

# AN ATHENIAN FRUIT MEASURE

(PLATE 5)

THE ATHENIAN decree, *I.G.*, II<sup>2</sup>, 1013, of the end of the second century B.C., describes in detail a measure to be used in selling nuts and dried fruits.<sup>1</sup> An example of one of these measures has been found in the Agora excavations; this measure and the passages in the decree relating to it are discussed below.

The details of the fruit measures are given in the decree in lines 18 to 29 which read:

Sellers of Persian nuts (i. e., walnuts), almonds, hazelnuts of Heraclea, pine-nuts, chestnuts, Egyptian beans, dates and any other dried fruits normally sold with these, also lupines, olives and pine kernels shall use a measure of the capacity of three half choinikes of grain levelled off, selling them heaped up in this choinix which shall be five fingers deep and have a lip one finger wide. Similarly those selling green almonds, fresh olives and dried figs shall sell them heaped up in a choinix double the size of the one described above, with a lip three half fingers wide, and they shall use wooden choinikes. If anyone sells green almonds, fresh olives or dried figs in any other way or in another container he shall not sell less than (the equivalent of) a medimnus of grain. If anyone sell in a smaller container, the appropriate authority shall immediately sell the contents by auction, pay the money to the public bank and destroy the container.

The decree then passes on to the discussion of weights and general provisions for the safeguarding of the standard weights and measures and enforcing their use. An addendum at the end of the text, however, casts some light on the identification of the fruit measure under discussion and a translation of these lines, 63-67, follows:

From the same (decree)

The officials (*ἄρχοντες*) shall use the same measure marked with a lead symbol corresponding to that in the Skias [i. e., Tholos], not charging more than three obols. The magistrates (*ἄρχαί*) shall use the previously stamped measures unless anyone of the sellers and buyers uses a stamped measure.

The measure described in lines 18 ff. as intended for the sale of the finer kinds of fruit appears to be represented by the pot illustrated in Figure 1 and on Plate 5, 1 and 2.<sup>2</sup> This is a plain, almost straight-sided, flat-bottomed dish with a projecting

<sup>1</sup> The text as published is based on Fourmont's reading of a stone seen on the Acropolis, now lost. Copies of the decree were to be set up in the Tholos, at Eleusis, at Piraeus and on the Acropolis (lines 1, 14-15, 62). A fragment found in the Agora (*Hesperia*, VII, 1938, no. 27, pp. 127-131) containing lines 49-62 was undoubtedly from the stele set up in the Tholos. The text has been discussed in detail by Viedebant, *Hermes*, LI, 1916, pp. 120-144 and *Festschrift Oxé*, pp. 135 ff. Other references are cited by John Day, *An Economic History of Athens under Roman Domination*, p. 111, note 349. The association of the measure with the inscription was first suggested by Professor H. A. Thompson.

<sup>2</sup> Inv. P 14,431. Missing fragments restored in plaster. Heavy fabric of gritty orange-buff clay with a smoother buff surface; worn. Exterior dimensions: height, 0.106 m.; diameter at rim, 0.20 m.;

rim. A piece of lead, set through the wall, has been stamped with a seal on the outer surface. The seal impression (Pl. 5, 3, left) shows a throned and bearded figure, seated right, the left arm bent at the elbow, a slender vertical object in the outstretched hand. The right arm rests on the knee, the hand holding an indeterminate object. A second impression perhaps from the same seal (Pl. 5, 3, centre) has been found attached to a fragment of another pot, the handle (Pl. 5, 4) apparently of a wide-mouthed pitcher.<sup>3</sup> In this case a band of coarse lead has been wrapped around the handle, and the impression is stamped on a thickened lump on the outside.

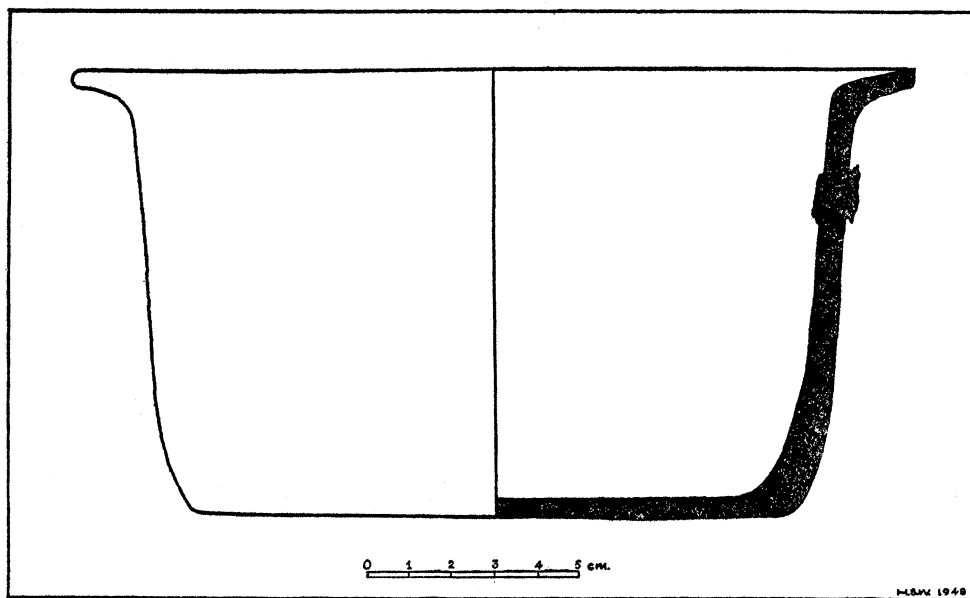


Fig. 1

The seal impression is a representation of a statue of Dionysos found on Athenian New Style and Imperial coins (Pl. 5, 3, right). The type, showing the god enthroned with thyrsos and kantharos, has been identified as a copy of the statue by Alkamenes seen by Pausanias (I, 20, 3) in the temple of Dionysos.<sup>4</sup> Our seal is close to but does not exactly duplicate either of the coin types.<sup>5</sup>

at bottom, 0.144 m.; of body below lip, 0.168 m. Interior dimensions: depth, 0.098 m.-0.102 m.; diameter at inner edge of rim, 0.16 m.

Lead sealing attached to pot: IL 701. Overall measurements of sealing, 0.022 m.  $\times$  0.013 m.; height of impression, 0.019 m.; width, 0.012 m.

<sup>3</sup> Inv. IL 1032. Overall measurement of sealing, 0.023 m.  $\times$  0.015 m.; height of impression, 0.016 m.-0.017 m. (broken at bottom); width, 0.012 m. The pot fragment (maximum dimension, 0.062 m.) preserves the lower part of the handle, oval in section (0.014 m.  $\times$  0.017 m.), and a little of the wall at the attachment. Thin, coarse fabric as in cooking pots.

<sup>4</sup> Svoronos, *Trésor des Monnaies d'Athènes*, pl. 71, nos. 30-32; pl. 92, nos. 8-21; Richter, *Sculpture and Sculptors of the Greeks*, p. 236 and fig. 631. For our illustrations we have used one of the Roman Imperial coins (Svoronos, *op. cit.*, pl. 92, no. 15) where the figure is shown seated right, as on our sealings.

<sup>5</sup> Two sealings the same as or closely similar to ours have been noted on Hellenistic lead weights.

The New Style coins on which the seated Dionysos appears as an additional symbol are dated in the third quarter of the first century B.C.<sup>6</sup> Our measure is apparently somewhat earlier than these coins.<sup>7</sup> It was found in the filling of a cistern on the north slope of the Areopagus in a group of pottery dating from the end of the second and the beginning of the first centuries B.C.<sup>8</sup> The abandonment and filling up of the cistern can safely be assigned to the general clean-up following the destruction of this part of the city by Sulla in 86 B.C. The handle fragment with the second copy of the impression was found in a disturbed filling below the northwest slope of the Areopagus and its context is therefore of no significance for its date. The fact that the two impressions, however, seem identical and perhaps from the same seal justifies the assumption that the pots to which they belong were contemporary. The inscription in which the measure is described has been fairly securely dated to the closing years of the second century and may, indeed, be of the year 103/2 B.C.<sup>9</sup> The pot with the seal, if broken in 86 B.C. (and discarded shortly thereafter) was presumably in use in the fifteen to twenty years immediately following the promulgation of the decree.

According to the specifications given in the inscription (lines 21 ff.) merchants were to sell walnuts and the like in a μέτρῳ χωροῦντ[ι] ἀπο[ψ]ηστὰ σιτηρὰ ἡμιχ[ο]ινίκια τρία, πωλοῦ[ντ]ας τῇ χοίνικι ταύτῃ κορυστῇ ἐχούσῃ τὸ μὲν [βά]θος δακτύλων πέντε, τὸ δὲ πλάτος το[ῦ] χ[εῖλ]ους δακτύλου. The rim of our pot measures 0.02 m. in width; the interior depth to the outer edge of the rim is 0.103 m., to the inner edge 0.098 m. Thus the ratio between width of rim and depth of measure is one to five, as specified, while in absolute terms our vessel fits the inscription equally well inasmuch as the daktylos, if based on the shorter Attic foot, was the equivalent of 0.0186 m., and if based on the longer was 0.0204 m.<sup>10</sup>

One of these is cited by Pernice, *Griechische Gewichte*, 1894, no. 6 on p. 83 (discussed on p. 19); the other comes from the Agora (Inv. IL 315). A study of the Hellenistic weights from the Agora is in preparation.

<sup>6</sup> Head, *Historia Numorum*<sup>2</sup>, p. 386; *Hesperia*, X, 1941, pp. 218-227.

<sup>7</sup> Note that the sealings, though of the same statue, give a different representation. On the New Style coins the figure is shown facing left, with the left arm holding the kantharos above the lap; on our impressions the figure faces right and the hand holding the kantharos rests on the knee. Dionysos in other forms, and his symbols as well, appear on New Style coins antedating 86 B.C.; cf. *Hesperia*, X, 1941, *loc. cit.* For the suggested association of these symbols with particular celebrations of festivals, *ibid.*, pp. 221 ff., and *Hesperia*, XI, 1942, pp. 215 ff.

<sup>8</sup> The pottery is similar to that published as Group E in *Hesperia*, III, 1934, pp. 392-427 and there dated from the end of the second century into the early years of the first.

Of the eight coins from our cistern, two are Greek, otherwise unidentified; two Athens, 307-283 B.C.; two Athens, third century; one Athens New Style, 229-30 B.C.; one Athenian cleruchy at Delos, post 166 B.C. The one Rhodian and sixteen Knidian stamped amphora handles have been classified as distinctly later than the handles from Group E, yet compatible with a date in the first quarter of the first century B.C.

<sup>9</sup> Diodoros son of Theophilos of Halai (*P.A.* 3935) who is named in line 39 as the man in charge of carrying out the regulations was Harbormaster in 112/11 B.C.: *I.G.*, II<sup>2</sup>, 1012. Ferguson (*Klio*, IV, 1904, pp. 8-10) suggests the date 103/2 B.C. for the decree.

<sup>10</sup> See Dinsmoor, *Hesperia*, IX, 1940, p. 20, note 40; and *Hesperia*, Supplement V, p. 33, note 87.

The capacity was to be three half-choinikes<sup>11</sup> of grain levelled off; but the nuts, which could not of course be levelled off, were to be sold heaping. On Plate 5, 1, our measure is filled with walnuts, heaped high as is readily possible thanks to the broad and slightly canted rim.<sup>12</sup> On Plate 5, 2, the same measure is filled with lentils levelled off to the rim. Practical experiment shows that this quantity of lentils corresponds closely to the capacity of some of the standard measures of the fourth century B.C. For the experiment, recourse was had to a plaster replica of a standard measure, in which the cross-bars and central supporting post were restored (Pl. 5, 5, a<sup>13</sup>). The lentils shown in Plate 5, 2, fill this replica to the brim, levelled off, and indicate both for our measure and for the fourth-century standard a volume of *ca.* 1700 cc. These two measures were then tested against the two-chous klepsydra, of the late fifth century B.C., found in the Agora.<sup>14</sup> The measures should have a capacity one fourth that of the klepsydra, three half-choinikes being the equivalent of six kotylai, or a half-chous. The replica of the fourth-century measure, filled and emptied four times with lentils, filled the klepsydra to slightly above the overflow hole. The three vessels when checked against each other thus correspond so closely that the discrepancies are negligible, and the capacity of the fruit measure is shown to be the three half-choinikes specified in the inscription.<sup>15</sup>

The addendum to the inscription in which a measure marked with a lead impression and stamped pots are mentioned is unfortunately one of the most ambiguous parts of the text. The Greek, lines 64-67, as published in *I.G.*, II<sup>2</sup>, from Fourmont's reading, is as follows: [τοῦ]ς δὲ ἄρχοντας χρῆσθ[αι] τῷ αὐτῷ μέτρῳ κεχ[α]ραγμένῳ

<sup>11</sup> Note that the word *χοῖνιξ* is employed both to denote a specific unit and as a generic name for containers used as measures: the two sizes described in the inscription (the three half-choinix measure and the double measure) are each referred to as a choinix.

<sup>12</sup> It will be noted that our vessel differs considerably from Viedebant's reconstruction (*Hermes*, LI, 1916, pp. 132-135) which provided for a collar rim, thus simply increasing the capacity without allowing for the heaping up of the nuts.

<sup>13</sup> *Hesperia*, IV, 1935, pp. 346-347; VI, 1937, pp. 165-166. The capacity as reported in *Hesperia*, IV, was measured without cross-bars or post.

<sup>14</sup> *Hesperia*, VIII, 1939, pp. 274-284.

<sup>15</sup> The capacity of the replica of the fourth-century measure and of the fruit measure, in cubic centimetres, is a bit larger than the six-kotyle or three half-choinix unit based on the klepsydra, measured with water to the overflow hole, or on the six-choinix (one chous) public measure of the third quarter of the fifth century B.C. found on the North Slope of the Acropolis (*Hesperia*, VII, 1938, pp. 222-224). These two agree with a chous of *ca.* 3200 cc., so a half-chous (three half-choinikes) of 1600 cc. (Hültsch, *Griech. und röm. Metrologie*, p. 703, gives a chous of 3283 cc.). The lentils which fill the replica, when measured in a graduated litre measure, vary on different readings from 1650 cc. to 1750 cc. A public measure in the National Museum at Athens (*Rev. Arch.*, 1872, pp. 297-303) has a reported capacity of *ca.* 865 cc. (corrected figure: see Viedebant, *Festschrift Oxé*, p. 135, note 1), apparently half of our replica, or a three-kotyle unit. This therefore is also slightly larger than the fifth-century examples noted, which would give 800 cc. for three kotylai.

Neither the National Museum measure nor the North Slope chous is now available for testing. When they are again accessible it will be possible to continue this study, using a single method of measurement and making due allowance for the central supporting column where this should be restored. Meanwhile, a check of other Agora containers, both measures proper and the marked equivalents of measures, suggests that further correspondences may well appear.

τῷ χαρακτήρ[ι] μολυ[βδίν]ω πρὸς τὸν ἐν τῇ σκιά[δι, μ]ῇ πλείον πραττομένους τριωβόλου· χρῆσθαι δὲ κα[ὶ τ]ὰς ἀρχὰς τοῖς προσφραγισμένοις μέτρο[ι]ς, ἐὰν μὴ τις τῶ[ν] πωλούν-  
 τω[ν ἢ ὠνούμενων] σφραγιστῷ μέτρῳ χρῆται. The ἄρχοντες of the first clause seems best interpreted as referring to the officials in charge of the standards, the ἀρχαί of the second to any of the city magistrates who was buying for the city. The only interpretation of the charge of three obols seems to be that it is the charge to be paid for validating a measure. The relationship between the σφραγιστῷ μέτρῳ and the measure κεχαραγμένῳ τῷ χαρακτήρ[ι] μολυ[βδίν]ω cannot be established from the text, but it seems probable that both phrases refer to the same kind of marking process. The fact that the two lead sealings published here are closely comparable to types used as additional symbols on New Style coins suggests a similar significance for them. On the coins these symbols change annually and are the mark of a particular term of office. It would seem natural to find a similar usage on contemporary weights<sup>16</sup> and measures: the lead sealings marking the term of office in which a particular measure was validated and specifying the individual responsible. The use of such sealings may have replaced the earlier custom of stamping the seal of the city (that is, the standard coin types) in the wet clay of the measure, as was done in the fifth and fourth centuries. It happens that of the many measures found thus far in the Agora with the stamp impressed in the clay none can be dated later than the end of the fourth century B.C.

Both of our lead sealings were found outside the public square proper, in areas occupied by private houses, industrial establishments, and perhaps shops in Hellenistic and Roman times. The filling of the cistern from which the fruit measure comes seems quite probably to have been the debris from a shop, for in addition to the authorized container it also included a second measure, a fragmentary pot-base suggesting a third (Pl. 5, 5, *b-c*)<sup>17</sup> and two unmarked lead weights.<sup>18</sup> The second measure is a cylindrical pot with slightly raised flat base and no rim, recalling in shape the fifth and fourth century dry measures. It is of the same fabric as the fruit measure; the exterior however retains flecks of black, perhaps glaze applied in bands. A large piece of one side is missing, so there is no way of knowing whether it had a lead sealing or not. Its capacity does not fit any even unit suggested by the measures noted here, but falls between three and four kotylai.<sup>19</sup> The capacity of the third vessel cannot be determined since its height is not preserved.

<sup>16</sup> See above, note 5, for similar sealings on weights.

<sup>17</sup> Pl. 5, 5, *b*: Inv. P 8932. Part of one side restored in plaster. Height, 0.121 m.; diameter, 0.12 m.; interior dimensions: diameter, 0.111 m.; depth, 0.113-0.116 m. Pl. 5, 5, *c*: Inv. P 14,430. Preserved height, 0.09 m.; diameter at bottom, 0.161 m. Buff clay, unglazed except for a splash of dilute brown on the side and bottom.

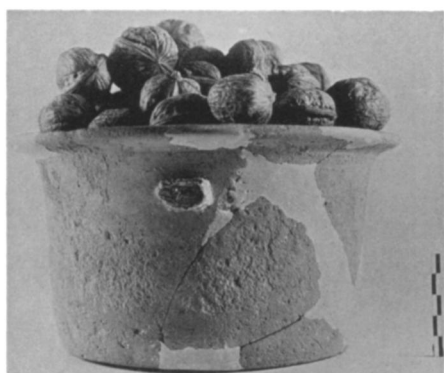
<sup>18</sup> Inv. IL 514 and IL 516; both are plain rectangular weights.

<sup>19</sup> The capacity to the brim, measured in lentils, is *ca.* 1000 cc. As noted above, the fruit measure and the fourth-century public measure give a kotyle of 275 cc. to 291 cc. The second measure from our cistern, then, would be too large for three kotylai (825 cc. to 873 cc.) and too small for four (1100 cc. to 1164 cc.).

The two pots with the lead impressions, then, were probably measures used in a shop and validated by the responsible magistrate. The open pot with the rim is clearly the one used for fruit, as described in the inscription; the handle-fragment will have belonged to a pitcher used as a measure for liquids. The relationship between the fruit measure and the two earlier measures available for testing indicates that the Athenian units of measure remained substantially the same from the fifth century at least to the end of the second century B.C.

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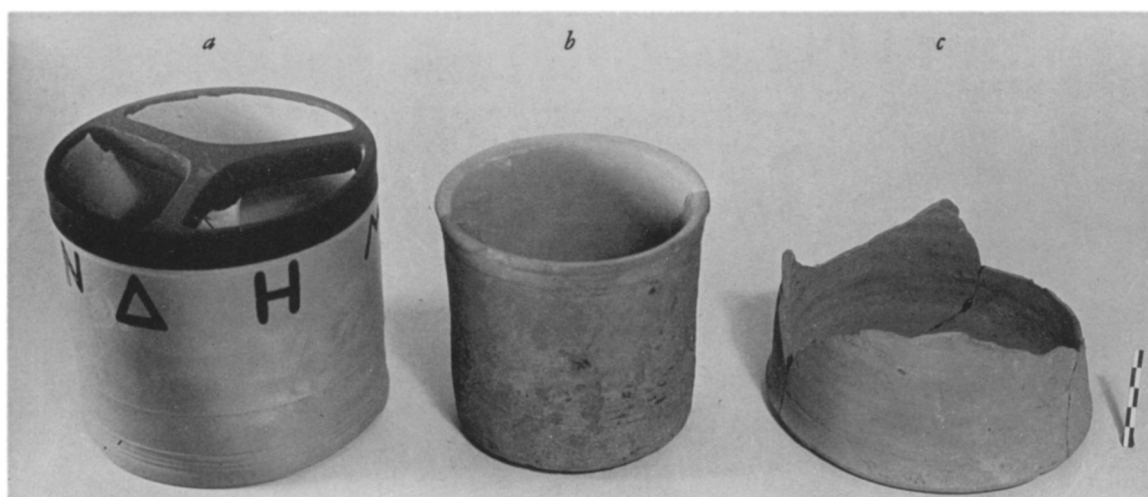
1-2. A Fruit Measure from the Agora



3. Statue of Dionysos on Seal and Coin



4. Validating Stamp on Handle



5. Three Athenian Measures

M. CROSBY: AN ATHENIAN FRUIT MEASURE