

MESS CONTRIBUTIONS AND SUBSISTENCE AT SPARTA*

THOMAS J. FIGUEIRA

Rutgers University

It is such a rare occurrence for the ancient historian to possess the sort of data about which it is possible to speak quantitatively that it is surprising that more has not been made of the surviving evidence on the mandated transfer of goods within Spartan society: mess contributions and the rents exacted from *klêroi* "allotments."¹ An analysis, however, will be seen to suggest several new hypotheses about Spartan social history. The rents paid by the Helots, in part to pay for the Spartiates' contributions for their messes, set the limits within which Sparta's agricultural economy was forced to operate. The *klêroi* seem to have occupied all the land available for them, and the number of Helots available for working *klêros*-land was perhaps only just adequate under ordinary conditions. Moreover, the messes themselves appear to have been a mechanism for the recirculation of food down the hierarchy of classes (see below, pages 97–98). The redistribution materially and psychologically reinforced the dependence of the Helots on the Spartiates. So too were the Spartiate and Helot patterns of food consumption expressive of their respective positions within the social hierarchy.

Mess Contributions

The start of our investigation may be taken from the surviving accounts about the contributions which each Spartiate had to make to his

* The following works will be cited by abbreviation: C. Clark & M. Haswell, *The Economics of Subsistence Agriculture* (London 1970⁴) = *ESA*; W. A. McDonald & G. R. Rapp, *The Minnesota Messenia Expedition* (Minneapolis 1972) = *MME*. This article originated in a paper delivered at the Second History Conference of Hudson Valley Colleges and Universities, Bard College, Oct. 22, 1983. I should like to thank Dr. C. M. Reed of Virginia Polytechnic Institute and State University for his helpful remarks as commentator at the Conference.

¹ One exception is U. Kahrstedt, "Die Spartanische Agrarwirtschaft," *Hermes* 54 (1919) 279–94, from whose discussion, however, our own differs at many points. See notes 27, 33, 40 below. More typical is H. Michell, *Sparta* (Cambridge 1952) 281–97, which never comes to grips with the scale of the mess contributions. J. Buckler, "Land and Money in the Spartan Economy—A Hypothesis," *Research in Economic History* 2 (1977) 249–79 deals with a wider range of topics than our inquiry and is perforce summary. See notes 40, 42, 54 below.

phidition (= *philtion*, *suskênia*) “mess,” that communal group in which membership was necessary for full citizenship. I have summarized in Table 1 the accounts of Plutarch’s *Life of Lycurgus* 12.3 and of a fragment of the *Tripolitikos* of Dikaiarkhos of Messene (FHG 2.242, fr. 23 = fr. 72 [Wehrli]), cited by Athenaeus (Athen. 4.141C; cf. Schol. Plato *Laws* 633A).²

TABLE 1

	Plut. <i>Lyc.</i> 12.3	Dikaiarkhos Fr. 23
Grain	1 <i>med.</i> of <i>alphita</i>	1.5 Attic <i>med.</i>
Wine	8 <i>khoes</i>	11 or 12 <i>khoes</i>
Cheese	5 <i>mnai</i>	“a certain weight”
Figs	2.5 <i>mnai</i>	“a certain weight”
<i>Opsônion</i>	“a small amount of money”	10 Aiginetan obols

First of all, let us consider the quality of these data and their source. The *Tripolitikos* of Dikaiarkhos, probably a dialogue, appears to have promoted as an ideal a mixed constitution (a fusion of monarchical, aristocratic, and democratic elements).³ Dikaiarkhos also wrote a *Constitution of the Spartiates* which, by law, was read annually to Spartiates reaching majority (*Suda* s.v. *Dikaiarkhos* p. 93 [Adler]). It is likely that the Spartan material used for illustrative purposes in the *Tripolitikos* derived from this constitution. According to the *Suda*, Dikaiarkhos was a pupil of Aristotle himself, which suggests a *terminus ante quem* of 341/0 for his birth. Thus it is probable that the constitution of Dikaiarkhos and the *Constitution of the Lakedaimonians* attributed to Aristotle stand in a close interrelationship (FHG 2.122–31, frs. 75–88). Not only does Dikaiarkhos’ officially-favored account of Spartan political life suggest derivation from sound Spartan tradition, but his position as a Peripatetic writer of constitutions may argue that his treatment of the messes was shared by the author of the Aristotelian constitution.⁴ Significantly the

² The mess contributions and the subsistence of the Spartiate’s family were derived from the rents of the *klêros*, for Plutarch’s account of which (*Lyc.* 8.7) see pp. 98–100 below. Plutarch is cited after the Budé edition of R. Flacelière, E. Chambray, and M. Jumeaux.

³ In general, see F. Wehrli, *Die Schule des Aristoteles*, Heft 1: *Dikaiarkhos* (Basel 1944) 64–66; on the character of the *Tripolitikos*: K. von Fritz, *The Theory of the Mixed Constitution in Antiquity* (New York 1952) 82.

⁴ Dikaiarkhos wrote after Epaminondas’ liberation of Messenia. Yet, it is improbable that the Spartans reacted to the impoverishment of so many *Homoioi* through the loss of the Messenian *klêroi* by increasing the burden of mess contributions. If they decreased the dues, the even higher mess contributions before Leuktra would be harder to explain than those presented by Dikaiarkhos. It is likely, however, either that the conservative Spartans did not tamper with the contributions or that Dikaiarkhos presented Sparta’s traditional order (hence the annual reading of the *Constitution*).

fragments of the Aristotelian constitution show few signs of the highly critical attitude toward Sparta (not shared apparently by Dikaiarkhos) of Aristotle's *Politics* (1264B6–1271B19).

Yet do not the variant figures of Plutarch indicate ancient controversy on the subject? Concerning grain, the two authorities are basically in agreement, if we assume that the 1.5 Attic *medimnoi* of Dikaiarkhos equalled the single *medimnos*, presumably in Spartan measures, noted by Plutarch. This equation is quite probable, given that Dikaiarkhos specifically notes the fact that the *medimnoi* are Attic.⁵ On the equation of the different figures for the amount of wine owed, it is possible that Dikaiarkhos is again using the Attic standard wherein 12 *khoes* equal the 8 *khoes* of Plutarch. This hypothesis is supported both by the appearance of approximately the same 1.5:1 ratio exhibited by the Lakonian and Attic standards for dry measures, and also by the vacillation of Dikaiarkhos between 11 and 12 *khoes*. The law doubtless set down a single figure, but Lakonian liquid measures may not have been exactly 1.5 times Attic measures, so that, by 11 or 12 *khoes*, Dikaiarkhos meant an amount somewhere between 11 and 12.

Although the fuller account is from Plutarch, the basic agreement of the two accounts suggests that they derived from the same traditions about Sparta. Plutarch knew Dikaiarkhos' work well and cited him 13 times (out of 115 fragments) so that Dikaiarkhos could have been his source, if his account gave the dues in both Lakonian and Attic measures. Yet Plutarch also used the Aristotelian constitution elsewhere in the *Lycurgus* (1.1, 5.9, 6.4, 28 [bis], 31.3). Plutarch viewed the Spartan constitution as a mixed one (*Lyc.* 5.10–14, 7.1), as did Dikaiarkhos and Aristotle (*Pol.* 1265B26–1266A7; 1294B13–34) who followed and corrected Plato, whom Plutarch cites on the nature of the *gerousia* (*Laws* 691E–692A). Thus, it is uncertain whether Plutarch used a constitutional work of Dikaiarkhos or Aristotle or even utilized the works of both (see note 33 below).

An objection might be raised against the historicity of the 10 Aiginetan obols for *opsônion* "side-dishes," since the appearance of dues expressed in monetary terms in a society without coined money is striking.⁶ Yet it should be noted that the Spartiates possibly did not contribute 10 obols, but only food worth that much, just as they evaluated goods in terms of silver coinage at other times. During the heyday of their operations overseas in

⁵ Standard works on ancient metrology use a ratio of 1.5:1 for the relationship of Lakonian to Attic measures on the basis of these passages: F. Hultsch, *Griechische und römische Metrologie* (Berlin 1882) 533–35; O. Viedebant, *Forschungen zur Metrologie des Altertums* (Leipzig 1917) 69–70.

⁶ Cf. P. Cartledge, *Sparta and Lakonia* (London 1979) 173, who suggests that Dikaiarkhos translated monthly contributions in terms of iron spits into Aiginetan staters. In this case, it is odd that he did not express the spits in Attic values, an international monetary standard far more important when he wrote than the Aiginetan standard.

the fifth and fourth centuries, Spartan officers were involved in the levying and payment of sums of money in a manner that won them notoriety for avarice, and the influx of precious metals following the defeat of Athens was credited with undermining Spartan morale (Plut. *Mor.* 239D–240A; Plut. *Lyc.* 9.1–4, 30.1; Xen. *Resp. Lac.* 14; Ael. *VH* 14.29; cf. Tyrtaeus fr. 3a [West] = Aris. fr. 544; Athen. 6.233F; Plut. *Lys.* 17). There is also a well-established tradition that wealthy Spartans kept silver on deposit in the neighboring allied cities of Arkadia (Poseidonios *FGrH* 87 F 48; cf. *IG* V 2.159). Similarly, the Spartans held stocks of precious metals in their homes, so that effectively it was only the public use, exchange, or display of gold and silver which was forbidden (cf. Hdt. 6.86.a3–δ; Plato *Alcib.* 123A–B). In contrast, nothing suggests that the Spartans evaluated goods in terms of their official iron coinage, which was itself largely symbolic, a means of differentiating Sparta from its neighbors using coinage (Plut. *Lys.* 17; *Lyc.* 9; Poll. 9.79).

Also, Spartan officers coordinated the supply of armies and garrisons abroad, made up of allied and mercenary troops, whose rations were often calculated in Aiginetan monetary units, since the Aiginetan standard predominated among Sparta's oldest allies (Xen. *Hell.* 5.2.21–22; cf. Meiggs-Lewis #67). It is probable that, by the Peloponnesian War at the latest, Spartan soldiers reckoned the value of their contributions in *opsônon* intuitively in terms of the Aiginetan coinage with which they were familiar from service abroad. The contribution of *opsônon*, a catch-all heading which would include meat, fish, and side-dishes, would be the most variable of the items of the mess dues. For some part of the *opsônon* prices and availability will have varied seasonally. This would necessitate bartering, which would make the amount and the make-up of foods equal to 10 obols vary monthly. Hence, uniquely, the requirement for *opsônon* was not a fixed amount of food.

One last anomaly can be pointed out in the accounts on the mess dues: olive oil, an important item of the Greek diet, is conspicuously absent.⁷ Yet this apparent omission may accurately reflect Spartan eating patterns because barley cakes soaked in olive oil are attested in the *epaiklon* “after-course” of the Spartan dinner (Persaeus *FGrH* 584 F 2; Molpis *FGrH* 590 F 2). The *epaikla* were sustained by donations outside the monthly dues. While the Spartiate received rent-in-kind from his *klêros* in the form of oil (Plut. *Lyc.* 8.7), the oil consumed in *epaikla* would have been in dishes prepared at home (*FGrH* 590 F 2).

Now that we have established that the accounts on the mess dues descend from sound Lakonian tradition, it is appropriate next to compare the evidence on Greek and Spartan rations.⁸ A *khoinix* of wheat/day was

⁷ Cartledge (above, note 6) 173.

⁸ A recent, full discussion of the ancient evidence may be found in L. Foxhall &

the ration of Xerxes' army in his invasion of Greece in 480 and appears to have been a standard amount (Hdt. 7.187.2; cf. Polyb. 6.39.13; Herakleides Lembos *FHG* 3.164, fr. 5 [Athen. 3.98E]). This amounts to 5/8 of a *medimnos* in a month of 30 days. Every figure for Spartan rations, however, is more than this amount, even if wheat is considered much more nutritious than *alphita* "barley meal." For instance, the Spartans trapped by the Athenians on the island of Sphakteria in 425 received under truce 2 *khoinikes* of *alphita* (1.25 *med.*/month), 2 *kotylai* of wine, and a portion of meat per day (Thuc. 4.16.1). These amounts are surprisingly high, especially when the situation of the Spartans as virtual prisoners of war is remembered. Even if the rations of these Spartans, however, were customary, they still fall well below the amounts required for mess dues. Moreover, the Helots with the Spartans on Sphakteria received half these rations, including a *khoinix* of *alphita*/day and a *kotylê* of wine. This approximates the common Greek daily ration for slaves of 1 *khoinix*, probably of *alphita* (Athen. 6.272B). The ration of Spartan kings, when present at their mess, was 4 *khoinikes* of *alphita* and 2 *kotylai* of wine/day (Hdt. 6.57.1, 3; Xen. *Resp. Lac.* 15.4; cf. Hdt. 7.103.1 [?]) or 2.5 *medimnoi* of grain and 5 *khoes* of wine/month. Particularly striking are the references to these rations as double portions. If a king were absent, 2 *khoinikes* of grain (1.25 *med.*/month) and a *kotylê* of wine (2.5 *khoes*/month) were sent to his home. Why the rations of the kings present and absent from the mess differed by so much may be left for later comment (see page 97 below).

The Spartans had a reputation for an abstemious lifestyle, but this reputation should not be taken to mean that they consumed amounts of food at the lower end of the range for Greek norms, for, even besieged, they consumed more food than the ordinary Greek soldier. Rather, their repute for moderation was justified by the absence of exotic foods from their mess (Hdt. 9.82; Athen. 4.138D; Plut. *Lyc.* 12.13), and by the peer pressure exerted against overeating by mess members (Xen. *Resp. Lac.* 5.2–7; Plut. *Lyc.* 12.14).⁹ Moreover, the tradition on Spartan moderation is noted by Athenaeus just before his reference to the mess dues and specifically attributed to Dikaiarkhos (fr. 23 [Müller] = fr. 73 [Wehrli]). Therefore, the high mess dues are not part of a polemic against Spartan moderation, but are somehow reconcilable with it.

But where do the mess dues stand in reference to a minimal level of subsistence? For measuring consumption at Sparta relative to biological minima and comparative data, all foodstuffs will be translated to a single standard, namely kilograms of wheat equivalent (= w.e.). These are units

H. A. Forbes, "Σιτομετεργεία: The Role of Grain as a Staple Food in Classical Antiquity," *Chiron* 12 (1982) 41–90, esp. 51–57, 86–87.

⁹ Note Naukleides banished for obesity and *truphê* "luxury" after he criticised Lysander in the Spartan assembly (Agatharchides *FGrH* 86 F 11; Ael. *VH* 14.7).

each of which is equivalent to either the amount of nutrition derived from a kilogram of wheat or to the value of other foodstuffs expressed in terms of wheat by price.¹⁰ Our intention is not to explore the dietary ramifications of the Spartan mess dues (assuming that their whole amount was consumed by the Spartiate),¹¹ but to evaluate the shift in resources from other segments of society to the messes by means of the dues. A reduction to this common measure is justified by the fact that, in societies marked by low agricultural productivity, the main food crop, in this case grain, made up the single largest component of both output and consumption.¹² The results of these calculations are listed in Table 2. About 250 kg. of w.e./person/year is a minimum needed to sustain life.¹³

TABLE 2

1 <i>med. alphita</i>	= .72 <i>med. wheat</i>	= 1 <i>med. wheat</i>
Grain	522 kg. w.e./year	720 kg. w.e./year
Wine	408 kg. w.e./year	408 kg. w.e./year
Cheese	134 kg. w.e./year	134 kg. w.e./year
Figs	24 kg. w.e./year	24 kg. w.e./year
<i>Opsônon</i>	192 kg. w.e./year	192 kg. w.e./year
Total	1280 kg. w.e./year	1478 kg. w.e./year

In general, barley is today valued at 65% of wheat in the eastern Mediterranean, and the few surviving ancient data approximate this relationship.¹⁴ The dues, however, were in the form of *alphita* "barley

¹⁰ For output in subsistence economies in terms of wheat equivalent, see *ESA* 57–62.

¹¹ Foxhall (above, note 8) 57–58, 86–87 has compared the caloric value of the lower mess dues of Plutarch (*Lyc.* 12.3), as though Attic measures, with FAO (Food and Agriculture Organization, United Nations) standards (cf. 47–50). Although the FAO norms are unrealistically high (cf., e.g., *ESA* 1–21), the results are noteworthy: 1 *med.*/month provides 209% FAO caloric requirements (cf. 1.5 *med.*/month: 313%) for a "very active adult male," 182% (273%) for an "exceptionally active adult male," and 244% (366%) for a "moderately active adult male."

¹² No prices will be used absolutely (as if permanently valid). Rather ratios between the prices of wheat and of other goods will be used to minimize the influence of general shortages and gluts. These price ratios, mainly based on the averages of many transactions over time, are less affected by transient fluctuations in supply and demand for one good. The cumulative effect of our calculations on the magnitude of the mess contributions would only be vitiated by an explanation why foodstuffs other than grain were cheaper at Sparta than elsewhere in the Greek world, not merely by protesting that there are no Spartan prices.

¹³ *ESA* 4–26.

¹⁴ M. I. Klayman, "International Index Numbers of Food and Agricultural Production," *Monthly Bulletin of Agricultural Economics and Statistics* 9.3 (1960) (FAO) 12–14. For ancient price ratios, compare *IG* II² 408, 1672. The intuitive calculations lying behind this ratio may have been roughly the following: a variety of barley weighing 76% of wheat (N. L. Kent, *Technology of Cereals* [Oxford 1975²] 12, 84) had c. 86% of the calories of

meal," which had a portion of the indigestible matter of whole barley milled away. This milling changed both the nutritive value of the end product and its density for a specific volume. Unfortunately we lack good evidence on classical food production so that an evaluation of the nutritive value of *alphita* must proceed by analogy to modern products. Nonetheless, since we are primarily anxious not to overestimate the scale of Spartan mess contributions, a minimum ratio of 1 *med. alphita* = .72 *med. wheat* can be adopted.¹⁵ Thus it is important to note that the value of the dues in w.e. is unlikely to be any smaller than our estimate, and might possibly be 14–39% higher. In Table 2, I have outlined alternative estimations of the mess dues in w.e. on the assumption that 1 *med. alphita* = .72 *med. wheat* and 1 *med. alphita* = 1 *med. wheat*.

Translating the 1.5 *med.*/month of the Spartiates' dues, we reach 522 kg. of w.e./year (1 *med. wheat* = 40 kg.). Naturally, no price figures can have survived from Sparta, with its cashless society, so that the value in w.e. of the other items of the contribution to the mess cannot be directly calculated. Yet, information on the relative price of wheat and wine is available from the *Attic Stelai*, the Athenian inscriptions which report the sale of the property of the Mutilators of the Herms and Profaners of the Mysteries of 415/4.¹⁶ There, ordinary wine seems to be selling at 5 dr./*metretres* (= 12 *khoes* = c. 39 l.) in auctions in which wheat averaged around 6 dr./*med.* in price. 12 *khoes* of wine would be worth 34 kg. of w.e./month and 408 kg. of w.e./year. This monthly contribution of over 39 liters of wine seems to be a tremendous amount both absolutely and when expressed in terms of wheat. If all of this were consumed by the Spartiate himself, he would have been drinking wine at almost four times the annual per capita rate of the highest wine-consuming modern population, the French c. 1965–67, c. 120

an equal weight of wheat (S. A. Matz, *Cereal Technology* [Westport, Conn. 1970] 116–18). Cf. F. Heichelheim, "Sitos," *RE Suppl.* 6 (1935) 819–92, esp. 887–88.

¹⁵ Foxhall (above, note 8) 75–81 has *alphita* at 82% of the nutritive value of wheat, but seems to adopt a weight for barley of 750 g./liter, while a weight of 587 g./l. is used elsewhere in the article. A weight of 750 g./l. is heavier than USDA #1 grade barley (c. 606 g./l.: W. H. Leonard & J. H. Martin, *Cereal Crops* [New York 1963] 506) and than the upper range (680 g./l.) allowed for barley in grain storage handbooks (R. N. Sinha & W. E. Muir, *Grain Storage: Part of a System* [Westport, Conn. 1973] 283). Barley flour and wheat flour weigh about the same and have similar nutritive values (barley: 407 g.: 1457K/l.; wheat: 400 g.: 1460K/l.). See C. Chatfield, *Food Composition Tables*, *FAO Nutritional Studies* 3 (1949) 9; C. F. Church & H. N. Church, *Food Values* (Philadelphia 1970¹¹). Pearl barley, however, can be considerably denser: 750 g./l.: *Nutritive Value of Foods*, *USDA* (Washington 1981) 29. Therefore, it is possible that a *medimnos* of barley, if milled to a level of extraction near pearl barley but not to the level of barley flour, may have nearly approached the density and nutritive value of unprocessed wheat. The equation of 1 *med. alphita* = .72 *med. wheat*, a conservative one, makes use of the results of the experiments of Foxhall, but starts from a lower weight for barley (583 g./l.). Cf. N. Jasny, "Competition among Grains in Classical Antiquity," *AHR* 47 (1941–42) 747–64.

¹⁶ W. K. Pritchett, "Attic Stelai: Part II," *Hesperia* 25 (1956) 178–328, esp. 199–203.

liters/year.¹⁷ Compare the c. 60 kg. (c. 59 l.) per capita consumption in modern Messenia (1960–61).¹⁸ At 12 *khoes* a month, the Spartiate would be consuming wine at a rate approaching the highest levels attested for healthy adult males in military contexts.¹⁹ Let us, however, for the moment go on to the other items of the monthly dues.

The 10 Aiginetan obols for *opsônon* are equivalent to 14 Attic obols, so that, at the time of the *Attic Stelai*, they would be comparable to 16 kg./month and 192 kg./year of w.e. Unfortunately, there are no figures available for the prices of figs and cheese until the Price Edict (A.D. 286) of the Roman emperor Diocletian, which established maximum prices for sales of goods. If we take the relative value for wheat, figs, and cheese from the price edict, the monthly dues in cheese were equivalent to 11 kg./month and 134 kg./year of w.e. The figs may be equated with 2 kg./month and 24 kg./year.²⁰

As can be seen from Table 2, where the mess dues of the Spartiates are translated into terms of w.e., these dues are quite sizeable, about five times subsistence in the minimal assumption (almost six times subsistence if the highest estimate is used). The magnitude of the contributions is particularly striking, since there is no doubt that the Spartiates did not do all their eating in the company of their mess-mates, but must often have been kept away from the mess by the demands of public and private business (for sacrifice or hunting: Plut. *Lyc.* 12.4). Also, there is evidence that eating in the mess centered around a single main meal, the *aiklon* (= *deipnon*: Epicharmus fr. 37 [Kaibel]; Athen. 4.138F, 139B, 140C; Alcman fr. 95 [Page]; Polemon fr. 86 [Preller]). Moreover, the mess contributions did not cover all the eating done at this main meal; rather an *epaiklon* followed, subsidized by voluntary contributions.²¹ If the Spartiate consumed all the food which he contributed to his mess, then his food consumption will have exceeded the level attained in the U.S.S.R. c. 1959, i.e., 1088 kg. w.e./person/year, and not fallen far short of one measure of American food consumption in the 1960s, c. 1946

¹⁷ See *The Market for Wine in Ten Western European Countries, International Trade Centre (UNCTAD/GATT)* (Geneva 1970) 3. Cf. F. Braudel, *Civilization and Capitalism: 15th–16th Century* (London 1978) 1.231–37.

¹⁸ H. Van Wersch, "The Agricultural Economy," *MME* 177–87, esp. 179.

¹⁹ J. J. Hémardinquer, *Pour une histoire de l'alimentation*, Cahiers des Annales 28 (Paris 1970): 14th century Venetian sailors: 0.5 l./day (pp. 80–84); 16th century Tuscan navy, sailors: 0.8 l./day, officers: 2 l./day (85–91); 18th century French marines: 0.7 l./day (97); 16th century French navy: 0.9 l. or 1.7 l./day (118–20).

²⁰ Wheat: *castrensis modius* (c. 13 l. = c. 10 kg.): 100 den. (1.1a [Giachero]); dry cheese: 1 Italian pound (327.45 g.): 12 den. (5.11); figs: 1 pound: 4 den. (6.88). See R. P. Duncan-Jones, "The Choinix, the Artaba and the Modius," *ZPE* 21 (1976) 43–52; "The Size of the Modius Castrensis," *ZPE* 21 (1976) 53–62.

²¹ Athen. 4.141B–C; Sphairos *FGrH* 585 F 1; Molpis *FGrH* 590 F 2; Persaeus *FGrH* 584 F 2; Polemon fr. 86 [Preller]; cf. Xen. *Resp. Lac.* 5.3.

kg. w.e.²² That this can actually have been so, with a food-producing technology most akin to Third World economies, is highly improbable, a conclusion toward which the high figure for wine contributions has already directed us. On the contrary, Spartan food production and consumption should have been more like that in the near subsistence economies of African and Asian countries, where food consumption lies between 300 and 600 kg. of w.e./year.²³

Furthermore, while levels of wine consumption for males in the prime of life have been seen to approach, and even to exceed, 1 l./day, the anecdotal material on Spartan wine-drinking cannot be reconciled with such rates. That the Spartiates were moderate drinkers is emphasized by Xenophon and Plutarch (*Resp. Lac.* 5.4, 7; *Lyc.* 12.14). Kritias, the Athenian oligarch, specifically praised the moderation of drinking in the messes in contrast to behavior in the symposia elsewhere (fr. 6 [West]; *FHG* 2.68, fr. 2). The Spartans on Sphakteria received under truce only 2 *kotylai*/day, 2.5 *khoes*/month. In the reconstituted messes of Kleomenes III, 2 *kotylai* in a single vessel were set out (Phylarchus *FGrH* 81 F 44).

Thus the mess contributions seem too large to have been consumed by their individual donors. Such rates of consumption would be aberrant from the standpoint of Greek norms, from the indications of comparative material, and from the other evidence on patterns of eating at Sparta. Although it is conceded that the Spartiates as the elite of Lakonian society would have been consuming more than an average amount of food, there seems to be no way of accounting for the magnitude of the mess contributions other than by dissociating the mess dues from per capita consumption. Each mess contained about 15 Spartans (Plut. *Lyc.* 12.3).²⁴ In dues, they provided c. 7830 kg. (10,800 kg. in the higher calculation) of w.e. in grain/year and 19,200 kg. (or 22,170) in total foodstuffs/year. If each Spartiate consumed a *khoenix* of w.e./day in grain, a figure which is probably still a high allowance given the amounts of food consumed elsewhere, enough grain would be left to feed about 15 others at 1 *khoenix* of *alphita*/day, the ration that Helots received at Sphakteria. If each Spartiate consumed 500 kg. of w.e. in all foodstuffs/year, then enough food would be left over to feed around 39 (49 in the higher evaluation of *alphita*) others at 300 kg. of w.e./year.²⁵ Our analysis must now be extended in order to consider what

²² ESA 85; C. Clark, *Population Growth and Land Use* (London 1977²) 140–41.

²³ See ESA 77–78, 81–82 for tables listing production and consumption for many economies. For levels of overall production in w.e., in general, see T. J. Figueira, *Aegina* (N.Y. 1981) 45–46.

²⁴ Schol. Plato *Laws* 633A has the mess numbering 10, which may be a legal minimum or even the norm, once Spartan numbers had fallen drastically.

²⁵ The magnitude of this surplus precludes a suggestion of Cartledge (above, note 6, 171) that a part of the unconsumed food of the messes went into a public store. At Sparta, such a store could only be used for campaigning, but a very great number of days of campaigning

persons other than the Spartiates were eating from the mess dues or in the messes.

In the first place, one is tempted to think of other members of the Spartan class, females and immature males. Yet all women certainly ate at home, and every married woman had provision made for her by law out of the *klêros* of her husband (Plut. *Lyc.* 8.7). In Sparta's cashless society, many dowries will have been in private land so that this other source of food existed to support married women (Aris. *Pol.* 1270A23–25; cf. Plut. *Mor.* 227F). In Sparta, as elsewhere in Greece, the sex ratio was probably skewed in favor of males so that adult unmarried females would have been a rarity. Thus only minor females are left as a group to whom food would have had to have been retrieved from the mess. Why this device would have been necessary, when, as will be shown shortly, their male relatives possessed ample additional resources for their upkeep, is hard to envisage.

The presence of boys, however, in the messes is clearly attested. There they became socialized to the behavior of adult male Spartans (Plut. *Lyc.* 12.6–8; cf. Xen. *Resp. Lac.* 3.5, 5.5). At times, they were forced to steal food, sometimes from the messes (Plut. *Lyc.* 17.5). Nevertheless, young Spartans from age 7 (when they left their mothers' care) were organized into year classes and spent the majority of their time in the company of their peers under the supervision of public officials (Xen. *Resp. Lac.* 2.2; Plut. *Lyc.* 16.1–8).²⁶ In the company of the other boys, however, the food intake of the young Spartiates was restricted and also controlled by the *eirên* "senior boy" assigned to the group (Xen. *Resp. Lac.* 2.5–6). Each Spartan boy was assigned his *klêros* at some early age. Plutarch states that the allotment was made as early as the first weeks of life (*Lyc.* 16.1). This datum was perhaps true at the time at which Plutarch's Peripatetic sources were writing, a time when Spartan numbers had fallen far below the carrying capacity of the system of *klêroi*. Yet, even at the height of Spartan manpower, it is unlikely that the assigning of a *klêros* had to postdate the entering of the year classes at age 7 (see pages 100–102 and note 47 below). So the Spartan boy (over 7) had the rent of the *klêros* with which to support himself without the burden of mess dues. Thus, on the one hand, the alternative that pre-nubile females and boys under 7 were the recipients of the surplus

would be necessary to consume the grain alone (leaving aside for now the special difficulties of the surplus wine). Such a scale for service abroad is unattested before the Peloponnesian War. That so much grain could be transported to the places where it was needed seems impossible, give the costs of transportation.

²⁶ See H.-I. Marrou, "Les Classes d'âge de la jeunesse Spartiate," *REA* 48 (1946) 216–30; C. M. Tazelaar, "ΠΑΙΔΕΣ ΚΑΙ ΕΦΗΒΟΙ: Some Notes on the Spartan Stages of Youth," *Mnemosyne* 20 (1967) 127–53; S. Hodkinson, "Social Order and the Conflict of Values in Classical Sparta," *Chiron* 13 (1983) 239–81, esp. 245–51.

of the messes does not appear a credible one, given the size of the surpluses and the fact that the food was consigned to the messes in the first place. On the other hand, by hypothesizing that Spartiate boys over 7 consumed a large amount of their fathers' mess dues,²⁷ we merely replace our problem of excessive contributions with one of high rents unnecessarily drawn from the boys' *klêroi*. We do not solve it.

The presence of Helots in the messes is also attested. Each Spartiate had a Helot attendant who accompanied him on campaign just as hoplites elsewhere often had slave attendants.²⁸ These Helots, at least, may have been present in the messes between campaigns to serve their masters, a situation connected with the military aspects (and perhaps origins) of the messes (Hdt. 1.65.5; Polyæn. 2.3.11; cf. the term *suskênia*: Xen. *Resp. Lac.* 5.2; cf. 7.4, 9.4, 13.7, 15.5). The Spartiates reinforced their martial ethos in the mess. The Helots, however, were encouraged to drink to intoxication and to sing and dance grotesquely as psychological reinforcement of their inferiority to the Spartiates (Plut. *Lyc.* 28.8–9; *Demetr.* 1.5; *Mor.* 239A).²⁹ Thus, we can account for at least some of those 39+ liters of wine per month of the dues by assuming consumption by the Helots. In default of other likely recipients, the Helots, some of whom are known to have been eating and drinking in the messes, are the probable beneficiaries of the surpluses of the contributions. Therefore the mess was not only an institution for communal living for the Spartiates, but a mechanism for the recirculation of large amounts of food down the social hierarchy.³⁰ The Helots were taxed to provide the support of the Spartiates but a part of their taxes was returned to them through the mess. Hence the kings received very high rations when in mess, because, presumably, at this time they were accompanied by numbers of Helot servants, whose presence in the company of the kings on campaign is well attested (e.g., Hdt. 6.80–81, 9.80.1).

Although Cretan cities had messes very much like those of Sparta in their role as socializing mechanisms and as political or military subdivisions, this redistributory aspect of the Spartan messes is not clearly demonstrable for Crete (Aris. *Pol.* 1272A16–21; Dosiadas *FGrH* 458 F 2). Nor do the aristocratic communal meals of the magistrates, ex-magistrates, or office-holding class of other cities provide a true parallel, since they

²⁷ Cf. Kahrstedt (above, note 1) 284 (cf. Michell [above, note 1] 288) for an emphasis on the messes as feeders of young boys as an answer to the dilemma of the high mess dues.

²⁸ Thuc. 4.16.1; Hdt. 6.80, 7.229.1; cf. Hdt. 9.29.1–2, 85.2; Xen. *Hell.* 4.8.39. See W. K. Pritchett, *The Greek State at War* (Berkeley 1971) 1.49–51.

²⁹ J. Ducat, "Le Mépris des Hilotes," *Annales* 29 (1974) 1451–64, esp. 1455–58.

³⁰ For another instance of social integration through a system of messes, see T. J. Figueira, "The Lipari Islanders and Their System of Communal Property," forthcoming in *Classical Antiquity*.

seem to fall far short of the scale of redistribution at Sparta.³¹ Moreover, when Agis reconstituted the system of messes, they numbered only 15, with 200–400 members each (Plut. *Agis* 8.4). Redistribution in Hellenistic Sparta was probably no longer in existence as an integrating mechanism just as the traditional role of the messes as socializers of elite and non-elite males had fallen into desuetude.³²

The *Klêroi* and Their Rents

The significance of the messes as a redistributory device can be set in the context of the agricultural economy of Sparta by a discussion of the total foodstuffs available to the Spartiate from the *apophora* “rent” (Plut. *Lyc.* 8.7; cf. Hdt. 2.109.1–2) from a *klêros* “allotment” provided by the state and assigned to him in childhood (Plut. *Lyc.* 16.1). From each *klêros* 70 *med.* of barley were supplied to the Spartiate and 12 *med.* to his wife (Plut. *Lyc.* 8.7; Myron *FGrH* 106 F 2). Corresponding amounts of oil and wine were provided, although our only source on the subject, Plutarch, does not specify in what amounts. After the Spartiate paid his mess dues (c. 37%), he was left with 44 *med.* of barley or c. 1144 kg. of w.e./year, a subsistence ration for at least four people.³³ His wife’s ration was equal to

³¹ M. H. Jameson in his unpublished paper (for the permission to cite from which I should like to thank the author), “Agrarian Slavery in Classical Greece,” Athens, August 12, 1979, adduces the parallel of the fraternal or communal gatherings of archaic Tiryns (c. 590–570) as attested by the serpentine inscriptions on the Mycenaean cistern at Tiryns. See N. Verdelis, M. Jameson, & I. Papachristodoulou, “ΑΡΧΑΙΚΑΙ ΕΠΙΓΡΑΦΑΙ ΕΚ ΤΙΡΥΝΘΟΣ,” *AE* (1975) 150–205. Contained therein are a set of rules for groups of *platiwoinoi* “drinkers-beside” presided over by a *platiwoinarkhos*. Fines appear, among which stands one for 30 *med.* Jameson interprets this fine in connection with contributions for the gatherings, and suggests that they represent twice the normal dues (30 *med.* = 2 X 15 *med.*/year = 2 X 1.25 *med.*/month). Note that the word *dipleen* = *diplasan* “two-fold” appears elsewhere in the inscriptions. Thus in the *platiwoinoi* we may have a group comparable to the Spartan mess: Tiryns: 1.25 “Pheidonian” *med.*/month; Sparta: 1.5 Attic *med.* Yet caution is justified, because it is uncertain whether the Tirynthian gatherings were a mass phenomenon or restricted to a small elite. In the latter case they would be comparable to the feasts of the *thearoi* on Aigina, which began as communal dining for the elite, and only in the Hellenistic period began to include intermittent meals for the whole community (F. Felten, *Die spät-römische Akropolis: Alt Ägina* 1.2, *Innschriften* [Munich 1975] 39–52).

³² The number of Spartiates had fallen to less than 1000 in the mid-4th century (Aris. *Pol.* 1270a30–31) and 700 in 243, of whom only 100 held *klêroi*. Apparently, it was possible to be a citizen without a *klêros*, being *aporos* and *atimos*, so that the exaction of mess contributions had changed. The regimen of the messes was in desuetude, a change dated to 265–54 (Phylarchus *FGrH* 81 F 44; Plut. *Agis* 4). Both changes were caused by the fall in citizen numbers and the poverty of most Spartiates. The messes may have recirculated food merely from rich to poor Spartiates.

³³ Two assumptions have been made in these calculations: (1) the barley from the *klêroi* was milled to 70% of its original weight; cf. L. Moritz, *Grain-Mills and Flour in Classical Antiquity* (Oxford 1958) 149–50, 162. (2) Plutarch used Attic measures in *Lyc.* 8.7 rather

about 312 kg. of w.e./year, and would easily support her. The extent of the Spartiates' food reserves is clear when it is remembered that *klêros*-holders and their wives would have made up the entire Spartan population with the exception of minor or unmarried females and of the youngest males (<7) (see pages 97–98 above). Spartan boys themselves would have been drawing the 70 *med.* of their own *klêroi* and will not even have had mess dues to pay. Hence not much of their fathers' resources need have been diverted to support them. It is also to be remembered that many Spartans will have possessed estates, some considerable, outside their state-controlled *klêroi*. For all its egalitarianism, Sparta had a wealthy aristocracy—rich enough to race chariots at Olympia—like any other Greek city.³⁴ The only material needs that the Spartiates had that were not produced on their estates will have been certain craft goods which they needed to acquire through barter from the *perioikoi*.³⁵

Our analysis of Spartan subsistence can be carried further. The 82 *medimnoi* of barley paid from each *klêros* to the Spartan and his wife came up to about 2493 kg. of barley/year. Let us assume a rather generous yield ratio of 6:1, that is, 6 kg. are produced for each kg. sown.³⁶ Thus, for the 2493 kg. paid in rent, an additional c. 499 kg. must have been produced for the next year's seed. Consequently, the total out of which rent and seed must be produced by each *klêros* was 2992 kg. of barley. It is probable that the production of barley/hectare (ha.) lay between .75–.9 metric tons/ha., a range which approximates the current range of yields in modern Messenia and would be comparable to the outputs attested for other subsistence agriculturalists.³⁷ Thus the part of

than the Lakonian measures used in 12.3, suggesting that different sources (Aris. in 12.3; Dikaiarkhos in 8.7) were used. See page 89 above. If Lakonian measures are adopted for the rents, the resulting estimate of the total amount of land needed to support the *klêroi* becomes so large that one or more of the following radical conclusions on the ancient evidence must be made: (a) the tradition on the number of *klêroi* must be discarded; (b) Herodotus' figures for Spartan numbers in 480 must be rejected; (c) Tyrtaeus' statement that the Helots paid rents of 50% to the Spartiates should be denied as exaggeration. See below, note 54. Cf. Kahrstedt (above, note 1) 279–80.

³⁴ M. I. Finley, "Sparta and Spartan Society," *Economy and Society in Ancient Greece* (New York 1982) 24–40, esp. 27–28, 30–31; F. Kiechle, *Lakonien und Sparta* (Munich & Berlin 1963) 188–91.

³⁵ Cf. Cartledge (above, note 6) 180–85.

³⁶ Van Wersch, "Economy," *MME* 185; C. Roebuck, "A Note on Messenian Economy and Population," *CP* 40 (1945) 144–65, esp. 159. Our estimates for yields and output/ha. deliberately err at the upper limit of the conceivable range. Lower estimates strengthen our conclusions by expanding the area of rent-producing land and contracting the area for support of the Helots so that redistribution and limited inputs of labor would be more significant.

³⁷ Van Wersch, "Economy," *MME* 185–87, who prefers .75 mt./ha. Cf. A. Jardé, *Les Céréales dans l'antiquité: I, Production* (Paris 1925) 60; Kent (above, note 14) 13. Note, however, that the best land was reserved for *klêroi*, the output of which thereby would have stood high in an ancient Greek range of yields.

each *klêros* which produced rent in grain occupied 3.3–4 ha. Since, however, alternate year fallowing was the rule at this time, c. 6.6–8 ha. would be needed to produce the grain of each *klêros*. Each Spartiate paid in mess dues 473 l. of wine each year. If the *klêros* provided rent in wine to the Spartiate in the proportion to his dues in wine as the ratio of the rent in grain to his dues in grain, the *klêros* will have provided 1278 l. of wine in rent. Each liter of wine requires 1.5 kg. of grapes,³⁸ so that 1918 kg. of grapes would be needed for this rent in wine. The lower end of the range of yields for wine grapes in modern Messenia is 3500 kg./ha.³⁹ In this case, each *klêros* would need another 0.6 ha. for wine grapes. This would make a total size for the *klêros* of 7.2–8.6 ha.⁴⁰ Sheep and goats for cheese need not concern us, because there is ample marginal or waste land in Messenia for stock rearing. The amount of figs in the mess contributions and presumably also in the rents from the *klêroi* is minimal. Some land would have been used for olive production—perhaps with the trees intersown with grain—but in default of statistics on olives or oil for the dues or rents, we are at a loss to estimate them.

The System of *Klêroi* and Messenian Agriculture

In order to move from the level of the individual *klêros* to the Spartan agricultural economy as a whole, the number of *klêroi* and their assignment must be considered. Here a detailed discussion is inappropriate, but some hypotheses on the *klêroi* must be set out.⁴¹ (1) The *klêroi* were indivisible and approximately uniform in output. Otherwise no single rent could be mandated nor could equal possession of the *politikê khôra* (Polyb. 6.45.3; cf. *isoklêroi*: Plut. *Lyc.* 8.2; Plato *Laws* 684D; Isoc. 6.20) be maintained. (2) Available manpower and land (as well as [1]) argue that originally each Spartiate had a single *klêros*. An indivisible *klêros* could not be divided among heirs.⁴² (3) No population replicates

³⁸ M. Wagstaff & S. Augustson, "Traditional Land Use," in C. Renfrew & M. Wagstaff, *An Island Polity* (Cambridge 1982) 106–33, esp. 129.

³⁹ Van Wersch, "Economy," *MME* 179.

⁴⁰ In comparison, note earlier estimates for the size of the average *klêros* (e.g., Jardé [above, note 37] 109–15: 27–30 ha.; Kahrstedt [above, note 1] 283: 30 ha.), many including the land to support the Helots of the *klêros*, conveniently outlined in Michell (above, note 1) 227, note 1. Buckler (above, note 1) 254–55 has a *klêros* of c. 5.3 ha. on the basis of a higher yield/ha. On rather weak support, the average Greek family farm is held to have had 3.6–5.4 ha. (cf. *DGE* #567), but it is likely that the average small-holder's farm was worked within a different set of constraints (limited by the availability of imported slaves or of a pool of laborers for hire) than was the *klêros*. See A. B. Cooper, "The Family Farm in Greece," *CJ* 75 (1977–78) 162–75, esp. 168–72.

⁴¹ Cf. P. Oliva, *Sparta and Her Social Problems* (Amsterdam 1971) 36–37.

⁴² Cf. Buckler (above, note 1) 258–59.

itself exactly from generation to generation.⁴³ The *klêroi* of those without heirs needed to be assigned to the younger sons of others, so that younger sons of citizens with a single *klêros* would not be disenfranchised. (4) In any case, the eventual allocation of property to heirs would seldom be completed until sons had passed through the *agôgê* to adulthood. The method of allocation assigning *klêroi* to younger sons must operate before the *agôgê* and cannot be inheritance.⁴⁴ Otherwise, some younger sons would be bypassed by inheritance, and this bypassing would violate the principle that anyone passing through the *agôgê* had a right to a *klêros* (Plut. *Mor.* 238E). These considerations argue in favor of early allocation of the *klêroi* (as in Plut. *Lyc.* 16.1) and against mere transmission of *klêroi* from father to son in the original system.

The traditional figure for the number of *klêroi* was 9000, but the 9000 has often been thought a retrojection from the 4500 *klêroi* which Agis IV intended to create in Lakonia alone. Yet, it is important to note that all permutations of the story of the creation of the *klêroi* take for granted the number of 9000, and its appearance in Plutarch may go back to a Peripatetic source, and not to Phylarchus, the presumed source of contamination from the career of Agis.⁴⁵ Agis himself may have acted under the influence of traditions on the number of *klêroi*.⁴⁶ 9000 *klêroi* is reconcilable with the appearance of 5000 Spartiates with Pausanias at Plataea in 479, a level of population never again achieved by the Spartans (Hdt. 9.10.1; 9.28.2).⁴⁷ The theoretical capacity of the system of

⁴³ The "single heir" system of D. Asheri, "Laws of Land Inheritance, Distribution of Land and Political Constitutions," *Historia* 12 (1963) 1-21, esp. 5-6, is biologically impossible.

⁴⁴ Cf. Oliva (above, note 41) 37.

⁴⁵ G. Grote, *History of Greece* (London 1862²) 2.309-30. Cf. A. J. Toynbee, *Some Problems of Greek History* (London 1969) 230-31, note 8.

⁴⁶ Lykourgos created 9000 *klêroi* in Lakonia (Plut. *Lyc.* 8.5); Lykourgos created 6000 and King Polydoros added 3000 (*Lyc.* 8.6); 4500 were created in Lakonia and, presumably, another 4500 in Messenia (Agis 8.2).

⁴⁷ That 45 year-classes existed is attested by the rule exempting men over 60 from foreign service (Xen. *Hell.* 5.14.13; cf. 6.4.17). The normal Spartan and Peloponnesian levy was 2/3 (Thuc. 2.10.2; 2.47.2; 3.15.1), which was probably a call-up of 2/3 of the year-classes available: 20-50 out of 20-65 (cf. Xen. *Hell.* 4.5.14, 15), and was the same as the *neotês* mentioned by Herodotus (9.12.2). If young Spartiates were assigned their *klêroi* shortly after birth, 5000 Spartiates aged 20-50 would give 11,804 Spartiate males (if a model life table is used wherein average age at death is 27). If the *klêroi* were assigned in the year after the Spartiates reached 7 (when they began the *agôgê*), there would be 9759 Spartiates holding *klêroi*. This latter figure is not irreconcilable with the traditional figure of 9000 *klêroi*, since the 9000 *klêroi* and 5000 Spartiates at Plataea are clearly round numbers. Note that Aris. *Pol.* 1270A36 has the Spartiates numbering 10,000 at their highest population level. This suggests that the *klêroi* were between 9000 and 10,000 in number. Demaratos, boasting to Xerxes about the quality of Spartiate fighters, numbers them 8000 (Hdt. 7.234.2). This is perhaps an exaggeration: 20-50 = 5000, then those over 20 = 7208; unless Spartiates in their teens are counted (17+ or 18+: 7500+). The 18-20 year-olds

klêroi to support Spartiates and our estimate of the actual Spartan population in 479 will provide the demographic context for the rest of our calculations. During the 5th century the number of *klêroi* and the number of *klêros*-holders diverged ever more, as population fell. While there is no indication that the number of *klêroi* changed before Leuktra, the prohibition against selling the *arkhaia moira* suggests the existence of alienability and inheritability of *klêroi* and the possibility of holding more than one *klêros* (Aris. fr. 611.12 [Herakleides *FHG* 2.211, fr. 2.7]; cf. *Pol.* 1319A10–11) (see page 107 below). The result of these developments would have been a greater amount of food available for redistribution. The greater size and fertility of Messenia argues against an equation of the *klêroi* in both regions. So too does the greater number of perioecic communities in Lakonia, occupying land thereby unavailable for *klêroi*. The fall in Spartan numbers after the loss of Messenia also supports the conclusion that more than half the *klêroi* were there. The *klêroi* were also traditionally split into groups of 6000 and 3000, with the former assigned to Lykourgos and the latter to King Polydoros. One cannot press this attribution, but our working hypothesis will be that there were 6000 Messenian *klêroi*.⁴⁸ They will have occupied from c. 432 km.² (*klêros* = 7.2 ha.) to c. 516 km.² (= 8.6 ha.).

The total area of Messenia was 2872 km.², of which 1276 km.² or 44% was cultivated in 1960, well above the Greek average. Not all of this would be available for *klêroi*, since there were about 14 communities of *perioikoi* in Messenia.⁴⁹ Five towns are equated with sites for which

were mobilized (along with men over 60) for the Mantinea campaign (Thuc. 6.64.3; cf. 6.72.3, 75.1). Cf. A. J. Coale & P. Demeny, *Regional Model Life Tables and Stable Populations* (Princeton 1966) 782–83.

⁴⁸ In his paper (above, note 31), "Agrarian Slavery," Jameson has estimated the area available for *klêroi* in Lakonia as 110 km.² in the Eurotas basin and 100 km.² in the Helos plain. If we assume that the *klêros* was split equally into a Helot-supporting and a rent-producing half, these two districts would provide between 1221 and 1456 *klêroi*. This may be taken to suggest that the Messenian *klêroi* numbered over 6000. Compare earlier estimates of *klêros*-land based on gross topography (underestimating perioecic and private land, overestimating arable land): Jardé (above, note 37) 113: 1000 km²; F. Bölte, "Sparta," *RE* 3A.2 (1929) 1265–1528, esp. 1340: 500 km².

⁴⁹ A list is in B. Niese, "Neue Beiträge zur Geschichte und Landskunde Lakedämons," *Nachrichten von der königlichen Gesellschaft der Wissenschaften zu Göttingen, Phil.-Hist. Kl.* (1906) 101–42. The following may be excluded: (1) Poiessa, Ekhnos, Tragion, noted for their founding rather than for continued existence (Strabo 8.4.4 C360), and for which sites do not exist in *MME*; (2) places of cult activity or habitation like Andania, Hyameia, never called perioecic; (3) the mountain canton of Dentheliatis, partially Messenian, with no trace in the *MME* (without much arable land in any case); (4) the buffer towns of Kolonides (Paus. 4.34.8) and Korone (4.34.5), perhaps founded in the 360s (Cartledge [above, note 6] 193, 300). Toynbee (above, note 45) 204–12, 494–96 would add Kharadros, Oloris (?), Andania, and Pylos to the list.

estimates of cultivated land exist in *MME*,⁵⁰ and four others are probable identifications.⁵¹ These nine towns possess 226 km.² of farmland, with the average town having 25 km.² and the median town 22 km.². The other five towns can be identified in the *MME*'s site register, but no estimates of cultivated land are given for them (their first habitation is post-Bronze Age).⁵² If these towns as a group possessed five times the average holding in arable land, another 125 km.² would be occupied by them. Perioecic land in Messenia would thereby take up 351 km.². This would leave 925 km.² for the land associated with *klêroi*; 432–516 km.² would be taken up in providing the rents for the Spartans and 409–493 km.² would remain as the primary area of subsistence for the Helots. The calculations on Messenian subsistence are presented in Table 3.⁵³

TABLE 3
The Agricultural Economy of Messenia

	<u>.74 mt./ha.</u>	<u>.9 mt./ha.</u>
1) Perioecic Land	351 km. ²	351 km. ²
a) Known cultivation: 226 km. ²		
b) Est. cultivation: 125 km. ²		
2) Rent Producing <i>klêros</i> -land:	516 km. ²	432 km. ²
3) Helot Supporting <i>klêros</i> -land:	409 km. ²	492 km. ²
4) Barley product of line 3:	15,375 mt. (9949 mt. w.e.)	22,230 mt. (14,450 mt.)
5) Helots sustained by line 4:	39,976	57,800
6) Man-days to farm lines 2 & 3:	2,513,950	2,513,950
7) Male man-days for lines 2 & 3:	1,759,550	1,759,550
8) Man-units avail. from line 5:	22,786	32,946
9) Male man-units from line 5:	11,860	17,149
10) Man-hours/166 day year:	3,782,476	5,469,036
11) Male man-hours/166 day year:	1,968,760	2,846,739
12) Man-hours/120 day year:	2,737,320	3,953,520
13) Male man-hours/120 day year:	1,423,200	2,057,880

There is ancient evidence for approximately equal areas for paying rents to the Spartiates and for supporting the Helots, since the seventh-century Spartan poet Tyrtaeus asserted that the Helots gave half of their

⁵⁰ #150 Thalamai (1628 ha.); #148 Leuktra (with Kharadros?) (3264); #147 Kardamylai (2611); #142 Pharai (1699); #140 Kalamai (1571).

⁵¹ #146 = Gerenia (3902); #144 = Abia (1838); #137 = Thouria (2217), cf. M. N. Valmin, *Études topographiques sur la Messénie ancienne* (Lund 1930) 56–63, 181–84; #136 = Aithaia (3879) (at a somewhat lower level of probability), cf. Thuc. 1.101.2.

⁵² #512 = Asine; #412 = Mothone; #601 = Aulon; #549 = Pephenos (?); #548 may = Alagoneia.

⁵³ Note these definitions: (1) man-unit = an adult male worker or a combination of females and children equivalent to him (see note 57 below). (2) Man-year, man-day, man-hour = the amount of work done by a man-unit in the specified period. (3) male man-unit, male man-year, etc. = man-units, man-years, etc. which are usually or must be contributed by males.

production to the Spartiates (fr. 6 [West]; cf. Paus. 4.14.4–5; Ael. *VH* 6.1).⁵⁴ While we are far from being able to speak about the extent of the *klêros*-land with exactitude, the estimates which have been made above support rather than dispute the traditional picture of Messenia divided into halves, one supporting the rents, and the other the Helots. For instance, an output of c. 840 kg./ha. would suggest an average *klêros* of 7.7 ha. The 6000 *klêroi* would occupy 462 km.² and leave 463 km.² to support the Helots.

If half of the *klêros*-land not producing rents were left fallow, only 205–247 km.² would be left to support the Helots and their families. This would produce 15,375–22,230 metric tons of barley (9994–14,450 mt. w.e.), which would support from 39,976–57,800 people at bare subsistence.⁵⁵ From these figures, one is able to discern why the Spartan messes needed to operate as a mechanism for redistribution. The lower end of our range of figures for Helot population is based on a low but commonly held estimate of the productivity of Messenian agriculture (.75 mt. of barley/ha.) which causes the *klêroi* to occupy more land, leaving less available for the Helots themselves. Moreover, both our figures for Helot population seem at odds with the statement of Herodotus that each Spartiate at Plataea was accompanied by seven Helots (Hdt 9.10.1; 9.29.1). This implies an adult male Helot population of at least 35,000, toward which total even our highest estimate for the Helot population would contribute only 18,550. Not only does this juxtaposition suggest that yields in Messenia were higher than our minimum, but also that a part of the *klêros*-rents was recirculated to the Helots.

Labor Inputs

The same conclusion is forced by a consideration of the labor-inputs necessary to work the *klêroi*. On contemporary Melos, it has been estimated that 47 man-days/ha. are necessary to cultivate barley and 118 man-days/ha. for vines, when the effects of modern mechanisation are discounted.⁵⁶ Of this input of labor, 30 man-days/ha. for barley and 106

⁵⁴ Various desperate expedients have been used to explain away Tyrtaeus: the 50% rent was a temporary expedient (Buckler [above, note 1] 257); an extortionate rent of the Messenian aristocracy itself (K. M. T. Chrimes, *Ancient Sparta: A Re-examination of the Evidence* [Manchester 1949] 291); the situation prevailing after the 1st Messenian War (F. Kiechle, *Messenische Studien* [Kallmünz 1959] 161–62). Such interpretations are foreign to the ancient reading of Pausanias and perhaps of Aelian. The tone of Tyrtaeus is hortatory; his purpose to remind his audience of the great present value of Messenia. Note also that rents in densely populated places with little agricultural land to be added to cultivation often reach 50%: Clark (above, note 22) 65–66.

⁵⁵ Cf. Roebuck (above, note 36) 163 for a maximum 4th-century Messenian population of 112,000.

⁵⁶ Wagstaff & Augustson (above, note 38) 117–19.

man-days/ha. for vines are contributed by adult male workers. This suggests that 930,600–1,128,000 man-days/year (613,800–744,000 man-days from adult males) would be necessary for the barley of the rent producing segment of the *klêroi* and 424,800 man-days (381,600 adult male man-days) for the wine producing segment. The rest of the *klêros* land, that part supporting the Helots, would require from 963,500–1,163,900 man-days if all the land not left fallow was sown with barley. The total number of man-days necessary to cultivate Messenia will have been 2,513,950 man-days. I have calculated the man-units available for performing this work in Table 3.⁵⁷ From 22,786 to 32,946 man-units are estimated to have been available, but only 11,860–17,149 man-units were available from adult male laborers.

Unfortunately, the ability of such a work force to accomplish the agricultural work at hand was dependent on behavior at work, especially the number of work-days for each man-unit. For instance, if the Helots worked an agricultural year of 255 days, the work load accepted by Pepelasis and Yotopoulos as a maximum for modern Greek agricultural workers, even our lower population would furnish 5.7 million work-days, much more than is needed.⁵⁸ Yet this work-year is a goal suggested for autonomous workers, operating in a fully commercialized context, to whom a full range of products and services is available for a price. The Helots, however, needed time to travel to work by foot, to do domestic work for themselves and their masters, to provide clothing, and to build and repair dwellings. If, however, farming labor/man-unit was 1438 man-hours (= 166 man-days/man-year), as the figures of Kitsopanides for Macedonia suggest, the large surplus of available man-days just posited evaporates, and this is especially so for adult male man-days.⁵⁹ The farm work for olive, fig, vegetable, cheese, and livestock production for Helots and Spartiates, and the wine production for the Helots has been left out of our calculations for want of evidence. For the lower levels of crop-productivity, the *klêroi* system was constrained by its available manpower, and especially by its available male labor-units.⁶⁰ Let us use as an example the situation outlined in lines 12 and 13 of Table 3, where only 120 man-days/man-unit were available for barley

⁵⁷ A woman = 0.7 man-unit for agriculture: A. A. Pepelasis & P. A. Yotopoulos, *Surplus Labor in Greek Agriculture: 1953–60, Research Monograph Series #2, Center of Economic Research* (Athens 1962) 102. To take into account child-labor, the equation 57 man-units/100 persons may be adopted: *ESA* 105, 117.

⁵⁸ Pepelasis & Yotopoulos (above, note 57) 102–3.

⁵⁹ G. Kitsopanides' "particularly thorough study" reported in *ESA* 98–102 for the Florina district of Macedonia: 3380 man-hours available/man-unit, of which 716 were used in domestic labor and 28% were unoccupied.

⁶⁰ Systems of dependent labor persist where shortages of labor are endemic: Clark (above, note 22) 274–76.

production and wine cultivation for the *klêros*. Once the possibility of limited labor-inputs is recognized, it deserves to be noted that the incentives inherent in a dependent labor economy would encourage the Helots to do as little work as possible for their masters and to expend their efforts on their own behalf. If our sources are to be taken seriously when they tell us of Spartans who failed to meet their mess dues (Aris. *Pol.* 1271A26–37; 1272A13–16), we must look to disruptions in the amount of work available from the Helots. Bad harvests, damage caused by enemy action, poor management could all be survived, if control of the *klêros* were maintained. But if there was no surplus of Helots, anything that reduced the Helots of a particular *klêros* (like flight) would permanently remove its holder from the rolls.

Conclusion

From our analysis of Spartan mess dues, rents of *klêroi*, and the arable land of Messenia, conclusions in two general areas deserve emphasis: the nature of the Spartan agricultural economy and the social role of the messes. The agricultural base of a military establishment formed of men who did not work for their own livelihood must be extremely large. It needed 2/5 of the Peloponnesos for its support. It is no surprise that it depended chiefly on Messenia, a region with a striking reputation among the ancients for fertility (Tyrtæus fr. 5 [West]; Eur. fr. 1083; Paus. 4.4.3, 4.15.6; Strabo 8.5.6; Plato *Alcib.* 122D). Such fertility was necessary to offset the inherent stagnation of productivity in a servile economy with its misdirected system of rewards, risks, and incentives. It is very possible that there were more than 6000 *klêroi* in Messenia (see notes 47, 48) so that less land would have been available to sustain Helot workers.

When Spartiate numbers were at their height in the early fifth century, a time at which all Spartiates held a single *klêros*, the system of *klêroi* was at its natural limits. The Spartans could not have created more *klêroi* out of their territory, but would have been compelled to conquer more land, and so reverse the policy of making alliances which they had entered upon with Tegea in c. 560. At this time, the material basis of redistribution of food back to the Helots sprang from a need to compensate Helots drawn from the land, where they were required to raise food. Helots who served their masters personally (on the *klêroi*, in households in Sparta, as attendants of Spartiate hoplites on campaign and in the messes) probably had to be fed from the mess dues and rents. The surplus of food available both to the Spartiate individually from his rent and to the mess from its dues provided incentives to those Helots, the quality of whose services most directly and immediately affected their masters. The mess, however, insured that these incentives were controlled by social convention, for, in the mess, other Spartans saw to it

that neither the Spartiate nor his Helots diverged from their mandated social roles (Myron *FGrH* 106 F 2).

The food recirculated to the Helots affected their lives in several ways. Some of it went to raise the standard of living of adult male Helots from mere subsistence toward the 1 *khoinix* of wheat which seems to have been the normal daily ration (i.e., from 250 kg. w.e. to 304 kg. w.e.). As the number of Helots at Plataea suggests, some of the redistributed food went to feed additional Helots, more than could be supported from the non-rent producing segment of *klêros*-land.

The demographic situation in Lakonia changed with the great earthquake of 465 (DS 11.63.1; Plut. *Cim.* 16.5), from which Spartiate numbers never recovered.⁶¹ After that time, more than enough *klêroi* existed for all the Spartiates, and eventually multiple holdings of *klêroi* (Aris. fr. 611.12), treatment of *klêroi* as testamentary property (Plut. *Agis* 5.4; cf. Aris. *Pol.* 1270A21–29), and even occasional elevations to the Spartiate class seem to be attested (Phylarchus *FGrH* 81 F 43; Ael. *VH* 12.43). As long as the rents continued to be exacted from the *klêroi* at the same level, and nothing suggests that they were not, the lot of the Helots was not *directly* improved. Nonetheless, much more food will have been available for redistribution to the Helots, *indirectly* bettering their lot.⁶² The augmented Helot population, which necessitated more redistribution, created the specter of Helot numbers swamping the Spartiates. Yet, at the same time, the growth in the Helot population offered Sparta a new source of military manpower, the *neodamodeis*, enfranchised Helots (i.e., raised to perioecic status), who could now be spared from a larger agricultural work force doing a static or declining amount of work.

The redistributory mechanism operated through the messes had a place in socializing Spartiate and Helot to their positions in society. The ideology of the elite at Sparta was also an ideology of a particular style of eating (cf. Plut. *Lyc.* 10.1–3). In the midst of plenty, the simple meals of the Spartiate served to valorize his lifestyle in comparison with the lifestyle he might lead. Thus, when Pausanias after Plataea wished to dramatise the superiority of the Spartans over the Persians, he had a Spartan and a Persian meal prepared for comparison (Hdt. 9.82.1–2). Not surprisingly, the decay of Spartan discipline and morale is explicitly juxtaposed with the decline of Sparta's dietary ideology (Phylarchus

⁶¹ On the demographic effects of the earthquake, see Toynbee (above, note 45) 346–52, and more recently G. L. Cawkwell, "The Decline of Sparta," *CQ* 33 (1983) 385–400, esp. 385–90. Despite Cawkwell's cautionary remarks on the scale of these effects, I suspect that a demographic analysis of the 5th-century decline in Spartiate numbers might show annual deaths so far exceeding births as to suggest the intervention of a catastrophic loss.

⁶² By the time of Kleomenes III, 6000 Helots had the wherewithal to buy their freedom at 5 *mnai* each (Plut. *Cleom.* 23.1). See above, note 32.

FGrH 81 F 44; cf. Plut. *Agis* 8). Not even a religious feast led to a drastic relaxation of discipline in eating, as seems to be demonstrated from Athenaeus' account of a festival which appears to be a celebration of eating par excellence, the Kopis "Cleaver" (4.138F–139A; 140A–B).

Yet the eating patterns of the Helots must have greatly differed from the moderate, steady-rate eating of the Spartiate. The extraction of rents will have left the Helots as a class with bare subsistence.⁶³ Accordingly, their masters could be punished for allowing them to grow fat, a token of exceeding their place in society (Myron *FGrH* 106 F 2). The redistributions back to them will have been at the pleasure of their masters and at irregular intervals. Some of these redistributions took place on special occasions, when the Helots were encouraged to drink, and presumably to eat, to excess. Just as Pausanias' gesture evoked Spartan superiority over the Persians, in a similar fashion Agesilaos replied to a Thasian offer of delicacies that it was not lawful for the Spartiates to consume such food (Athen. 14.657C). Rather the special dishes should be given to the Helots accompanying the army, for it was appropriate that they be corrupted by such eating. But the periods of feast that punctuated near famine were bought by the submission to degrading behavior, grotesque singing and dancing. Thus, the Helot dietary pattern was an inversion of the Spartiate pattern, and expressed the innate inferiority of the Helots to the Spartiates. The efficacy of this conditioning can be seen in the refusal of the Helots to recite Terpander, Alcman, and the Spartan poet Spondon for the benefit of their Theban liberators at the time of Epaminondas' invasion of Lakonia in 371 on the grounds that their masters would not countenance such behavior (Plut. *Lyc.* 28.10; cf. Myron *FGrH* 106 F 2).

While it is likely that the Spartans were able to manipulate this redistribution in such a way as to reinforce Helot dependency and to create incentives for Helot compliance, it is also important to place the relationship of Spartiate and Helot in the context of archaic exploitation in general. A single comparison will suffice. The Spartans differed from other exploitative elites formed in the archaic period precisely because of their redistribution through the messes. The Athenian aristocrats who reduced their fellow Athenians to the status of *hektêmoroi* drew one-sixth of the product of the latter's farms from them. However, rather than recirculating the surplus from these rents not consumed by the elite, they traded it abroad for luxury goods and slaves. The Spartiate,

⁶³ Individual Helots, the talented, energetic, or lucky ones, benefited since the rents were fixed amounts rather than a percentage, since those who met their quota more easily had time and resources for other applications. Hence Plutarch could emphasize the justice of the Lycurgan laws on the Helots (*Lyc.* 28.1). See J. Ducat, "Aspects de l'Hilotisme," *Ancient Society* 9 (1978) 7–46, esp. 41–46.

who did not monetise the dependency of the Helots, and who remained loyal to his socially conditioned moderate consumption, eschewed this alternative and by this eschewal, maintained the viability of the Spartan system.