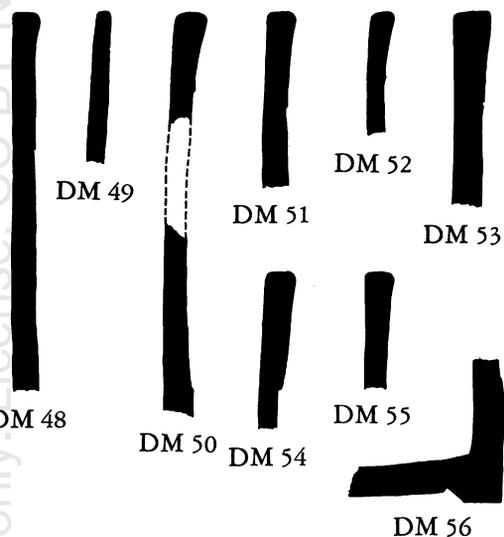


DM 45



DM 46

DM 47



DM 49

DM 52

DM 51

DM 53

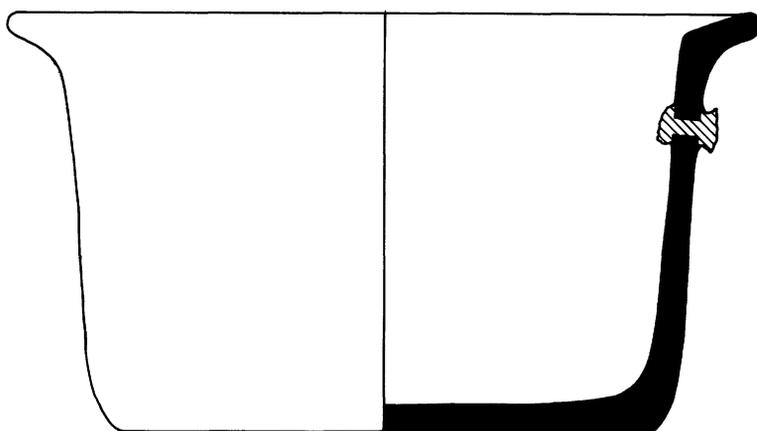
DM 48

DM 50

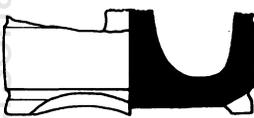
DM 54

DM 55

DM 56



DM 66



DM 57



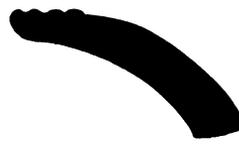
DM 58



DM 59



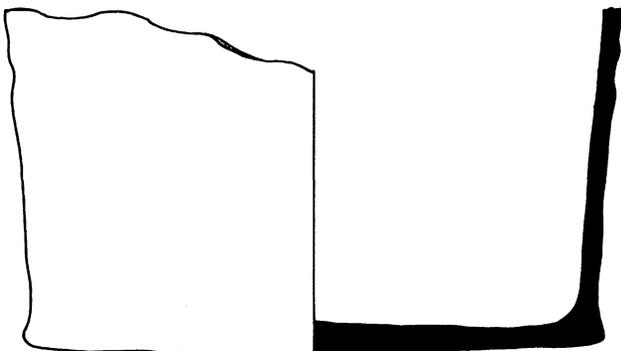
DM 70



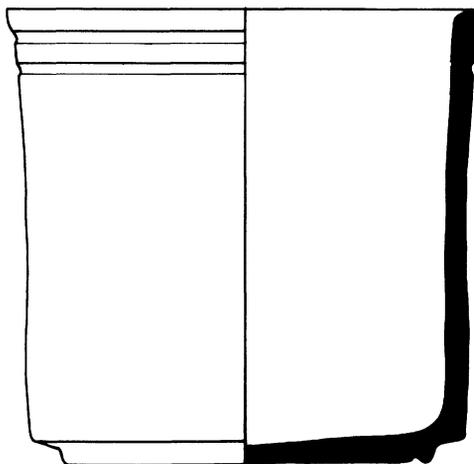
DM 71



DM 73



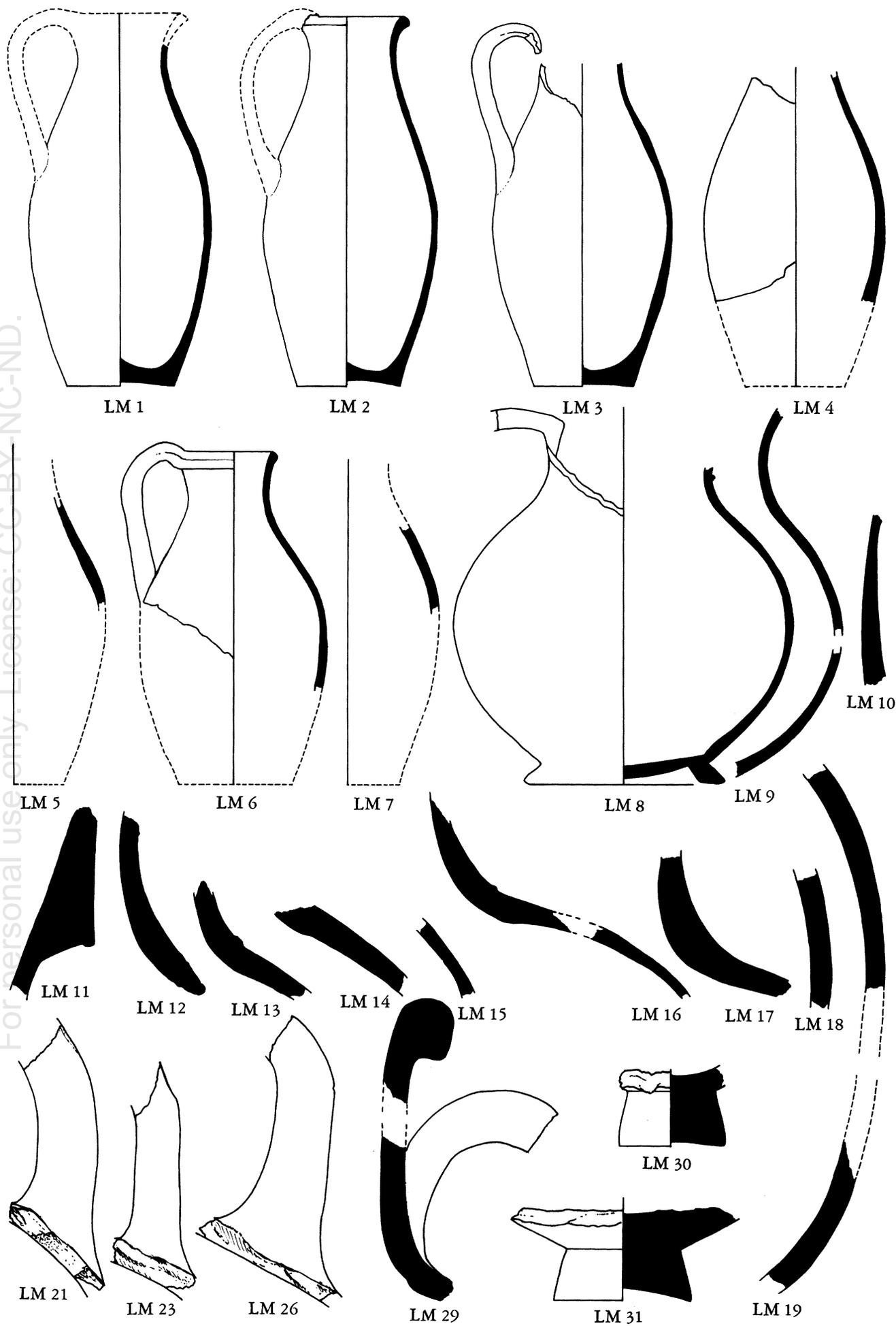
DM 68



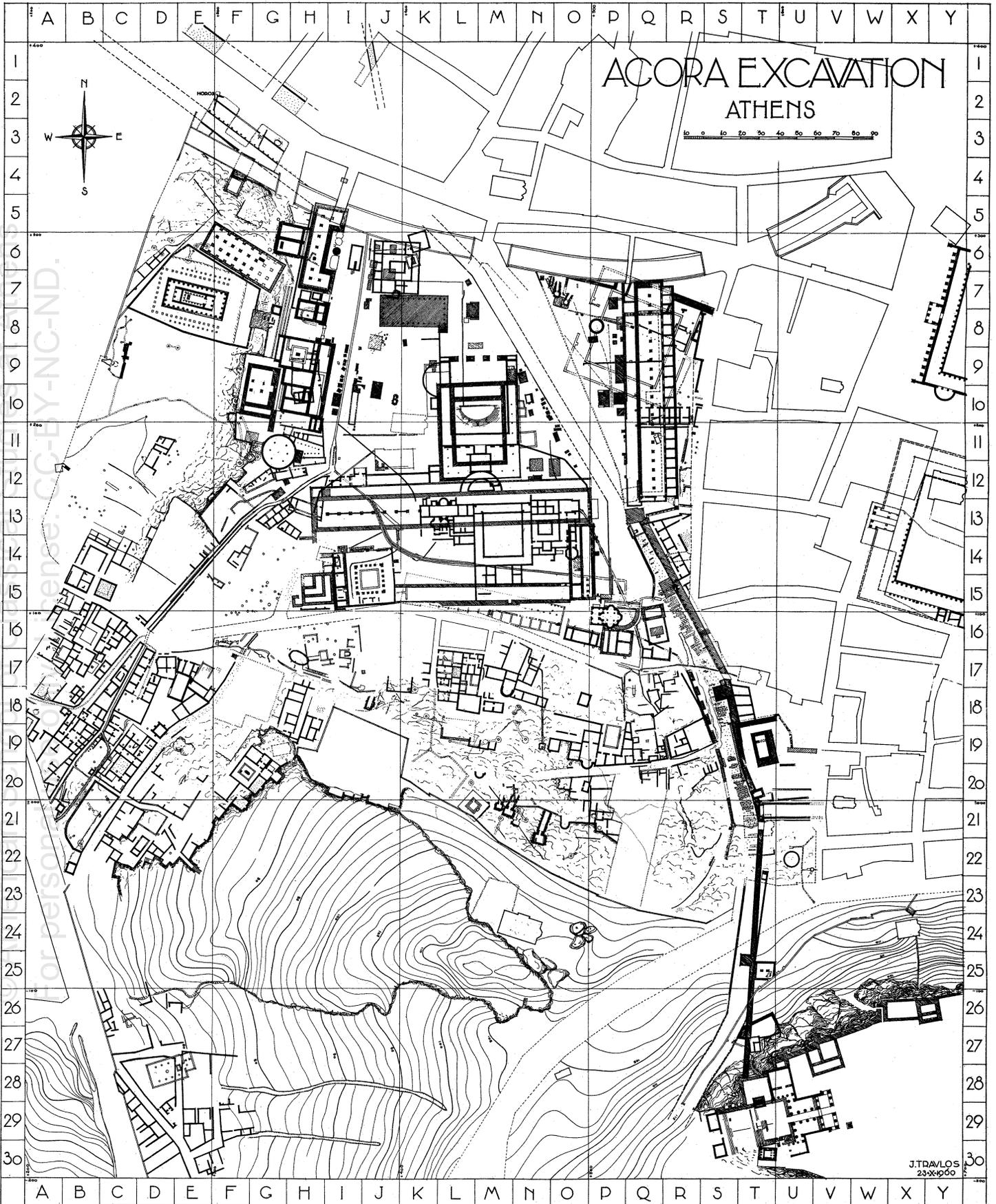
DM 67



DM 74



Liquid Measures



Actual State Plan of the Athenian Agora