

## AN ATHENIAN CLEPSYDRA

The pot appearing here in Figure 1 illustrates for the first time a well-known but little-understood feature of Athenian legal procedure.<sup>1</sup> It is a substantial pail-

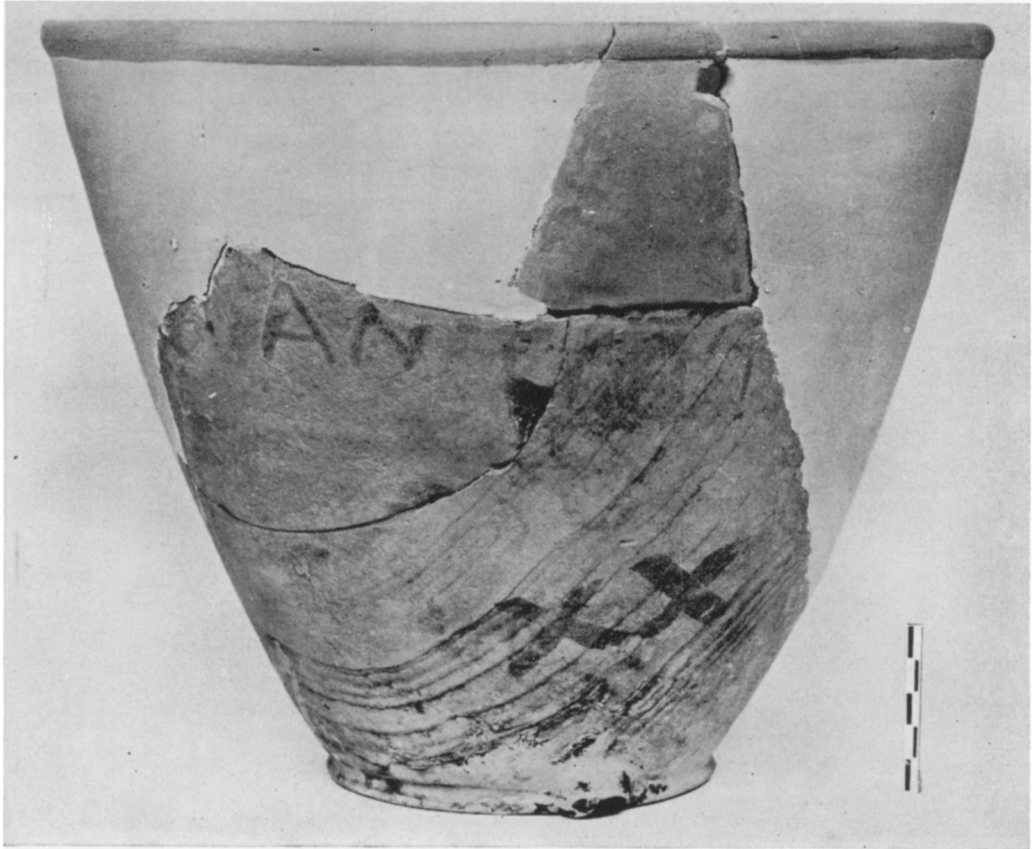


Fig. 1. An Athenian Clepsydra

shaped vessel <sup>2</sup> with heavy flat bottom, high slightly flaring sides, and simple thickened rim. The horizontal handles are missing, but the attachment of one is preserved, well

<sup>1</sup> The identification was first suggested by Lucy Talcott, who turned over to me her notes on the subject. I am further indebted for advice and suggestions to all the members of the Agora staff, but in particular to H. A. Thompson for criticism on the legal aspects of the problem.

<sup>2</sup> Inv. No. P 2084. Height, 0.232 m.; diameter of base, 0.117 m.; diameter of rim as restored, 0.28 m.; length of bronze tube, *ca.* 0.026 m.; diameter of tube at inside, 0.006-0.008 m.; at outside, *ca.* 0.004 m.; diameter of overflow-hole, 0.009 m. The walls are fragmentary and have been restored in plaster, but the profile is complete, and the base, with its clay spout and carefully-fitted inner tube, is intact. The interior shows pronounced wheel-ridges.

below the rim. The fabric is that of the ordinary Athenian household mixing-bowls<sup>3</sup> of the fifth century. Like them it is waterproofed by means of a dull glaze wash inside and on the rim; a thinner wash of the same sort has been rather carelessly applied to the exterior as well. Two inscriptions are painted in bold glaze letters on the wall: above, ANTIO + ---, below, XX. Close to the bottom of the pot is a carefully made clay spout, fitted with a small bronze inner tube. Centered above the spout, just below the rim, is a hole which would permit the pot to be filled to the same level each time.

These arrangements correspond to the specifications which literature provides for the clepsydra, the "water-clock" commonly used in the Athenian law courts from the end of the fifth century until at least the end of the fourth. The essential elements are the spout, which makes possible an easily controlled outflow of the pot's contents, and the overflow hole above, which supplies a visual check on accurate filling. The context in which this pot was found, an undisturbed well-deposit of about 400 B.C.,<sup>4</sup> suggests that it belongs to a time not long after the first introduction of such devices. The identification will become apparent, it is hoped, as we consider the literary evidence for the use and character of the clepsydra. We must also inquire under what circumstances one so made and so inscribed could have been used.

Happily, there is no dearth of literary testimony to the use of the clepsydra as a time measurer in the law courts, nor indeed do we lack descriptions of the object itself.<sup>5</sup> This ingenious and dramatic device held an immediate appeal for the ancients, as a long series of references dating from the fifth century before Christ to the time of the latest grammarians indicates.<sup>6</sup>

<sup>3</sup> *Hesperia*, IV, 1935, p. 512, fig. 25.

<sup>4</sup> The well lies some two metres to the southeast of the Tholos precinct wall. Our pot comes from the lower filling, along with a heavy deposit of ordinary water pitchers, some plain, some glazed, and two red-figured, from the period of the well's use. The latest material in this filling suggests that this well was abandoned in the last years of the fifth century or the opening years of the fourth; the dumped-in filling found in the upper part of the well is not later than the first quarter of the fourth century.

<sup>5</sup> For the clepsydra used in the dicasteria, as distinct from the earlier siphon or sprinkler variety represented by literary evidence and extant vases, see Thalheim in Pauly-Wissowa, *R.E.*, s. v. Klepsydra (2), pp. 807 f. The name of our type, "water-thief," was apparently carried over from the siphon type, which by its controlled flow of water may have inspired the notion of using such a device for measuring a fixed period of time. (Κλεψύδρα as the name both of the well-known spring on the Acropolis and that in Messene apparently has a different history.) We must also distinguish here our simple contrivance from the complicated mechanisms, which sometimes went by the same name, developed in a more scientific age and described by Athenaeus (IV, 174 c) and others.

<sup>6</sup> Most of the ancient lore is quoted by M. Schmidt, *Die Entstehung der Antiken Wasseruhr*, pp. 91 ff. The more casual references in the Orators to the ὕδωρ as limiting the length of their pleas are cited by B. Keil in *Anonymus Argentinensis*, Beilage II, Zum Ath. Gerichtswesen, *passim*. For the sake of completeness, we may add here two scholia on Aeschines (*Schol. in Aesch.*, II, 133, ed. Dindorf, pp. 65-66); Alcidas, II, 11; Aristotle, 'Αθ. Πολ., 69, 2; Pollux, viii, 16; Aristophanes, *Vesp.*, 857-8; and schol. in Aristoph. *Eccl.*, 1089 (ed. Dübner) = Müller, *F.H.G.*, II,

Our earliest authority for the clepsydra is Aristophanes. One of his chorus of old Acharnians, a Marathonian hero, grumbles that it is hardly fitting that youngsters should shame an old man's grey hairs by dragging him into litigation "to destroy him at the clepsydra."<sup>7</sup> In a slightly later play he teases a jury-court veteran (his chief "Wasp") who never sleeps a wink "or if he doze off the least bit his mind goes fluttering in the night about the clepsydra."<sup>8</sup> In the early fourth century, Lysias refers to the ὕδωρ five times in a single plea,<sup>9</sup> and in Isocrates we find a fine burst of invective when he points out that to recount the devices of his opponent, the conspiracies, the accusations, the private and public suits he has started, "not even if there were twice as much water would it be enough."<sup>10</sup> Plato seems to agree with the latter: orators and lawyers, he says, are persuaders rather than mentors, for instead of teaching the truth, they try to obtain a favorable verdict, "or do you suppose that there are any teachers so clever that they can satisfactorily teach the judges the truth --- in the short time allowed by the water --- ?"<sup>11</sup> A little later, Demosthenes, to show his good faith and fair-mindedness in a dispute, calls upon Aeschines to claim the credit for whatever benefit he has ever done the state within the time limit of his own speech (ἐν τῷ ἐμῷ ὕδατι).<sup>12</sup> Aeschines, in his turn, was able to use the "water" to oratorical advantage; in the speech against Ctesiphon, he describes to the court the legally divided day: "--- the first water is for the accuser, the laws and the democracy, the second for the defendant, --- and the third water is poured in for the penalty and the extent of your wrath."<sup>13</sup>

Our earliest description of the object which held this legal ὕδωρ comes from Aristotle: "and there are clepsydras which have small tubes for the outflow; into these they pour the water by which the lawsuits must be conducted."<sup>14</sup> The αἰλίσκος ἔκρους is the clay spout of our clepsydra, with its small tube of bronze. The position

p. 619, 5 a (Craterus). For a general account of the legal clepsydra and its use see Hommel, *Philologus*, Supplbd. XIX, Heft II, pp. 86 ff., 104 ff., and the more technical report in W. Kubitschek, *Grundriss der Antiken Zeitrechnung*, pp. 203 ff.; also Lipsius-Meier-Schömann, *Das Attische Recht und Rechtsverfahren*, pp. 910 ff.

<sup>7</sup> This is his first reference (*Ach.*, 693) in 425/4 B.C.; after this date the mention of the clepsydra is frequent. Meton, "the best of the astronomers," is said to have placed a sundial on the wall of the Pnyx in 433/2 (Philochorus, frag. 99, Müller, *F.H.G.*, I, p. 400; schol. in Aristoph. *Aves*, 997); the introduction of the clepsydra in this period may be a result of the same apparently increasing consciousness of time. A more immediate cause might be found in the constant enlargement of the jury-pay, which may have suggested to the State the curtailment of the length of cases (the final raise to three obols was engineered by Cleon in 425; Lipsius-Meier-Schömann, *op. cit.*, p. 38; *Cambr. Anc. Hist.*, V, p. 102).

<sup>8</sup> *Vesp.*, 93 f. (422 B.C.).

<sup>10</sup> XVIII, 51.

<sup>9</sup> Lysias, XXIII, 4, 8, 11, 14, 15.

<sup>11</sup> *Theaetetus*, 201 b.

<sup>12</sup> XVIII, 139. This is a common rhetorical tag, and we meet it as early as Andocides, I, 26, 35, 55; cf. Demosthenes, LVII, 61, *et al.*

<sup>13</sup> III, 197.

<sup>14</sup> Εἰσὶ δὲ κλεψύδραι αἰλίσκους ἔχουσαι ἔκρους εἰς ἃς τὸ ὕδωρ ἐνέχουσι πρὸς ὃ δεῖ λέγειν τὰς δίκας (Ἀθ. Πολ., 67, 2; *ed.* Blass).

of the spout suits the further explanation of a scholiast to Aristophanes who says: "the clepsydra is a vessel with a very small hole near the base; full of water, it was placed in the court."<sup>15</sup> That the clepsydra was an open container, like the newly identified pot,<sup>16</sup> follows from the scheme recommended by Aeneas Tacticus for dividing the night watches equally throughout the year; he says that the interior of the clepsydra should be smeared with wax, to be removed gradually as the nights grow longer, and that, conversely, layers of wax should be added as the nights grow shorter, "in order that the capacity should be less."<sup>17</sup> How practical this expedient was is unknown, but the suggestion would have been impossible had the clepsydra been a closed pot. Aeneas adds that the orifice through which the water flows out should be made with exactness;<sup>18</sup> our neat projecting spout would suit his requirement nicely. We know from Aristotle and the orators that the water was stopped during cases for the reading of laws and the introduction of witnesses,<sup>19</sup> and a hypothetical clepsydra has been constructed with a stopcock and faucet.<sup>20</sup> Not only does the testimony of Herondas, who in a mock case tells the secretary to "plug the hole" in the clepsydra, contradict this,<sup>21</sup> but the construction of the tube in the actual clepsydra has no provision for anything but a simple stopper, probably with a broad head—the disputed "nail" (ἥλος or ἡλίσκος) mentioned by Aristophanes.<sup>22</sup>

There is no mention in the ancient sources of the overflow hole below the rim, preserved in our clepsydra, to ensure that the pot was filled to the appointed level. There was, however, provision for an official ἐπὶ τὸ ὕδωρ elected by lot before each day's legal proceedings (at the same time as the four men who were to count the votes) "in order that no mischief be done" (μηδὲ γίγνηται περὶ ταῦτα κακούργημα μηδέν).<sup>23</sup> And that the filling of the clepsydra must have been carefully watched is attested by the existence of the προχοΐδιον as a piece of specifically legal equipment for pouring in the water.<sup>24</sup> How the orators knew when the water was running low and time was fast going<sup>25</sup> has always been a difficulty in the reconstruction of the hypothetical clepsydra, but it is now clear that there is no necessity for a "schwimmende Mass-

<sup>15</sup> ἡ γὰρ κλεψύδρα ἀγγεῖον ἐστὶν ἔχον μικροτάτην ὀπήν περὶ τὸν πυθμένα, ὅπερ ἐν τῷ δικαστηρίῳ μεστὸν ὕδατος ἐτίθετο — (schol. in Aristoph. *Ach.*, 694).

<sup>16</sup> Although one scholiast speaks of it as both an "amphora" and a "hydria" (schol. in Lucian, *Pisc.*, 28), instead of mentioning it cautiously as a "vessel" (ἀγγεῖον) or "some sort of contraption" (κατασκευασμά τι).

<sup>17</sup> Πολιορκήτικα, 22, 25 (mid-fourth century before Christ).

<sup>18</sup> *Ibid.*, frag. XLVIII.

<sup>19</sup> Aristotle, *Ἀθ. Πολ.*, 67, 3; Lysias, XXIII, 4; Isaeus, II, 34, *et al.*

<sup>20</sup> Schmidt, *op. cit.*, p. 43, fig. 22.

<sup>21</sup> Κ] αἱ τοὶ λαβὼν μοι, γραμματεῦ, τῆς αἰκείης | τὸν νόμον ἀνειπε, καὶ σὺ τὴν ὀπήν βύσον | τῆς κλεψύδρης, βέλτιστε, μέχρις οὗ εἴπη — (Herondas, *Mimes*, II, 41 ff., third century before Christ; cf. also schol. in Lucian, *loc. cit.*).

<sup>22</sup> Aristoph. *ap.* Pollux, X, 61 = Aristoph., frag. 314 (Kock).

<sup>23</sup> Aristotle, *Ἀθ. Πολ.*, 66, 2.

<sup>24</sup> Pollux, X, 61.

<sup>25</sup> E. g. Isocrates, XV, 320.

stabe.”<sup>26</sup> Experiment with the Agora clepsydra shows that, although the flow of water is at first full and swift, the stream diminishes perceptibly as the pressure lessens and the level nears the bottom. The approaching end of the time limit would have been apparent not only to the orator but to his hearers.<sup>27</sup>

The sketch in Figure 2 shows the clepsydra in action. In view of the fact that a pair of clepsydras could conveniently be used for any multiple of the time measure provided by one of them, we have installed a second—plugged up—“water-clock” to catch the flow from the first. The water may, of course, have been allowed to run off onto the ground, though such lavishness seems as unlikely as it does disorderly. Practical experiment demonstrates that if a receptacle was used it must have been an open pot or basin, no smaller in diameter than the clepsydra itself; the curve of the stream which spouts out to some distance when the plug is first removed falls nearer and nearer the base of the vessel as the force of the flow diminishes. The practical speaker could thus gauge the time remaining to him no less by the curve of the water than by the volume of the flow.

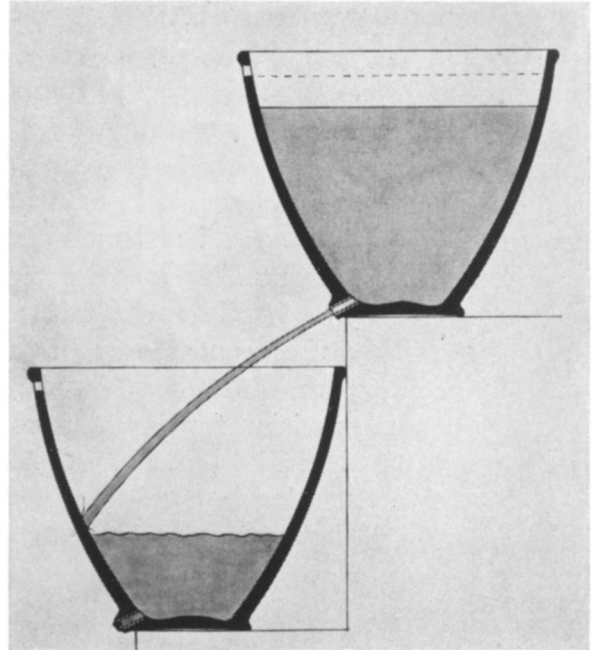


Fig. 2. The Clepsydra in Action

A word now about the two large letters, XX, centered approximately over the spout of our clepsydra. Since we know that the water used in the clepsydras was regulated by measure, and that the unit was the *χοῦς*,<sup>28</sup> we do not need to look far

<sup>26</sup> Suggested by Schmidt, *op. cit.*, p. 35, and Hommel, *op. cit.*, p. 90, note 218.

<sup>27</sup> The simplicity of our clepsydra in contrast to the restorations made in the past (see especially Schmidt, *op. cit.*, fig. 22) finds an analogy in the device quoted in an early third century inscription from Iasos, which describes an equally official vessel. The promptness of the citizen body at the assembly was to be ensured by starting a clepsydra at sunrise and withholding the assembly pay from all those who arrived after the water had run out. The specifications for the construction of this clepsydra are given: it was to be a clay pot holding a *metretes*; it was to have a hole *κναμῖον* (the size of a bean?); finally, it was to be stationed seven (?) feet above the ground, so that all could see it (Hicks, *J.H.S.*, VIII, 1887, p. 103; Michel, *Rec. Inscr. Grecques*, no. 466).

<sup>28</sup> Aristotle, *Αθ. Πολ.*, 67, 2 f.: “Ten choes are given for cases over five thousand drachmas, and three choes for the second speech,” etc. Compare also Pollux, who tells us that the *ἐπιμελητὴς ἐφ’ ὕδωρ* supervised the *ισότης* of the clepsydras (VIII, 113).

for the explanation of this inscription. To expand  $\text{XX}$  to  $\text{X}(\text{o}\hat{\upsilon}\varsigma)$   $\text{X}(\text{o}\hat{\upsilon}\varsigma)$  seems reasonable. That the doubling of the initial letter indicates two choes is perhaps obvious without citing parallels from the Attic numerical system familiar from inscriptions. We may, however, note the Eleusinian treasure-list of 329/8 B.C., where  $\text{M M M M}$  is to be interpreted as four medimnoi.<sup>29</sup>

The Agora clepsydra, filled to the overflow-hole, proves to have a capacity of 6.4 litres,<sup>30</sup> giving the measure of a single chous as 3.2 litres. This figure is not far from the 3.283 litres quoted by Hultsch for the Attic chous.<sup>31</sup> As Mr. Broneer has already pointed out,<sup>32</sup> a gratifying correspondence is provided by the fifth-century



Fig. 3. Household Jugs from the Clepsydra Well

official measure found recently in the excavations on the North Slope of the Acropolis: our clepsydra holds exactly twice its contents. If our official container, then, holds two choes, the public measure will be equivalent to a chous, or, since it is a dry measure, to three choenices.<sup>33</sup> If it seems unusual that a standard should represent three units, we may point out that the three-choenix measure was much used in contemporary practice.<sup>34</sup>

Further support for the interpretation of  $\text{XX}$  as two choes is supplied by the ordinary standard-size oinochoes of which a number were found in the same well as the clepsydra (Fig. 3). Filled to the brim, one (*a*) measures 3.310 litres, the other (*b*) 3.060 litres. The smaller jug (*c*) contains 1.550 litres, and perhaps represents a

<sup>29</sup> *I.G.*, II<sup>2</sup>, 1672 b, col. II, line 258.

<sup>30</sup> All comparative measurements were made with rice; on the method and its reliability, see O. Broneer, in *Hesperia*, VII, 1938, p. 223. Measured with water, the clepsydra holds 6.44 litres.

<sup>31</sup> Hultsch, *Griechische u. Römische Metrologie*<sup>2</sup>, pp. 107 ff., 703.

<sup>32</sup> *Loc. cit.*, pp. 222 ff., and fig. 57.

<sup>33</sup> *Loc. cit.*, p. 224.

<sup>34</sup> See *I.G.*, I<sup>2</sup>, 838, line 7; 839, lines 14 f. Aristophanes (*ap.* Athenaeus, II, 478 f. = Kock, frag. 465) suggests that three choenices were a quantity commonly purchased. Cf. also Aristophanes, *Vesp.*, 481.

ἡμίχοον.<sup>35</sup> Although it is in no way suggested that these ordinary shapes served as measures, it would no doubt be considerably more convenient to have them in approximately standard sizes, especially if one brought one's own container to the purchase of the cheaper commodities.<sup>36</sup>

Although the chous of *ca.* 3.2 litres agrees well enough with the system established by Hultsch, it differs markedly from the latest estimate of Viedebant and the older system of Dumont, based on much the same evidence.<sup>37</sup> The widely varying results obtained by these scholars suggest the difficulties inherent in a theoretical approach to a problem essentially practical. A close correspondence, on the other hand, such as that between the public measure from the North Slope and the Agora clepsydra, the only unquestionably Attic measures of the fifth century now available,<sup>38</sup> indicates that a solution of the problems concerning Attic standards of measure may not be far away.<sup>39</sup>

The dichous is recorded by Aristotle in his list of the private suits which were

<sup>35</sup> *a*: Inv. No. P 2086. Height, 0.23 m.; diameter, 0.186 m. Intact except for chips; dull red glaze. *b*: Inv. No. P 2075. Height, 0.223 m.; diameter, 0.182 m. Intact except for chips. Dull black glaze, much worn. *c*: Inv. No. P 2077. Height, 0.18 m.; diameter, 0.144 m. Part of the mouth missing; restored in plaster. Dull dark red glaze, somewhat worn.

<sup>36</sup> Cf. Aristophanes, *Eccl.*, 819 f., where the barley-buyer holds out his basket.

<sup>37</sup> Hultsch, *op. cit.*, p. 703; Viedebant, *Festschrift für Oxé* (1938), pp. 135 ff.; Dumont, *Rev. Arch.*, XXIV, 1872, pp. 20 ff. The final authority for all these investigations in the past has been the "Tabula de mensuris ac ponderibus vetustissima," dated by internal evidence in the first century after Christ (*Scriptores metrologici*, ed. Hultsch, I, frag. 29, p. 208), and the even later medical writers. The accuracy of these accounts may be seriously questioned. It is also difficult to see the justification for Viedebant's use of the late second century inscription *I.G.*, II<sup>2</sup>, 1013 (Viedebant, *op. cit.*, p. 136) as testimony for the earlier Attic standard; this document has always been considered to represent the later adjustment to the increasing internationalism in trade (Ferguson, *Hellenistic Athens*, pp. 429 f., and the bibliography there cited).

<sup>38</sup> The much-quoted "hemikotylion" in the British Museum (F 595; Walters, *History of Ancient Pottery*, I, p. 135, fig. 14) is very probably non-Attic, and appears to represent a considerably larger, probably Peloponnesian, standard. Roberts (*Introd. to Greek Epigraphy*, p. 262, no. 262) places the inscription among the Laconian and dates it *ca.* 464 or later (p. 270). Mr. Martin Robertson, who kindly examined the pot for us, reminds us of its provenience, Cythera. It is unnecessary to suppose, as Greifenhagen suggests (*C.V.A.*, Deutschland, I, Bonn, pp. 24 and 47), that the scratched inscription has anything to do with the shape of the pot. The British Museum mug was incidentally pressed into service as a measure by its ancient owner in the same way as a late fourth-century jug of which a fragment was found in the Agora (Inv. No. P 12,702; wide round mouth and the neck to the shoulder preserved; firm black glaze). Scratched around the base of the neck is the inscription: Κ Ο Τ Υ : Π Ι Ι Τ (i.e., seven and a quarter cotyles).

<sup>39</sup> The apparent absence of correspondence of the Agora dichous and the North Slope measure with the fourth century series of measures illustrated by the example in the National Museum, Athens (Dumont, *op. cit.*, p. 20), and by its larger counterparts in the Agora (*Hesperia*, III, 1934, p. 297; and IV, 1935, p. 346, fig. 5) is possibly to be explained by a difference in standard corresponding to a difference in date (cf. e.g. Andocides, I, 83: νόμοις δὲ χρῆσθαι τοῖς Σόλωνος, καὶ μέτροις καὶ σταθμοῖς). Many additional fragments of both series, but none of them as yet measurable, have come from the Agora.

regulated by the clepsydra (the technical term was *πρὸς ὕδωρ*). Two choes were poured for the second speech or rebuttal in suits involving sums from one thousand to five thousand drachmas, where the main argument received seven choes, and in suits within one thousand drachmas, where the first speech was allowed five choes.<sup>40</sup> On the basis of Aristotle's account and other scattered references,<sup>41</sup> a whole literature has grown up on the subject of the duration of the chous and the number of amphoras in the legal day.<sup>42</sup> By actual test, the Agora clepsydra of two choes capacity, filled with water to the over-flow hole, discharges its contents in a mean of six minutes. This yields a result of three minutes to a chous—somewhat less than Keil's estimates of the time value of that measure (four minutes, thirty-four and two-sevenths seconds for the period before *ca.* 370 B.C., four minutes for the period after that date).<sup>43</sup>

For whom the dichous was poured into our clepsydra, and upon what occasion, is not immediately apparent. The inscription **ΑΝΤΙΟ** + --- can be restored in several ways. The personal names *Ἀντιοχίδης* and *Ἀντίοχος* are both well attested for the fifth century,<sup>44</sup> but the contemporary references to the clepsydra as a legal time-measurer,<sup>45</sup> while the sundial<sup>46</sup> seems to have been used for private reckoning,<sup>47</sup> point irresistibly to the conclusion that this fifth-century clepsydra was public property. In support of this is its provenience, so close to the Bouleuterion and Tholos,<sup>48</sup> and

<sup>40</sup> *Ἀθ. Πολ.*, 67, 2 ff. (Hommel, *op. cit.*, pp. 22 f., emends the  $\bar{\alpha}$  or  $\bar{\chi}$ , for one thousand drachmas, in the current text, to  $\beta$ , for two thousand drachmas, in the second case).

<sup>41</sup> The most important are: Aeschines, II, 126, in a public suit (*γραφὴ παρανόμων*) limited to the "measured day," where the measure of water for the whole day is given as eleven amphoras (the days taken as standard were those in the month of Poseideon—December/January—which are the shortest in the year, varying in Athens from nine hours, twenty-eight minutes, to nine hours, thirty-four minutes; see Aristotle, *Ἀθ. Πολ.*, 67, 4 f. and Harpocration, *s. v.* *διαμετρημένη ἡμέρα*); Demosthenes, XLIII, 8 ff. (*ca.* 361 B.C.), where in a case of *διαδικασία* the five disputants received an amphora for the main argument and three choes for the rebuttal; the allowance for the *διαδικασία* here is entirely different from the six choes recorded for this type of suit by Aristotle (*Ἀθ. Πολ.*, 67, 2 ff.: --- *ἐξάρχους δὲ ταῖς διαδικασίαις, καὶ ὕστερον λόγος οὐκ ἔστιν οὐδεὶς*), and, as Keil has shown (*op. cit.*, pp. 239 ff.), must imply a sweeping change in the regulations between *ca.* 361 B.C. and 330-20 B.C.

<sup>42</sup> Photiades, *Ἀθηνᾶ*, XVI, pp. 4 ff.; B. Keil, *op. cit.*, pp. 236 ff.; Kenyon, *Class. Rev.*, XVIII, 1904, p. 338; Maltezos, *Πρακτικὰ Ἀκαδημίας Ἀθηνῶν*, 8, 1933, pp. 311 ff. There is a good résumé of the literature in Sandys, *Aristotle's Constitution of Athens* (London, 1912), pp. 257 ff.

<sup>43</sup> Cf. Sandys, *loc. cit.*, particularly his commentary on *Ἀθ. Πολ.*, 67, 4. In measuring the rate of flow from the Agora clepsydra I have ignored the possibility of variation in the rate of flow occasioned by a variation of the temperature of the water in the clepsydra.

<sup>44</sup> E. g., *P.A.*, 1149, 1150, 1153.

<sup>45</sup> Aristophanes, *Aves*, 1694; *Vesp.*, 93, 557-8; *Ach.*, 693 (and in the early fourth century, Alcidas, II, 11).

<sup>46</sup> In any case, the clepsydra was in no sense a clock for telling the time of day; it indicated only when a fixed period had elapsed. The ordinary translation into English, "water-clock," is deceptive.

<sup>47</sup> Aristophanes, *Eccl.*, 652; frag. 675 (Kock). Meton's *heliotropion* on the Pnyx was perhaps intended for public (or official ?) use.

<sup>48</sup> The fact that the well from which it comes is outside their precinct walls, however, might



the very official appearance of the bold inscription.<sup>49</sup> The only choice left is the tribe, and we may restore 'Αντιοχ[ίδος] with a fair degree of assurance; this yields in addition a symmetrical arrangement of the letters in relation to the handles and the XX below (Fig. 4).



Fig. 4. The Clepsydra with Handles and Inscription Restored.  
From a Water Color by Piet de Jong

The fact that it is inscribed with the name of a tribe might suggest that the clepsydra was used in connection with the Boule and that it was a prytanizing tribe which thus labelled its property. Against the view that it was an ancient precaution

serve to connect it with the area not fully excavated to the south. In the following discussion of the possible purpose and use of the Agora clepsydra, it must be remembered that the remains of the law courts may lie in this neighborhood, and that further excavation there may solve the problem conclusively.

<sup>49</sup> Compare the inscription on the public measure illustrated in *Hesperia*, IV, 1935, p. 346, fig. 5, and the inscriptions on Panathenaic amphoras, with the ordinary *καλός*-names and artists' signatures painted on vases, and the scratched legends indicating ownership.

to eliminate filibustering from the sessions of the Council may be urged the complete absence of literary testimony to its use in the Bouleuterion, and, conversely, the unanimous agreement of the ancient sources in referring it to the law courts.<sup>50</sup>

A possibility is offered us if we remember that in the fifth century the legal power of the Boule as the highest governing body of the state over public offenders was very much more extensive than in the fourth century and that it decided many issues involving even the life and limbs of the citizens by summary investigation and swift execution of sentence.<sup>51</sup> Important cases were sometimes referred from the Council to the courts, but where the interests of the People were affected most nearly, the criminal was handed over to the Demos, and the Assembly had the power of trial and punishment. Indeed, the transference of such issues to the law courts was so rare that Aristophanes could write: "and if ever the Boule and the Demos are at a loss about an important case, they pass a decree for the wrong-doers to be handed over to the jurymen."<sup>52</sup>

In these juristic duties of the prytaneis, we might suppose that the organization of a case involving accusation only before the Boule was swift and simple enough to obviate a time limit.<sup>53</sup> The prytaneis, however, also introduced public cases to the Assembly and presided over their conduct; we may well imagine that in the stirring times at the end of the fifth century, there were several offenders whom the Demos clamored to judge in the Ecclesia. The procedure in these cases is little understood; it was apparently not fixed until well into the fourth century, but everything we know of them suggests that they were conducted with due legal formality.<sup>54</sup> The objection

<sup>50</sup> "Clepsydra" is used as a synonym for law court in all but one of the Aristophanes references; even the scholiasts are agreed that the dicasteria were meant. A further objection might be raised: it would seem unjustifiably extravagant for each tribe to own a complete set of clepsydrias for use in the same building.

<sup>51</sup> For the legal jurisdiction of the Boule in the fifth century, see Lipsius-Meier-Schömann, *op. cit.*, pp. 45, 176 ff.; cf. Aristotle, *Ἀθ. Πολ.*, 45, 1.

<sup>52</sup> *Vesp.*, 590 ff.

<sup>53</sup> See Aristophanes, *Thesm.*, 929 ff., where the prytaneis come to execute sentence on the criminal without his having been present at the trial, which certainly does not suggest the use of a time limit—for the defendant's speech at least.

<sup>54</sup> If we should wish to be so rash as to attempt to identify a trial in which our clepsydra might have been used, a tempting possibility lies close at hand. The *εισαγγελία* of the eight generals to the Demos for their failure to pick up the dead and dying after the sea battle of Arginusae (406 B.C.) is familiar from Xenophon's detailed account (*Hell.*, I, 7, 1 ff.; cf. also *Mem.*, IV, 4, 2; Plato, *Apology*, 32 B). The refusal of the prytaneis to consent, except under duress, to the condemnation of the generals without trial, the long speech of Euryptolemus, where he attempts to persuade the Assembly to try the generals according to the "three parts of the day" (i. e., by the clepsydra; schol. Aristoph. *Ecc.*, 1089), and the near consent of the people to his proposals suggest that the prytanizing tribe may have planned to conduct the case by the clepsydra (there had been plenty of time for plans, inasmuch as an interval of at least six days had elapsed since the first introduction of the case). Socrates who won fame by his final refusal, alone of the prytaneis, to consent to the illegal procedure, was cast by lot to preside over his tribe that day; coincidentally enough, his tribe was Antiochis.

to the use of our clepsydra in such an event is that one would suppose the emphasis in such a public trial to have been rather on the national and legal aspect of the affair than on the tribe of the prytaneis who happened to be officiating.

Since many of the dicasteria were certainly in the neighborhood of the market-place,<sup>55</sup> the most natural attribution of the Agora clepsydra would be to one of these nearby buildings. But in this case, the fact that it is inscribed with the name of a tribe presents a very real difficulty. The report of Aristotle on the elaborate method of re-allotting the tribal groups of jurors into their dicastic sections makes it clear that in the fourth century the object of legal sortition was the division of the tribes into a fair representation in each court. In the latter part of the fifth century the situation was certainly the same, except that the jurors were allotted to their sections yearly instead of daily.<sup>56</sup>

The only juristic bodies arranged by tribes<sup>57</sup> were the *Τριάκοντα* and the public *diایتetai*. It is dubious whether the *diایتetai* existed before 403/2 B.C.,<sup>58</sup> and the abundant evidence for their later activities shows that proceedings in this sort of public arbitration were lengthy (sometimes lasting weeks) and informal, so that the use of a clepsydra seems improbable. The conduct of cases by the Thirty is little known, but the unimportance of the issues under their jurisdiction, at any rate in the fourth century, and the fact that they seem to have been more of an investigating body than a formal court would lend little support to the use of a legal time-limit among them. Their tribal organization, however, makes them a strong candidate for the ownership of the clepsydra, and our knowledge of their scope and duties in the fifth century is exceedingly fragmentary.

With the evidence now available, it would be over-bold to attempt to choose between the alternatives: our clepsydra could conceivably have belonged to the Thirty and served in the course of their ordinary legal duties, but other more unusual occasions—trials before the Council or the Assembly—would also provide us with an explanation for its tribal inscription. It is to be hoped that the discovery of further débris from the law courts may point out more conclusively the one set of circumstances in which such a clepsydra could have been used, and who the officials were who set it up and thus *ἐκέλευον τοὺς ῥήτορας λέγειν*.

SUZANNE YOUNG

<sup>55</sup> Lysias, XIX, 55; Isocrates, VII, 54; cf. Busolt-Swoboda<sup>3</sup>, p. 1155 and note 4.

<sup>56</sup> Aristophanes, *Vesp.*, 400 f.; cf. Lipsius-Meier-Schömann, *op. cit.*, pp. 135 f.

<sup>57</sup> That the so-called "tribal courts" are a myth and derive from misunderstood passages in Lysias (XXIII, 2) and Isaeus (*ap. Harpocration, s. v. ὅτι πρὸς τὴν φυλὴν* — — — = Isaeus, frag. 1) has been proved by Lipsius (*op. cit.*, p. 82 and note 115). Οἱ τῇ ἑπποθωντίδι δικάζοντες are shown to be the members of the board of Thirty (at this time raised to Forty) who represented the tribe of the defendant and decided civil suits under ten drachmas; more important suits they investigated and, if they found that they warranted further legal procedure, referred to the *diایتetai*. In any case, a clepsydra belonging to the tribe itself and used in the tribal headquarters would doubtless be kept there, and the provenience of the fourth-century decrees of Antiochis (*S.E.G.*, III, 115-117) shows that the headquarters of this tribe were far from the Agora.

<sup>58</sup> Cf. Harrell, *Public Arbitration in Athenian Law*, Univ. of Missouri Studies, XI, 1, 1936, p. 23.