

## SHORTER NOTES

## NOTES ON THE PENTAKOSIOMEDIMNOS' FIVE HUNDRED MEDIMNOI

The *pentakosiomedimnoi* were the highest of Solon's four property classes (*telē*). Information about the qualifications for membership in the Solonic classes comes from Arist. *Ath. Pol.* 7.4,<sup>1</sup> where it is said of the *pentakosiomedimnoi*:

ἔδει δὲ τελεῖν πεντακοσιομέδιμνοι μὲν, ὃς ἂν ἐκ τῆς οἰκείας ποιῇ πεντακόσια μέτρα τὰ συνάμφω ξηρὰ καὶ ὑγρὰ.

These notes are an effort to understand how this rating system worked in practice in Solon's day, and what it can tell us about Athens at the time.

## I

It would be well to keep in mind in what follows that the sole purpose of the Solonic *telē* which is reliably attested was to allocate political offices in a timocratic manner.<sup>2</sup> If we try to think through how exactly this worked, it is obvious that yields were not measured year by year (which would change the composition of the four classes annually depending on the variability of weather and other factors). Rather, we must be dealing with estimates of what a man's property would yield under 'normal' circumstances. The fact that wealth is defined in terms of produce from one's own land (ἐκ τῆς οἰκείας [sc. γῆς]) implies, as Hignett has noted,<sup>3</sup> that officer holders were required to own land. Indeed, it was the value of a man's property (wealth), not its actual yield (income), that was really at issue,<sup>4</sup> and the annual<sup>5</sup> presumed yield of a man's property was an easy way of putting a concrete value on that property in the minimally monetized economy of early sixth-century Athens.<sup>6</sup>

On the practical level there is also the question of who, if anyone, conducted these evaluations. Our sources have nothing to say about this, nor does there seem to have been any official or body of officials to whom this task could be reasonably assigned.<sup>7</sup>

<sup>1</sup> Plut. *Sol.* 18.1–2 and the lexicographers (notably Poll. 8.130) depend on *Ath. Pol.* 7.3–4.

<sup>2</sup> *Ath. Pol.* 7.3. There is no evidence that the *telē* were ever used for military purposes (V. J. Rosivach, 'Zeugitai and hoplites', *AHB* 16 [2002], 33–43) or for taxation (on Poll. 8.130 see G. E. M. de Ste. Croix, 'Demosthenes' TIMHMA and the Athenian eisphora in the fourth century B.C.', *C&M* 14 [1953], 42–3).

<sup>3</sup> C. Hignett, *History of the Athenian Constitution* (Oxford, 1952), 100.

<sup>4</sup> As it was in all other evaluations made by the Athenian *polis* of which we know (for *eisphorai*, *antidoseis*, etc.).

<sup>5</sup> That the yield is an annual one is not specifically stated, but it is hard to imagine what else it might be.

<sup>6</sup> Similarly L. Foxhall, 'A view from the top: evaluating the Solonian property classes', in L. Mitchell and P. J. Rhodes (edd.), *The Development of the Polis in Archaic Greece* (London and New York, 1997), 113–36, at 130, though thinking of actual rather than potential production.

<sup>7</sup> The demes do not seem to have any administrative function before Cleisthenes, but even if they had, they could not be expected to assess a wealthy individual's total landed wealth, which was often spread over several demes (for examples of property in multiple demes see J. K. Davies, *Athenian Propertied Families, 600–300 B.C.* [Oxford, 1971], 631 under 'property holdings outside family deme').

We also sometimes forget how uninterested the Athenians were in record-keeping most of the time.<sup>8</sup> For example, even in the fifth century Athens did not have permanent lists of citizens subject to hoplite service, but had to compile fresh *katalogoi* each campaign season.<sup>9</sup> More relevant to our concerns here, as late as the fourth century the Athenians had no grand list, in deme or *polis*, of properties and their owners, no comprehensive public records of exactly who owned exactly what.<sup>10</sup> If this is how things were in the fifth and fourth centuries, it is quite clear that the even simpler bureaucracy of early sixth-century Athens would not have been up to the more difficult task of cataloguing and assessing the value of all the landed property owned by every citizen. Indeed, the whole notion of such a universal assessment project was almost certainly beyond the bureaucratic imagination of a poorly organized state such as Athens was at the start of the sixth century.

But universal assessment was not really necessary. Since the Solonic classes were used solely to determine eligibility for political office,<sup>11</sup> they would come into play only when someone's candidacy and/or selection for an office were challenged.<sup>12</sup> The number of actual assessments would have been quite low: there were not that many offices to fill in a given year, and it is unlikely that large numbers of people presented themselves for offices for which they were too poor to qualify. Nor were the assessments themselves likely to have been painstaking affairs. In early sixth-century Athens the 'big men' would already be well known, especially to other 'big men' with whom the decision would lie.<sup>13</sup> We should not imagine a careful counting out of bushels of barley and wheat, but a snap judgement either on the spot ('yes, he is one of us') or at best after a visit to the farm ('yes, it is big enough to yield five hundred measures').

## II

The *medimnos* was the standard large-capacity measure for grain, while the corresponding large-capacity measure for liquids (olive oil and wine) was the *metrētēs*. Since the members of the top class were called *pentakosiomedimnoi* ('five-hundred-*medimnoi* men') rather than, for example, *pentakosimetroi* ('five-hundred-measure men'), it is clear that, originally at least, they were rated solely in terms of the amount of grain (wheat or barley) their land could produce. Most farmers in early sixth-century Attica grew food to feed their families, not for the market. Grain dominated this kind of farming, the production of olive oil and wine

<sup>8</sup> Which does not mean that they could not keep good records of a more limited sort when they wanted to, e.g. the annual *paradosis* accounts of the Treasurers of Athena, but these were the exception, not the rule.

<sup>9</sup> M. R. Christ, 'Conscription of hoplites in classical Athens', *CQ* 51 (2001), 398–403.

<sup>10</sup> M. I. Finley, *Studies in Land and Credit in Ancient Athens, 500–200 B.C.: The Horos-Inscriptions* (New Brunswick, 1952), 14 and 207, n. 19.

<sup>11</sup> See above, n. 2.

<sup>12</sup> Similarly P. J. Rhodes, *A Commentary on the Aristotelian Athenaion Politeia* (Oxford, 1981), 142: 'Presumably farmers were asked to declare how much they grew . . . , and their declaration was accepted unless someone challenged it', although Rhodes apparently assumes that everyone had their property evaluated, not just those who were standing for office.

<sup>13</sup> The Areopagus Council (as predecessor to the *boulē*, which later conducted the *dokimasia* of candidates for office) or the officer conducting the election, i.e. either archons or ex-archons, and hence *pentakosiomedimnoi* in Solon's day; for Solonian archons as *pentakosiomedimnoi* see G. Busolt and H. Swoboda, *Griechische Staatskunde* (Munich, 1925), 841 and n. 1, with sources; contra Hignett (n. 3), 207.

was marginal, and the domination of grain is reflected in the name of the *pentakosiomedimnoi* and the way they were assessed.<sup>14</sup>

But this is not what Aristotle says. According to *Ath. Pol.* 7.4, *pentakosiomedimnoi* were required to produce five hundred 'measures' (μέτρα) of dry (grain) and wet (oil and wine) produce combined (τὰ συνάμψω ξηρὰ καὶ ὑγρὰ). The statement implicitly equates a *medimnos* of grain with a *metrētēs* of either wine or oil, but such an equation would be grossly unfair as a way of assessing land values since the same plot would have very different values depending on how much of it was planted in grain, vines or olive trees: vines require the least space to produce a 'measure' (*metrētēs*) of wine, a *medimnos* of grain is in the middle position, and olive trees require the most space to produce a 'measure' (*metrētēs*) of oil.<sup>15</sup> Solon's use of the *telē* to allocate political offices should be seen in context, as part of a political response to the political problems that led to his appointment as *diallaktēs* ('reconciler', *Ath. Pol.* 5.1);<sup>16</sup> but the intrinsic unfairness of the scheme described by Aristotle would have made it unworkable as a political solution, which is probably the strongest argument that Aristotle's version was not what Solon proposed. We can only guess why Aristotle thought that liquid products (oil and wine) were also counted as part of the Solonian assessments.<sup>17</sup> By the end of the sixth century Athens developed a substantial export trade in oil and wine, but there is little evidence for such trade, or for the commercialization of at least some segments of Attic agriculture which such trade implies, in Solon's day. Still, given the importance of both oil and wine in later Athenian market-oriented farming, either Aristotle or his source may have simply assumed that both products were already commercially important, and so counted in Solon's assessment.

<sup>14</sup> Foxhall (n. 6), 130; cf. M. H. Hansen, *The Athenian Democracy in the Age of Demosthenes: Structure, Principles, and Ideology* (Oxford, 1991), 143. K. M. T. Chrimes, 'On Solon's property classes', *CR* 46 (1932), 2–4, at 3–4, believed that all land was assessed in terms of its potential grain production no matter how it was actually planted, but, given the relative unimportance of oil and wine production, this seems to be a distinction without a difference.

<sup>15</sup> A. French, *The Growth of the Athenian Economy* (London, 1964), 20–1, for example, estimates per acre yields of 10 gallons (rather less than 1¼ *metrētai*) for oil, 8 bushels (rather more than 5½ *medimnoi*) for barley, and 100–150 gal. (11½–17½ *metrētai*) for wine (the Greek equivalents are from Rhodes [n. 12], 141), for a ratio of roughly 1:5:10–15 'measures' (these figures depend on a variety of assumptions but are still useful for a general idea of the proportions involved). As Chrimes (n. 14), 3 notes, under such a scheme 'a man could be either *Pentakosiomedimnos* or *Thes* with the same plot, according to what he chose to cultivate'. In practice, most farmers grew a combination of crops, but the ratios would still vary.

<sup>16</sup> Not the name of an office but a description of what he did (from the verb διαλλάσσω); cf. the ten Spartan *diallaktai* who helped bring the two sides together and end the rule of the Thirty (*Ath. Pol.* 38.4).

<sup>17</sup> In any event he did not have current practice as a guide. Although the *telē* were never formally abolished, their use for timocratic purposes had fallen into abeyance by Aristotle's day so that, for example, a poor man could still be a *tamias* of Athena even though, according to Solon's law, this office was restricted to *pentakosiomedimnoi* (*Ath. Pol.* 47.1; cf. *Ath. Pol.* 7.4 for *thētes* as archons, although eligibility was never formally extended beyond the *zeugitai* [cf. 26.2]). Note also that the preservation of the law requiring that *tamiai* be drawn from the *pentakosiomedimnoi* (*Ath. Pol.* 47.1) does not of itself imply that the law defining membership in the *pentakosiomedimnoi*, and in particular what products were measured, was also preserved. On the patchy preservation of Solon's regulations dealing with the *telē* see V. J. Rosivach, 'The requirements of the Solonic classes in Aristotle, *AP* 74', *Hermes* 130 (2002), 36–47.

## III.

Five hundred *medimnoi*, it should be noted, is only the minimum, but even this is still a relatively large amount of grain. A χοῖνιξ, one forty-eighth of a *medimnos*, was a normal daily grain ration for an adult male (ὁ γὰρ χοῖνιξ ἡμερησία τροφή, D.L. 8.18, cf. Hdt. 7.187.2)—roughly 7.6 *medimnoi* for the year. If we assume for purposes of illustration a nuclear family of five, with the wife consuming 80% as much as her husband and the three children averaging 50% each, we arrive at an annual consumption rate for the family of about twenty-five *medimnoi*. If we apply these figures to the minimum requirement for a *pentakosiomedimnos*, five hundred *medimnoi* would feed rather less than sixty-six adult males or about twenty families for a year.<sup>18</sup>

There is little point in growing that much grain and then storing it away, but a problem arises when we start to think about what else the *pentakosiomedimnoi* might have done with it. The *pentakosiomedimnoi*, of course, had their own families and, we would assume, a number of servants whom they also had to feed. We would also expect well-to-do farmers to help their poorer neighbours in time of crisis (and thereby enhance their own prestige), though we would hardly imagine them keeping those neighbours on a permanent private dole. Certainly some of the *pentakosiomedimnoi*'s five hundred *medimnoi* were sold at market in the urban centre, but the Athenian urban centre simply did not have that many people in the early sixth century,<sup>19</sup> and to judge from other pre-industrial towns, many of the *astu*'s inhabitants were probably also part-time agriculturalists themselves, meeting at least some of their domestic food needs from their own produce. Transportation expenses would also have added to the cost of grain from more remote areas of Attica, making it that much more difficult to dispose of in the *astu*, while on a practical level the inefficiencies of a minimally monetized economy like that of Athens in Solon's time would necessarily limit any markets in essential foodstuffs, which by their nature require multiple repeated exchanges of low-value goods. Reflection suggests, then, that the *pentakosiomedimnoi*'s five hundred *medimnoi* represent more grain than the urban population of Solon's Athens could ever absorb.<sup>20</sup> On the other hand, there is no evidence that Athens ever exported significant amounts of grain. But if there was an insufficient domestic market for all this grain, and it was not exported, where did it go?

Probably most of it never left the farm at all. Aristotle (*Ath. Pol.* 7.4) says that the *pentakosiomedimnos*' five hundred *medimnoi* come 'from his own land' (ἐκ τῆς

<sup>18</sup> Rosivach (n. 17), 37–8, whose language is repeated in part here. Using a more roundabout method, Foxhall (n. 6), 30 and table 10.2, arrives at a similar figure of c. 100 people of all ages fed by five hundred *medimnoi* of wheat and a slightly lower figure of c. 84 if the grain was barley; on Foxhall's assumptions see L. Foxhall and H. A. Forbes, 'Σιτομετρία: the role of grain as a staple food in classical antiquity', *Chiron* 12 (1982), 41–90, with V. J. Rosivach, 'Some economic aspects of the fourth-century Athenian market in grain,' *Chiron* 30 (2000), 32, n. 6.

<sup>19</sup> Absolute figures are completely lacking, but the population of the *astu* at the start of the sixth century more likely numbered in the thousands than even the tens of thousands ('The fields of Attica could not have fed an urban center of even 10,000', C. G. Starr, *The Economic and Social Growth of Early Greece, 800–500 B.C.* [Oxford, 1977], 156). Even in the later fifth century, after almost two centuries of urban growth, including the fifth-century development of the Piraeus, the majority (τοὺς πολλοὺς) of the Attic population still lived in the countryside, not in the urban agglomeration (Thuc. 2.14.2).

<sup>20</sup> Nor does this include 'excess' production from *hippeis*' land, which was probably also substantial.

οἰκείας [sc. γῆς]). Scholars have simply assumed that this means land which he and the members of his household worked directly, but this need not be the case. Earlier in the *Ath. Pol.* (2.2) Aristotle describes Attica as he thought it was in Solon's day: a relatively small number of people owned all the land (ἡ δὲ πᾶσα γῆ δι' ὀλίγων ἦν), and the poor worked their fields (οἱ πένητες ... ἡργάζοντο τῶν πλουσίων τοὺς ἀγρούς) as tenant farmers (*pelatai/hektēmoroi*) who paid a portion of their harvest as rent. As we saw earlier, the *pentakosiomedimnos*' five hundred *medimnoi* were a valuation of his land's worth, not a measure of his annual income, and that land included the fields worked by his tenants. But the tenants were themselves subsistence farmers, feeding their families from the fields they worked. In effect, a good part – probably most – of the produce was consumed by the tenants' families and never entered the market.

What is important here is not so much where the grain did or did not go but what knowing where it went can tell us about the wealth of the *pentakosiomedimnoi*. If the argument presented here is correct the *pentakosiomedimnoi* were not harvesting five hundred *medimnoi* and more a year and generating enormous surpluses to trade for luxury goods. Certainly the wealthy led a life of comfort and even a certain opulence compared with the poor, but the extent of that opulence was limited, ultimately, by the inadequacy of the market.

The real value of the land of the *pentakosiomedimnoi* lay not in the economic sphere but in the political. Recall that the purpose of Solon's *telē* was to allocate political privilege according to wealth, and the only form of wealth which the system recognized was ownership of agricultural land.<sup>21</sup> But what was the connection between the ownership of farmland and political privilege? In one sense it was probably a simple matter of prestige. In a society that depended on farming, the people who controlled more of the primary resource, farmland, would be accorded a higher standing in the community. More fundamentally, in a society of farmers, control of the land meant control over those who farmed the land, which Aristotle recognizes when he metaphorically describes the dependent condition of the tenant-farming *hektēmoroi* as 'slavery' to the rich (ἐδούλευον οἱ πένητες τοῖς πλουσίοις, *Ath. Pol.* 2.2; cf. τὸ δουλεύειν, *Ath. Pol.* 2.3). Parallels from similar dependent arrangements in other societies show that with the implicit threat to oust uncooperative tenants from the land, and so deprive them of their livelihood, landlords could extract from them not just their rents but, of equal importance, their labour, whether to work on the land they actively farmed themselves or for other projects—even strong-arm support if needed. It has often been observed that agricultural land was the only form of wealth that counted in determining one's *telos*. This is not simply because most wealth was in land, although it was. Farmland was also the most 'political' form of wealth in Solon's day in the sense that it was the most effective means of exerting control over 'free' dependants. From this perspective, how many people farmed a *pentakosiomedimnos*' land—how many people he controlled—was clearly more important than how much grain he harvested for himself from it. The allocation of political privilege through the *telē* acknowledged this political importance of land.

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<sup>21</sup> Cf. Foxhall (n. 6), 129.