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CHAPTER FOURTEEN

Agriculture in Greece and Coastal Anatolia, 500–100 BCE*

Christophe Chandezon

Introduction

The agrarian history of the Greek world is more often divided into separate topics—such as a history of territories, farming techniques, land use, and status—than studied in any integrated or comprehensive fashion. Any attempts to offer a wider, more integrated view are either out of date (Osborne 1987; Isager and Skydsgaard 1992; Burford 1993) or too brief (Foxhall 2006; Davies 2007; Kron 2015), with the result that the cohesiveness and interconnectedness of Greek agrarian history is overlooked and removed from wider historiographical debates—though publications dealing with the Greek Bronze Age are beginning to connect agrarian history with political, social and economic questions (e.g. Zurbach 2017). One large casualty of this is economics; the economic dimension of agricultural activity is generally lost as research questions narrow. Primitivism, for example, which saw economic motives at the heart of agriculture, should have aroused curiosity and comment, but this has not happened. Post-primitivism, which has become the mainstream approach today, has avoided thinking about agriculture, with only rare exceptions (Bresson 2016, pp. 118–174). In addition, historians of religion have not considered the agrarian dimension to rural religious life (an important exception is Ekroth 2014 on Greek sacrifices, who notes the connections between Greek religion and the agricultural sphere). We must acknowledge these shortcomings, even though it is not possible in the space of this chapter to overcome them.

Until the 1980s, the agrarian history of Classical and Hellenistic Greece was dominated by questions about legal status: i.e. the status of the land and the status of the workers of the land (see the historiographical section of Fantasia 2003). From the publication of Robert Sallares' book on ancient ecology (1991), archaeological data entered into the conversation, promoting an ecological approach to the study of the countryside (Rackham 1996; Horden and Purcell 2000). This perspective was fed by a proliferation of archaeological surveys, despite methodological debates concerning the practice and interpretation of field archaeology. At the same time, epigraphers seized on agrarian questions (e.g. Pernin 2014). This resulted, in

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the 1990s, in a combination of textual analysis and the archaeology of environments and territories that inaugurated a golden decade in the agrarian history of ancient Greece. At the same time, Greece, thanks to its integration into the European Union, finally realized its own modern agricultural revolution. Changes in the countryside strengthened researchers' impression of witnessing the end of a rural world in which they were likely to find echoes of antiquity. In the mid-2000s, the wave of agrarian studies gave way to new themes, though much yet remains to be done. While archaeology and epigraphy have greatly influenced the historian of Greek agriculture, the literary texts have remained all but neglected, despite that fact that Victor Ehrenberg had shown how important Aristophanes' comedies were to understanding the Athenian countryside (Ehrenberg 1974, pp. 73–94). Although a few rare cases have been explored, such as Theophrastus' botanical treatises, or as the *Geoponica*, a Byzantine collection of abstracts of ancient agricultural science (Dalby 2011), no one has yet studied systematically the information on the countryside that appears in the Attic forensic speeches or bucolic Hellenistic poetry. In addition, the study of iconographic sources has also failed to make an impression: the vases decorated with agricultural scenes disappear almost completely at the beginning of the fifth century CE, and not until first century CE does agriculture again find a place in Greco-Roman visual culture.

We begin our study of Classical and Hellenistic agriculture at the end of the Archaic Period, when the archaeological evidence suggests that a rise in population filled the countryside and prompted a search for new farmland. At this point, farming practices became more complex, and the emergence of markets was restructured to accommodate more diverse agricultural production and distribution. Later, during the early Hellenistic period, the first signs of a profound reorganization of the settlement patterns of the countryside appear, even if the territories of cities along the coast of Anatolia seem to remain well populated and prosperous. Finally, the first century BCE seems a time of deep depression and remains a convenient end for this study, though, in all probability, this depression persisted well into the beginning of the High Roman Empire, and it is only in the second century CE that the Greek countryside came out of these difficulties. In what follows, the reader must keep in mind that the history of Greek agriculture corresponds in part to the chronological patterns and periodization of political history. Yet, this chapter deals with agriculture, that is to say, that which relates to the cultivation of the land, the conditions in which it is organized, including the breeding and keeping of animals, which is closely linked to it. There will be no direct analysis of the circulation of agricultural products. Likewise, other ways of exploiting the land, such as mineral resources, are beyond our scope, as are rural handicrafts. For this reason, the history of agriculture is not fully “agrarian” history.

Agriculture and Landscapes

The word *landscape* has two different meanings. A landscape is a cultural perception of the environment, but it is also a geographical datum that the historian and the archaeologist can reconstruct. The first meaning does not interest us here, although cultural categorizations of landscapes appear quite early and testify to a long intellectual engagement with the land that has been refined over time (Robinson 2016). To approach agrarian landscapes as geographical data, texts and archaeology complement each other (e.g. Fachard 2012, for Eretria and its territory). I will begin with two examples, from different times and places, to set the tone.

The first concerns the countryside of Athens in the fourth century BCE, visible from both literary and archaeological sources. The Athenian forensic speech *Against Callicles* ([Dem.] 55) describes a valley surrounded by mountains (10), where several agricultural estates (*chōria*) rub shoulders, including those of the litigant and that of his opponent. Between their

properties passes a road (*bodos*, 10), bordered by a watercourse (*charadra*, 16) for the evacuation of runoff. This watercourse was necessary, because during thunderstorms, water tended to invade agricultural land and cause damage (11). Moreover, when a landowner did not pay enough attention to his land, others tended to let their livestock overrun it and did not hesitate to cross it if necessary (11). One of the ways to prevent this was to fence off property with stone walls (*haimasia*, 11). The farmers mentioned in *Against Callicles* possessed slaves to whom they are sometimes emotionally attached (31–32). Thus, this little world is made up of people who know each other. They produce barley and olive oil, but their plots also have fig trees and vines (13 and 24). Undoubtedly, these crops conform to Theophrastus' recommendations: good land for cereals and slopes for trees (Thphr. *CP* 1.18.1–1.18.2, 3.6.7–3.6.8). In the *Against Callicles* speech, there is no mention of agricultural buildings, but old tombs (*mnemata palaia*, 14), those of the previous owners buried on their land, are mentioned. This recollection of the names of the former proprietors was a constant in these societies, and many agricultural domains continued to bear the name of those who exploited them in the past. In another speech, *Against Phaenippus* (42), written around 330 BCE, we see an outlying farm, an *eschatia* (5) located on the Cytherus deme in Mesogea. This fairly large plot included wooded areas. Cereals were also produced (*sitos* 6 and 19, barley, 20, 24), and in large quantities as evidenced by the existence of two large threshing floors (*halos*, 6). This was a valuable resource at that time, as Athens was in a food shortage, and the price of grain had tripled (31). The farm also included buildings (*oikēmata*, 6). Their storage areas held a harvest of cereals, one of wine, and other crops also grown on the spot (19, 24). *Against Callicles* also evokes another element of the rural landscapes of Attica and the Aegean – these are the mortgage stones (*horoi*, 5, 28) that were erected on land pledged as security for a loan. We also learn that the owner, Phaenippus, was a horse racer and a breeder. Other Athenian texts of this period add further details, including the role of arboriculture in the landscape, describing olive trees planted along the roads and at the edge of the plot, or isolated in fenced areas, when it comes to sacred olive trees (Lys. 7, *The Matter of the Olive-Stump*, Xen. *Oec.* 19.13). Survey and excavation give a similar picture of the Athenian agrarian landscapes. The construction of the new airport in Athens, for example, made it possible to study the Spata area in the late 1990s. In the Classical period, this region was crisscrossed with rural roads, indicating a significant movement of goods across the countryside. Big hives of terracotta suggest that beekeeping allowed landowners to exploit all the resources, including the uncultivated areas. Thus, Attica of the sixth century BCE appears as a collection of *terroirs*, microecologies intensely exploited to meet the needs of the city more than those of more distant markets. These farms combined cereals, arboriculture, and livestock. The major crops were inherited from previous periods: the Mediterranean triad (barley or wheat, vines, olives) has, however, undergone some changes, particularly with the growing importance of the olive, the expansion of which was stimulated by the intensification of trade in the seventh and sixth centuries BCE. Alongside the triad were secondary crops, such as legumes, figs, or millets. Above all, agro–arboreal–pastoral integration often facilitated the cohabitation of livestock – where ovicaprines and pigs are largely dominant (see Howe 2008, 2014a, 2014b and Chapter 6 of this volume) – with cultivation and exploitation of *eschatiai*.

The other example that I will discuss concerns Hellenistic Asia Minor: several sanctuaries in the city of Mylasa (Caria) yielded inscriptions describing land transactions from the second half of the second century BCE (Pernin 2014, pp. 296–445). In these texts, individuals sold their estates to a local sanctuary and then took them back immediately as tenants, with a fairly modest annual rent. These lands were described, with their boundaries, and this allows us to get an idea of the settled landscape. The Mylasian plain was crisscrossed with numerous paths (*hodoi*, *atranoi*) connecting the villages between them or serving the farms. The countryside was cut by streams, ditches (*taphroi*, Pernin 2014, No. 182, l.18) which would delineate the

plots, as well as hedgerows (*harpezoï*, Pernin 2014, pp. 337–338, no. 169, 1, 11, and pp. 341–343, no. 172, 1, 6). The main part of the farm consisted of land without trees (*gè psilé*) and therefore planted in cereals, and probably also in pulses. Some plots served as nurseries (*phyteïa*), where young trees were raised for orchards (*paradeïsoï*, Pernin No. 2014, pp. 303–305, no. 142, 1.4). Other parts were kept as grasslands for cattle (*nomoi*, Pernin 2014, pp. 303–305, no. 142, 1.5). Some large isolated trees served as landmarks (Pernin 2014, pp. 385–386, no. 218, 1.13). These farms (*aulai*) were all well equipped; some have towers (*pyrgoi*, Pernin 2014, pp. 330–331, no. 162, 1, 8) and rooms on the floor (*hyperoria*); many have the equipment to produce wine and oil and keep them. There were stables for cattle, apiaries (*zménón*, Pernin 2014, pp. 350–351, no. 179, 15), and wells. All this shows a rich countryside, intensely cultivated and exploited according to the capacities of each *terroir*. The juxtaposition of different crops translates the mixed-farming strategies onto the landscape. The survey by H. Lohmann in the lower Maeander, nearby, gives a similar picture. Farms were numerous in the peninsula of Didyma, while villages seem less common (Lohmann 2004, 346–348). As in Attica, the rural funerary compounds marked the attachment of the owners to their lands. In the territory of Thebes on Mycale, in a hilly and wooded terrain, the density of farms was lower (Lohmann and Hartung 2014, p. 181). Here, small livestock had a more important role, as did beekeeping (Lohmann and Hartung 2014, pp. 185–186).

The juxtaposition of these examples shows how Greek polyculture together with animal husbandry shaped the countryside, imposing a variegation of crops from one plot to another, far from the monotonous countrysides that current agricultural practices generate. The use of companion plantings reinforced the variegated landscapes. Barley and legumes were frequently sown between rows of vines (Theophr. *CP* 3.10.3 and 3.15.4; see Boulay and Vaudour 2015, pp. 225–230). The biennial fallow played a supporting role: it could be productive if used as pasture or if legumes were sown (intensive biennial, Amouretti 1986, pp. 54–56), which also improved the soil. Cultivation even penetrated into intramural areas and flocks were grazed in the necropolis, between the tombs (Plb. 9.17), sometimes even inside the sanctuaries.

In classical Attica, as in Hellenistic Asia Minor, we find similar strategies for exploiting the countryside. One type combined villages and isolated farms, another was more dynamic at its beginnings, tending to concentrate settlement and enclose the countryside. We will come back to it. Everywhere, market cultivation created webs of settlement much denser than we had imagined (for the *chora* of Eretria: Fachard 2012, pp. 91–109). Even mountainous areas were affected (Rousset 1994; Roy 1999a; Horden and Purcell 2000, pp. 130–132; Thonemann 2011, pp. 240–241). The particular activities they allowed (a animal breeding, logging, hunting) helped shape the natural environment, which was not only forest, but also maquis, *garriga*, and highland meadows for pastoral exploitation (Rackham 1996; Cavanagh et al. 2002, p. 81). When population pressure was high, farms appeared in these marginal regions (*eschatiai*). An inscription mentions an isolated farm in the Lower Olympus Massif, between Thessaly and Macedonia, and states that it has not withstood the instability created by the passage of the Galatians in 279 BCE (Ager 1996, p. 54). In the Dikte massif (East Crete), in the midst of the Hellenistic period, anyone who farmed or planted trees on land, thus marking out for sedentary agriculture areas which had been devoted to pastoralism, was recognized as an owner (Ager 1996, p. 158). Mountain spaces were therefore not abandoned spaces, nor were they insurmountable barriers. The links between communities on two sides of the same mountain range could be seen in the inscribed relationships among the various civic elites (Thonemann 2011, pp. 240–241; Horden and Purcell 2000, pp. 130–132).

The taming of the slopes was also a sign of the impact of agriculture on the landscape. For a long time, it was uncertain whether ancient Greeks had practiced terracing (on this aspect of the Mediterranean landscape, see Horden and Purcell 2000, pp. 234–237). It has now been shown that terraces existed since at least the Classical period (Price and Nixon 2005). In Delos, during

the Hellenistic period, the territory was organized in large terraces (Brunet 1999, Figure 14.1). This phenomenon was found elsewhere in Aegean Greece (Attica: Lohmann 1992, pp. 51–57; Lohmann 1993, vol. 1, pp. 196–219, in Asia Minor, in the Mycale massif: Lohmann and Hartung 2014, p. 185). In addition, low walls (*haimaisiai*, *teichia*) were mentioned in leases or court cases of the fourth century (lease of Arkesine of Amorgos, Pernin 2014, pp. 270–275, no. 131; [D.] 55, *Against Callicles*, 11; see Brunet 1999, pp. 24–27; Price and Nixon 2005, pp. 666–670, 686–691) and prove that there was a Greek vocabulary for agricultural terracing (yet these interpretations have not always been accepted: Foxhall 2006, pp. 263–264; 2007, pp. 61–69).

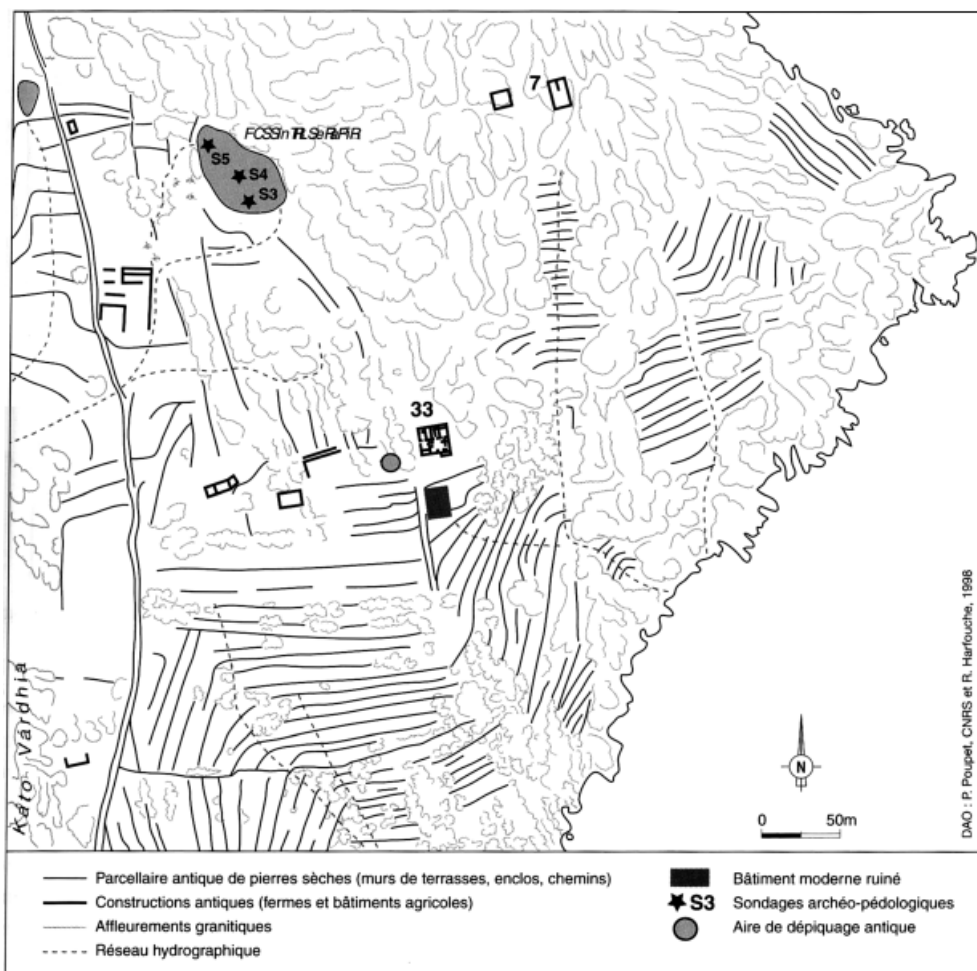


Figure 14.1 The ancient landscape of Delos is one of the best preserved in rural Greece: the island was left almost deserted after the 7th c. AD. The territorial structure has two main features: the most recent is a network of stone walls (18th, 19th c.?). These walls overlap ancient terracing walls (Classical and Hellenistic), which are frequent in the southern part of the island. This ancient terracing system is bound with the farms of the same period and fills the valleys in a perpendicular pattern relative to the thalweg. This shows that the terrace walls were also used to retain humidity. Source: From Harfouche, R. (2005). Retenir et cultiver le sol sur la longue durée, les terrasses de culture et la place du bétail dans la montagne méditerranéenne. *Anthropozoologica* 40:45–80.

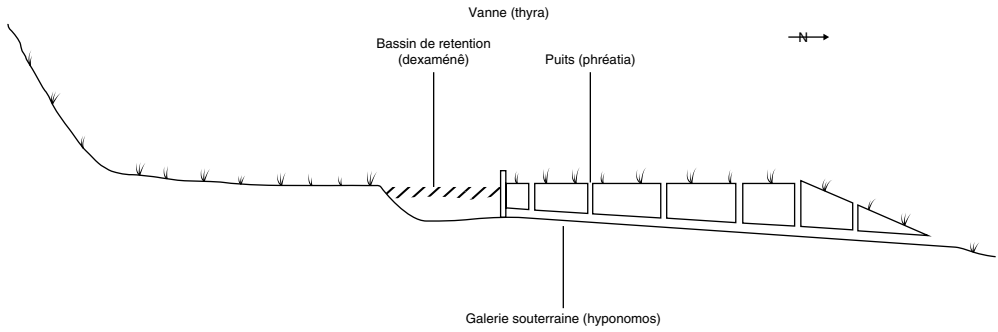


Figure 14.2 Reconstruction of the drainage system for the marshy lake of Ptechai (Euboea, territory of ancient Eretria, according to the inscription of Chairephanes). The natural drainage of the area was difficult due to the gentle slope. The solution chosen by Chairephanes was to dig up an artificial retaining basin (*dexamene*) just under the hills to collect water. An underground canal (*hyponomos*) diverts the water and a series of wells (*phreatia*) then controlled the flow of waters. Chatelain 2001, p. 103. Source: Chatelain, Thierry. 2001. “Assèchement et bonification des terres dans l’Antiquité grecque. L’exemple du lac de Ptéchai à Éréttrie, aspects terminologiques et techniques.” In *Irrigation et drainage dans l’Antiquité, qanats et canalisations souterraines en Iran, en Égypte et en Grèce*, (ed.), 81–108. Paris: Thotm.

Terracing has the advantage of retaining soil on slopes and limiting the effects of erosion. It also keeps the soil moist and prevents cattle from straying. This type of development of the slopes would indeed have been one of the mechanisms that allowed the olive to conquer higher altitudes and to thrive on mountainsides (Mitchell 2009; Lohmann 1993, vol. 1, p. 198 connects the terraces of the deme Atene to olive growing). In the Parnon massif, in Laconia, the olive tree rises up to 850 m on well-exposed slopes (Cavanagh et al. 2002, p. 75). But terraces could be used for other crops. In Delos, the shelves were wide enough (from 8 to 15 m) for a team of oxen to maneuver (Brunet 1999, p. 46). Here, the Delians arranged plots of such a length to facilitate plowing by avoiding the need to turn too often. On the terraced shelves that were too narrow for oxen, preparation of the land for cereals could be done with a mattock (*dikella*).

The influence of agricultural activities on landscapes was also reflected in wetlands (Horden and Purcell 2000, pp. 186–190). In Boeotia, the Copais basin has been the subject of containment and water control works for millennia. It was necessary, in particular, to maintain the canals which directed the waters toward the catavothres, these natural crevasses where they rushed to reach the sea. Alexander the Great contributed to this enterprise: an engineer at his service and specialized in mining work, Krates from Chalcis, had undertaken to drain the land near Orchomenos (Str 9.2.18 = C407), probably by a series of polders. A smaller Beotian basin, that of Thisbe (Paus 9.32.2–9.32.3; Knauss 1992), was also dammed by a central dike to retain water in one half of its surface and to allow cultivation in the other. Similar cases existed elsewhere, as in Arcadia (Plut. *Moralia* 557C: Pheneos; Paus. 8.23.2: Kaphyai). An essential source for this type of enterprise is a contract from the city of Eretria with one Chairephanes to drain a marsh in its territory, that of Ptechai (*IG XII.9*, 191; Knoepfler 2001; Chatelain 2001; Pernin 2014, pp. 281–290, no. 134). The text, dating around 315 BCE, shows that the goal was to gain cultivable land that Chairephanes would keep operating for ten years against an annual rent of 3 talents, a sum which was indicative of the expected gains. The technique used was particularly elaborate, consisting of the construction of retention ponds, an underground drainage channel, and a well system (Figure 14.2). The lands gained

from the water, when they remained wet, offered grazing for cattle, as seen on the shores of Copāis where the city of Orchomenos was able to grant grazing rights (Migeotte 1984, p. 12; Howe 2013). The totally dry land favored cereals, fruits and vegetable crops.

The issues surrounding the control of water were also reflected by the presence of wells in the countryside, attested by archaeology (at Delos, Brunet 1999, pp. 27–44) as well as in leases. Often consisting of simple water holes, wells could also be equipped with complex devices, such as counterweights and pulleys (*kélonēs*). The territory of Delos has also yielded water storage basins (Brunet 1999, pp. 27–42). One could retain 2000 m³ and was located upstream from some terraces and was therefore at least as much destined to irrigate the fields as to water the animals. These improvements allowed for gardening as well as for keeping small livestock on the island. Laws would help regulate use (Pl. *Lg.* 844a). These devices remind us that Greek agriculture was not necessarily dry farming, nor was it agriculture that was always without fertilizer. Manure of human or animal origin was used for arboriculture or market-oriented gardening (Theophr. *HP* 2.7.3–2.7.4, 7.5.1). The use of water and fertilizers is a reminder that farmers often have two options to put a parcel under cultivation. Either they make a garden (*képos*), which will provide a good return but at the cost of much work, or they opt for less intensive use. The technology existed for intensive cultivation, but choosing it was an economic decision that depended in particular on the proximity of a market.

From Landscape to Parcel, from Parcel to Settlement

There are many types of urban parcels, some irregular and spontaneous, others constructed. In the *chórai*, we also see two types, one irregular and the other more geometric and thus resulting from a conscious placement of boundaries. The Delian countryside was in the first category. Here, divisions of land were mainly based on topographic considerations. The major circulation axis was central. In outline, it follows the line of the ridges (Brunet 1999, pp. 9–10). This same irregularity can be seen in certain Athenian demes (Lohmann 1993, vol. 1, pp. 219–224). For the other type, the property register of Larissa in Thessaly reveals geometric divisions reminiscent of Greek colonial foundations. The Larissa register also shows how much the movement and sale of goods very quickly changed the initial order, division, and grouping of the individual parcels (Salviat and Vatin 1974).

In both cases, parcels of land were created out of a common concern for demarcation of property. The land was first perceived as private property – sacred or public lands were very much in the minority (Papazarkadas 2011, p. 98), although they were found in all cities and were a normal way of securing income for the sanctuaries. This private demarcation involved the installation of boundary markers (see the Athenian lease from Aixône, Pernin 2014, pp. 84–89, no. 18), where natural boundaries were not obvious, and also fences (Lohmann 1993, vol. 1, pp. 219–224). In Delos, this fenced landscape begins in the sixth–fifth century BCE (Harfouche 2005, p. 61). Such fencing makes the practice of Cimon, the son of Miltiades, who in 470 BCE left his land unfenced, allowing all those who wished to use it in his harvest ([Arist.] *Ath. Pol.* 23.3), even more striking and noteworthy. One of the reasons for these property enclosures was to help manage livestock better (Harfouche 2005, pp. 56–67). The epigraphic evidence dwells on this problem, and sometimes a text explicitly links the construction of a fence with livestock management. Thus, movement of animals across properties was possible only at the cost of a strong agropastoral integration. It is perhaps not a coincidence that the regions that reveal traces of terraces and fences were at the same time the ones that give signs of a strong link between livestock and agriculture (Aegean Greece). Thus, parcels seem to have been specialized according to the operators' goal and according to the land's potential.

The cadastral sources used recurrent names: *oikopedon* for land that can be built on, *képos* for an irrigated and densely cultivated plot, *paradeisos*, for an orchard, *gê psilé*, for grain land, *eschatia* for an isolated or remote parcel, and so on. In uncultivated areas, where other resources were found (livestock, wood), private property was no longer the norm; here, there were mainly forms of collective exploitation of the land (*epinomia*, *epixylia*, see Lycia in the middle second century BCE: Rousset 2010, pp. 43–50).

A parcel is not the same thing as a land register. The latter took the form of property lists rather than a division of land, and the goal was thus fiscal rather than geographical. There have been records of this kind in Asia Minor, dictated by the Achaemenid monarchy, throughout the Classical and Hellenistic periods. They allowed the calculation of the tax, and Herodotus (6.42), evoking the action of the satrap in Sardis Artaphernes, said the land register was imposed in 493/2, which required the Greek cities of Asia Minor to measure their territories and pay tax to the King according to this measurement (see Briant 1996, p. 424; Marek 2016, pp. 160–161). A similar assessment does not seem to have existed in Greece in such a systematic way, even within the framework of the Athenian Empire (Faraguna 2000). Plato (*Lg.* 741c, 745b–e), however, wanted such measurements and recommended that land registers be deposited in the sanctuaries. The practices of regularization of parcels also appear: inscriptions attest that in many cities, it became customary to install newcomers on a *kléros*. Pharsalus in Thessaly had granted citizenship and 60 *plethra* of land per person to resident aliens (*IG IX.2*, 234). In Zeleia, Asia Minor, a new citizen was granted half a *kléros* of woodland, a *kléros* of land in the plain, a house, and a garden (Schuler 1998, p. 110). In Thessaly, in Larissa, inscriptions from the end of the third and the beginning of the second century BCE record properties and their owners (Salviat and Vatin 1974; Helly 1984, pp. 228–231). Although they appear very fragmentary, there originally seems to have been a system of regular *kléroï* of 50 *plethra*, dating back to the Classical period. Attempts to reform the Spartan territory, under Agis IV and then Cleomenes III, in the second half of the third century BCE, went in the same direction, with a division of the land into *kléroï* (Plut. *Agis* 8, *Cleom.* 11). The main purpose of these operations was to strengthen the civic body (and therefore the military), but also, as King Philip V of Macedonia told the Larissaeans, to make the territory better cultivated (*IG IX.2*, 517).

The study of rural settlement has made great progress thanks to archaeology. Villages and farms are now relatively well attested. Villages (*komai*) were the characteristic of cities with large enough land to have secondary centers, as is the case of Attica (Jones 2004, pp. 91–123), where the demes are approximately 4 km from one another. The *chora* of Eretria gives an image very similar to that of Athens, with about 5.5 km between each deme center (Fachard 2012, p. 76). In Attica, some capitals of demes were real little towns, like Acharnai or Aphidna. As such, they possessed a strong identity perceived even by other Athenians. For example, the reputation of the Acharnians was related to the charcoal trade they brought to Athens (*Ar. Ach.* 214, 332, 336, on this activity, see Olson 1991). Each deme possessed its own political and religious life. It had its boundaries, its assembly of *demotes*, which voted decrees. It celebrated its feasts like the Rural Dionysia and had a busy sacrificial calendar – hero cults too gave structure to these communities. The demes also managed agricultural properties (Papazarkadas 2011, pp. 111–162). When excavations have been carried out, as in Ano Voula in Attica (perhaps the ancient *kome* of Halai Aixonides), we see sparse settlement, with alternating parcels with or without buildings. The area was dominated by a tower, a feature which one could find in other villages of Athenian territory (as in Thorikos). There were many small shrines in this village, as well as a banquet room, whose use is uncertain, and craftsmen’s workshops, such as that of a blacksmith and a dyer (Lohmann 1993, vol. 1, pp. 129–134). The image that emerges from the excavation at Ano Voula suggests an intense village sociability that recalls Hesiod’s Askra, with its community center (*lesche*) and forge (*Hes. Op.* 493–494).

The farmstead (*aule/epaulion*) is the other significant type of rural settlement. Its existence is now uncontested (on the debate on this subject during the 1980s, Brunet 1992). Excavations have shown that it was a prominent feature of the rural landscape. Farmsteads were very numerous in the Attic deme of Atene, especially since it did not seem to have included a village (Lohmann 1993, pp. 136–184). The survey conducted there was able to examine small areas of farmland that were connected or slightly fragmented. That of Charaka, 173 ha, consisted of 12 farms or rural settlements, and that of Thimari, with 136 ha included 10 (Lohmann 1993, p. 225). The term “farmstead,” however, is an imprecise word and has posed problems for landscape archaeologists as they attempt to define the criteria with which to interpret a site as a farm (Osborne 1992; Pettegrew 2001; *versus* Foxhall 2001). The meaning of the Greek words *aule* and *epaulion* also deserves discussion. In addition, the words farm, *ferme* or *Geböft* used by researchers unconsciously hide anachronistic cultural constructs. If we define as a farm any isolated built structure located in the countryside, or in near-urban areas that is dedicated to agropastoral production and at least a temporary residence of the farmers, we must accept that this generalizing definition covers up difference (on the farms, Jones, Graham, and Sackett 1973, p. 432; Hellmann 2010, pp. 139–155). Even in Attica, the footprint of a farm can vary widely. The farm of Dema, on the flanks of Aigaleos, whose central building forms a block of about 22 m by 16 (352 m² on the ground, Jones, Graham, and Sackett 1962, fifth century BCE) is much larger than that of Vari, on the flanks of Hymettos, at 17.5 m by 13.5 m (236 m² on the ground, Jones, Graham, and Sackett, 1973, fourth century BCE). In Delos, the Granite Door Jambs Farm, built in the fifth century BCE and used throughout the Hellenistic period, is about 300 m² (Figure 14.3). Larger farms have sometimes been identified. A traditional farm near Sounion, on the south coast of Attica, was situated in a very open plot of 790 m² (Lohmann 1994, pp. 85–93). The discovery in the early 2000s of very large farms of the Classical and Hellenistic periods in Macedonia has changed our knowledge of the rural habitation by revealing farms much larger and reminiscent of those of Greek colonial foundations. In Tria Platania, in the coastal plain at the foot of Mt. Olympus, a Hellenistic farm occupied for example 2400 m² (Figure 14.4). These buildings, which sometimes provided banqueting equipment, a sign of the owner’s frequent residence, were very well equipped for exploitation (*Ancient Country Houses* 2003; figure 14.4). Some of these large farmsteads were oriented towards the production of wine for external markets (Margaritis 2016). The inscriptional evidence completes the picture offered by archaeology. If in the coastal areas of Asia Minor, like the territory of Miletus, farms resembled those of the whole Aegean world, the surveys in the territory of Kyaneai in Lycia reveal another type of Hellenistic farm, the rather massive and fortified compound (Hailer 2008, pp. 91–105). These examples show the great diversity in building types. Hopefully, scholars will one day arrive at a typology of the Greek farm taking into account all of these regional variants, but at present this is still out of reach.

In general, farm buildings were centered around a courtyard (*aule*) that gave its name to the type. The presence of a carefully constructed tower (*pyrgos*) was far from systematic. At Delos and Rheneia, only 2 of the 23 properties of Apollo have towers in the third century BCE, while of the 40 or so farms identified by Lohmann in his survey of southern Attica, at least 13 had towers. The tower farmhouse was a phenomenon that is found in much of the Greek world, as far as away as the interior of Asia Minor. It began as early as the fifth century BCE in Attica and culminated at the end of the Classical and early Hellenistic periods, to end only in the Imperial period (Morris and Papadopoulos 2005, pp. 155–167, on the rural towers), except in parts of Asia Minor, where it persisted into late antiquity. The rest of the farm buildings were built of mudbricks. Wood frames and tiled roofs were standard but could be removed and were therefore considered movable property – the Athenians took them away when they evacuated their farms at the beginning of the Peloponnesian War (Thuc. 2.14.1),

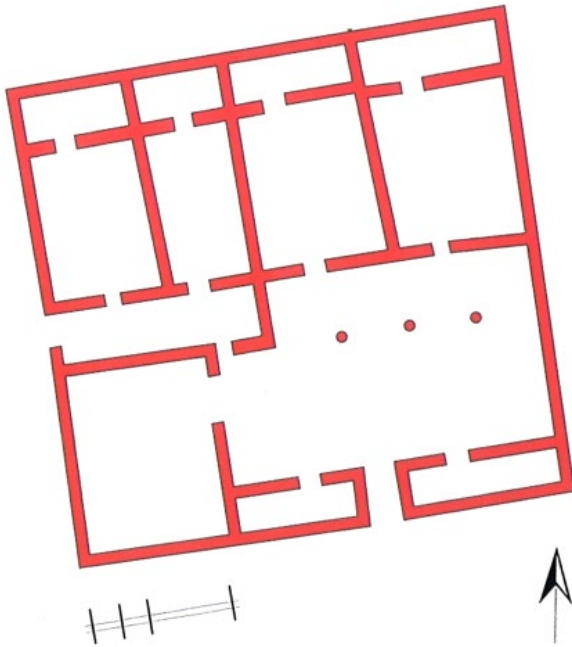
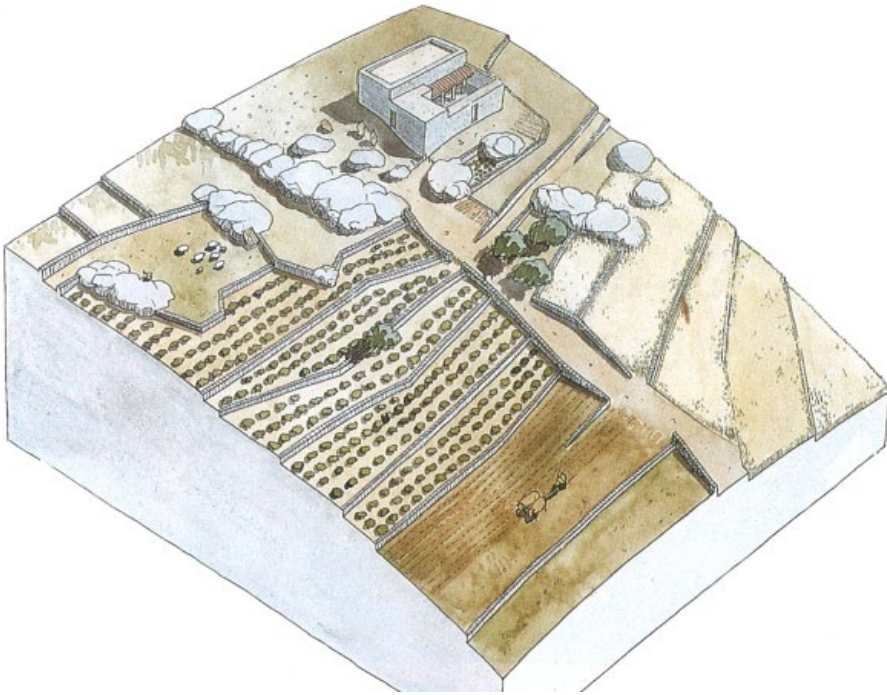


Figure 14.3 (a,b) Classical and Hellenistic farmhouse in Delos (the so-called Granite Door Jambs Farm). This farm was built during the 5th c. BCE. The building occupies approximately 300 m². The main rooms are located on the north side of the central yard where the inhabitants used to cook. Storage and crop processing (a grist mill for wheat and barley) took place within the farm. Archaeozoological remains (still unpublished) show the presence of sheep and goats, as well as poultry. Delos was one of the major spots for the development of the exploitation of chickens for meat and eggs in the Greek world. The occupation of the farm lasted for five centuries, until the end of the Hellenistic period. *Espace grec* 1996, pp. 63–64. Source: Courtesy of Nicolas Bresch (CNRS-IRAA).

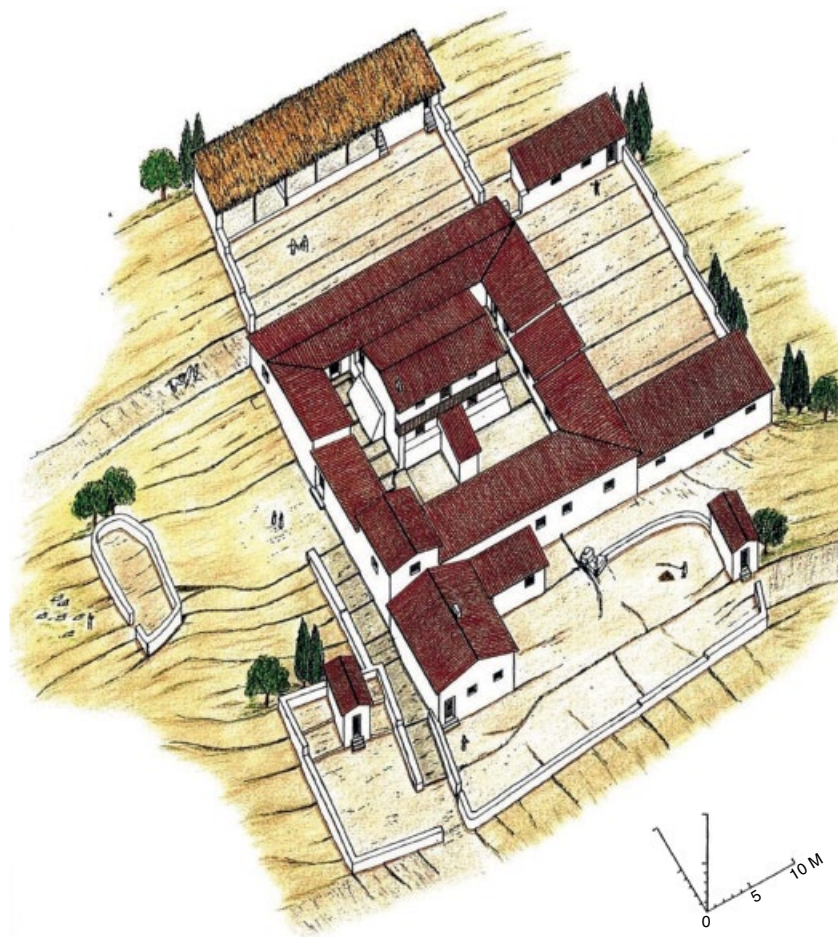


Figure 14.4 Macedonian farm of Asprovalta, located a few kilometers west of Amphipolis, near an important ancient road. This Hellenistic farmhouse (including adjacent buildings) was covered with tiles. With the courtyards, it occupies 914 m². In its center, a central tower house rises over the complex like a keep. Rooms were used as workshops for metal processing. Fine-quality ceramics and stamped amphoras from Thasos, Rhodes, and Cnidos show that the owner lived partly on his estate. *Ancient Country Houses* 2003, p. 106. Source: Ministry of Culture and Sports - Fund for Archaeological Resources and Expropriations (Hellenic Ministry of Culture and Sports / Archaeological Receipts Fund).

and the leases often specify whether the buildings were rented with or without a door. On the basis of this, it has been argued that simple farms in the Classical period could be considered movable, and this has been an argument in favor of the theory of seasonal occupation of buildings (Pettegrew 2001, pp. 196–197; contra: Foxhall 2001). Specialized rooms within farm buildings were known by epigraphy; at Delos, Rheneia, and Mykonos, inventories of the properties of Apollo in the third century BCE mention barns (*achurôn*), stalls for working oxen (*boustasis*), sheep pens (*probatôn*), granaries (*sitobolôn*), cellars (*pitthôn*), mills (*mônôn*), bakehouses (*ipnôn*), and also living quarters (Pernin 2014, pp. 173–261). All this fulfilled three main functions: the housing of men and animals, the storage of crops, and the

production of goods. Around the central core were secondary features such as threshing floors, pens for pigs and other livestock, and a vegetable garden. The differences between farm buildings and the urban houses are therefore not as clear as we would be tempted to think, especially as many townhouses, such as those at Olynthos, had equipment that suggest agricultural processing, such as the manufacture of oil, was carried out there (Cahill 2002, pp. 238–248; Hellmann 2010, pp. 139–143). This implies that cities could serve as a production and habitation center for the farm. In addition, farmhouses and townhouses were often organized around a courtyard, though unlike the townhouse, the farmhouse was not limited to the built surface nor framed by spaces dedicated to public traffic. The spatial management of social relations on these farmhouses is, however, poorly understood. The inventories of Delos mention rooms intended for the housing of slaves that were distinguished from other rooms of residence. There must have been some systems in place to distinguish these, but nothing to identify them has come up during excavation. It has been noted, however, that some farm towers had grilles that locked from the outside. Hence, the hypothesis that they were used to lock up slaves (Morris and Papadopoulos 2005). The central court also appears as the setting for much of everyday life. Work happened there (in the house from Dema, the equipment for grinding the grain was there), food was prepared, and eating as a family happened there ([D.] 47, *Against Evergus and Mnesibulus*, 55).

Agriculture in Context: Socioeconomic Aspects

Studies have often stressed that in Greece agricultural activity and land, in general, were intimately linked to the Classical city, and as a result have explored these connections (Hanson 1999; Morris 2000). So far, the debate has focused on the nature of a group of average landowners that we can call the *mesoi*, who worked their land themselves (the Greeks said they were *autourgoi*) from the eighth down through the fourth century. During this period, these same men assumed the role of defenders of the city as hoplites and, as citizens, they were the pillars of the polis (most recently: Duploux 2018). All this was the basis of what Morris called the middling ideology of the city. The emergence of this group in the Archaic Period has been described as the “Greek agrarian revolution” (Hanson 1999, p. 87; contra: Howe 2008, pp. 33–38). In the Hellenistic period, though, these *mesoi* seem to fade in importance with the rise of a class of more powerful landowners. The archaeological surveys seem to support these two great movements in the social history of agriculture: everywhere rural sites were numerous in the Classical period and often still at the beginning of the Hellenistic period, but then many disappear and those which remain tend to increase in size. Here, we see the weakening of small and medium farms in favor of large estates; hence, the forcefulness of the claims for a division of land in the Hellenistic period. The inscriptions, nourishing a continuous stream of studies on the elites and their public behavior, only reinforce the impression of a Hellenistic city where the figure of the *autourgos* has disappeared. This debate, very fierce around 2000, quickly calmed down for lack of new data (assessment in Foxhall 2007, pp. 28–35). It is important to recognize, however, that this debate rests on an evolutionary scheme of the Greek city which wanted to see in the Classical period the “golden age” of the city and in the Hellenistic period that of its decline (see Hanson 1999, pp. 323–433; Howe 2008, pp. 33–38). However, in many areas, this type of decline and fall scheme seems outdated, especially for the Classical and Hellenistic city. That the decline of the Greek city was a myth which we have inherited from the Greeks themselves, a myth that does not accommodate the archaeological evidence from the post-classical polis (Howe 2008, pp. 1–24). All of this suggests we use caution when deploying a social approach to the history of Greek agriculture (Fantasia 2003, p. 143; Howe 2008, p. 25).

On this sociopolitical aspect of agrarian history, we will content ourselves with a few remarks. One is about the fundamental structure of the *oikos* (household). The household was based on the marriage of its male leader and thus on a couple who was the center; it includes both men and women (the *sómata*), landed resources from which they derive their sustenance (the *kleros*), and the house (*oikia*) in which they live; it also incorporates a network of relatives (*syngeneis*) and friends (*philoí*) that can be relied upon in times of need (McDowell 1989; Foxhall 1989; Davies 1992, pp. 288–292; Cox 1998, pp. 130–167; Roy 1999b; Oulhen 2004, pp. 292–293; Saller 2007; Damet 2012, pp. 33–37). The concept of the *oikos*, well present from the beginning of the Archaic Period, was still found in the texts of the second century CE. The household, then, was a sociopolitical constant and thus not unique to rural society. There are identical socioeconomic structures, like the *oustal* of southern France, which can be considered to have characterized Mediterranean Europe for a long time. At the same time, family and the physical house have a strong lineage dimension (Le Roy Ladurie 1975, pp. 51–87). An anthropological study of this type of structure would undoubtedly contribute a lot to our understanding of the Greek agrarian society but remains to be undertaken. And yet, the *oikos* has shaped the nature of the Greek farm. Indeed, the *oikos* was how Xenophon understood it: the *Oeconomincus* (1.5) begins with the question “What do we mean by the *oikos*?” Management of the work force and harvests were practical issues of *oikonomia* (*oikos* management). This has concrete implications for exploitation strategies because it is necessary to take into account the size of the family, its access to tools, the land that it can dispose of, the rights of use that it can benefit from, and its relations with the markets. The *oikos* was also a dynamic structure, not only because of the biological evolution of families and their networks of relationships, but also because of the rules of the transmission of goods, the existence of a land market, and the possibility of renting land. Thus, each *oikos* was constantly evolving. A farm must therefore be analyzed more as an *oikos* than as a *kleros* (a parcel/plot of land). *Kleroi* are the political means of organizing *oikoi*. The management of an *oikos* also has a symbolic dimension: the goods that compose it are also marks of status. This was visible for livestock (Howe 2008, 2011, 2014a). It has been found in the study of sacred leases that tenants could also be motivated by the desire to help the community to which they belonged (Papazarkadas 2011, pp. 150–155, pp. 204–206).

Second, agrarian society was a juxtaposition of *oikoi*, as Aristotle says (*Pol.* 1.2.1–10.1252a24–1253a5), and allowed for other socioeconomic behaviors that put strain on agricultural practices. The ancient texts stress the search for self-sufficiency (*autarkeia*), which underscored the overall capacity of producers to generate surpluses and put them on the market (Bresson 2016, pp. 199–203). To this, we can add other observations. The most striking is the weakness of collective practices. There is not a single mention of a common flock, which might have been a solution to the problem of wandering animals. There are also no signs of efforts to coordinate community-wide crop rotation. Biennial rotation has always worked only within the main production unit. Greek agriculture was an agriculture of “everyone at home.” There is at best only a mention of public spaces that every citizen could access. The clearest case is that of the borderlands, which were difficult to use for agriculture. And they were restricted to citizen use. If a foreigner wanted to have access to a particular area of borderland, he had to receive a grant of pasturage (*epinomia*). If this were granted, the foreigner could, as a citizen did, graze his flocks there (Figure 14.5). The right to harvest wood, *epixylia*, was more rarely attested, and was never allowed on private property. There was no granting of rights like those we know later in Europe, which allowed everyone to harvest grains that had been overlooked by the owner or which opened the harvested lands to herds of cattle and other animals. This individualism in Greece does not mean the absence of a collective life, because it still existed in the context of village (*kóme*)

pp. 515–518). In Mylasa, at the end of the second century BCE, a certain Thraseas exploited at least three distinct agricultural domains scattered across the plain. These were certainly different parcels because each one had its own buildings and tools. Thraseas' property was built up by inheritance, purchases, and even by leases; he has also become a tenant of sacred property (Pernin 2014, p. 442). The case of Thraseas is interesting and makes it possible to understand one point: the property of an individual did not automatically translate into the size of his farm because the same person could be the owner of several farms, according to a scheme which seems current among the elites and later more widely in the Hellenistic period. The Roman conquest will push this evolution to its end, allowing the accumulation of farms not only in several different cities, but sometimes even in several different provinces.

In terms of farm size, we have data only for some cities of the Classical period, most importantly Athens (Foxhall 1992). The figures concern nonstandard properties (Lohmann 1993, pp. 224–226; Foxhall 2007, pp. 57–58; Bresson 2016, pp. 142–149). A member of the Athenian elite of the early fourth century, Aristophanes son of Nicophemos, had more than 300 *plethra* of land (27 ha., Lys. 19, *On the Property of Aristophanes*, 29), and his holding was about the same size as Plato attributed to Alcibiades' property (Pl. *Alc.* 1.123c). Another large farm, that of Phainippos in 330 BCE, was more than 40 *stadia* when it was measured, according to the speaker ([D.], 42, *Against Phaenippus*, 5), which has sparked divergent interpretations. Most likely, the farm was about 40 hectares (Bresson 2016, pp. 146–149). The large Athenian properties therefore had areas that were measured in hundreds of *plethra*. This is far beyond what Alison Burford Cooper called the family farm, where the members of the hoplite class must be located. Here, we are dealing with only tens of *plethra*, probably between 40 and 60 (3.5 to 5.5 hectares, Burford Cooper 1977–1978, pp. 168–170). This was also the dimension of *kleroi* often attributed to new citizens. Below this size, there existed a category of micro-properties that allowed their owners to live off the land, but at the cost of significant risks, requiring strategies for the maximum exploitation of available resources. The hierarchy that emerges consists of three main tiers: (1) the fragile peasants, the *thetes*; (2) the well-off peasants, equivalents of the laborers of modern Europe; and (3) those at the top, an elite whose farms were managed very differently. The way everyone prepared their land for seed was a visible measure of their wealth and status. The poorest used a *dikella*, a digging stick, the emblem of the precarious peasantry (Amouretti 1986, p. 96); owning an arid and a *zeugos* – a yoke for the oxen – showed a certain wealth (hence the mention of social categories with a name derived from *zeugos*, like the Athenian *zeugitai*; hence also part of the symbolic valuation of the oxen plowing: Van Wees 2006, pp. 352–367). The great landowners must have owned several ards and teams of livestock and could afford the luxury of having both mules and oxen.

This hierarchy of properties was not universal and timeless, however. In classical Sparta, the Equals, the *homoioi*, have properties from 18.5 to 44.5 ha, (Hodkinson 2000, pp. 382–385), which was much larger than the property of an Athenian hoplite. In the Hellenistic period, we see very large properties well beyond those found in Classical cities (Bresson 2016, pp. 149–152). Relatives of kings were entrusted with large estates in return for their services. In Chalkidiki, Lysimachus granted to a certain Limnaios several areas planted with trees: 1200 *plethra* on the territory of Sermylia, 360 on that of Olynthos, and 900 on that of Strepsa (plus 20 *plethra* of vines). This suggests farmland under monocultures of 223, 32, and 108 ha (Hatzopoulos 1988). Another example, Aristodikides of Assos, received 6000 *plethra* (540 ha) from Antiochos I in 270 BCE (Welles, No. 10–13). Here, an important barrier had been crossed, that of the thousand *plethra*, but in particular conditions since it deals with *dóreai*, that is to say, with portions of royal land granted to members of the ruling elites close to sovereigns (Schuler 1998, pp. 179–180). Such grants upset the equilibrium of land in cities because in general these properties were then attached to the territory of a city.

Whatever one does, the sources, when one wishes them to be precise, always return to the great estates, those for which the agrarian *oikos* has become an *agribusiness*. The modes of management that were practiced on such estates were very different from those used by the less wealthy farmers. A major feature of these large estates was the delegation of decision-making power by the owner, the *despotes ges*. The oldest traces of this system date back to the fifth century BCE. Labor was then specialized and hierarchical under the supervision of a steward, usually of servile status (overseers/*epitropos* or *epistates* in Greek). This steward serves as an intermediary between land workers and landlord. The latter may be content to exercise his authority by examining the accounts presented to him by the manager. Pericles had obviously adopted a method of this kind, it has been considered something of a “household revolution” (Descat 1998, pp. 105–106, who speaks of an “oikonomic” revolution). Some owners, obviously in the minority, took a closer interest in their land and agricultural production. Xenophon, or at least his literary character Ischomachos, was the most emblematic figure of this group of *philogeorgoi*: one of the goals of the *Oeconomicus* was to urge the reader to become more involved in the exploitation of the land. The system of delegation could be made more complex to meet the needs of those who owned several parcels: it was enough to rely on businessmen, also often slaves, who were the interlocutors of domain managers. This usage, well attested for the Imperial Roman period, was already in place in the Classical period (for Pericles, it was a certain Evangelos: Plut. *Per.* 16.6; there is also the case of Arrhidaios, in the service of Queen Laodice II, in the middle of the third century BCE: Welles, no. 18-20). Managers used complex accounting techniques. All this was understandable only in the context of an exploitation intended to release surpluses, those which allowed in particular the maintenance of the Hellenistic elites. This was obviously not the method followed by all, and it obscured the existence of small farms oriented toward household food production. Although this elite production concerns only part of the agricultural sector, it does demonstrate that Greek agriculture could be based on complex structures (Morris and Papadopoulos 2005, p. 167, p. 180: “The scrutiny of the specifics of different farming strategies further recasts the classical Greek countryside as an arena of aggressive exploitation rather than sufficiency...”). Perhaps it is in this area that the most innovative and, in fact, one of the most essential drivers of economic growth can be found – though we must keep in mind that we are used to seeing agriculture as routine and perceiving it as an almost proto-economic activity. And yet, as many elements demonstrate, agriculture was an integral part of the economy. For example, the need to supply markets led to the intensification of agriculture in many peri-urban areas. In Delos, in the third century BCE, this resulted in a ring of market gardens (Bruneau 2006, pp. 470–489). Above all, some large farms were able to develop commercial crops and to create regions purposely devoted to the production of specialized goods (Thasian wine, Milesian wool, and the like) and thus precipitated the development of roads and redistribution of markets.

Large farms were primarily based on slave labor. It was a constant fact of the Classical and Hellenistic periods even if its magnitude was the subject of very lively discussions in the 1990s (Jameson 1977–1978; Jameson 1992; Cartledge 2002, pp. 163–164; Morris and Papadopoulos 2005, pp. 181–183). In Chios, for example, where as a center for the slave trade, this type of labor played a major role in the development of large farms in the late fifth century BCE; there, slaves were quick to desert (Thuc. 3.73, 8.40.2; Ath. 6.265b–6.266f; see Jameson 1992, pp. 139–140). It must be remembered that at this same time Chios was famous for its wine which it exported extensively. A similar connection between commercial viticulture and the role of the servile population can also be found in Thasos in 374 BCE (Xen. *Hell.* 6.2.6). The *ampelourgoi*, the workers of the vines, are also one of the categories of specialized slaves which evidence regularly mentions. In this respect, the Hellenistic period has brought little systemic change. On the other hand, the question arises about the place of

slaves in medium-sized farms. In the *Dyskolos* (328–331), Menander presents a fairly rich proprietor, a certain Knemôn, who wants to cultivate his land alone, without a slave, without a salaried worker (*misthôtos*), and even without the help of his neighbors. This was obviously a miscalculation, and Knemôn ends up realizing that one always needs help (713–714). Salaried work was a possible alternative to slaves and offered greater flexibility (Jameson 1992, pp. 143–144). It is partly for this reason that there were agricultural workers among the metics, as shown by the professions of some of those who fought alongside the Athenian democrats in 404–403 BCE (Rhodes and Osborne, No. 4; many metics are gardeners or hired land-workers, *georgoi*). Metics could also rent farms or acquire them if they had received the *enktesis*, but the phenomenon does not seem to have been widespread (Papazarkadas 2011, pp. 323–325, about the sacred lands).

Entire regions in the Classical period operated according to another system, working the land with those considered to be subordinate and semi-servile. This is the case of the Helots of Sparta, the dependents of the Cretan cities, the Thessalian Penestes, the Gergiths of Miletus (Hodkinson 2000, pp. 113–149, for Sparta; Ducat 1996, for the Penestes). The payment of an agrarian rent (*apophora*, *syntaxis*) to the owner makes this system a form of sharecropping. In Hellenistic times, this formula disappears with the integration of these populations into the civic body (Cartledge and Spawforth 2002, p. 56, pp. 69–71). In contrast, the cities of Asia Minor included a rural population still largely non-Greek. The rural toponyms in the leases of Mylasa testify to the vigor of the old Carian ethnicity (e.g. Pernin, pp. 144–152). Should we juxtapose semi-Hellenized farms with owners living in the city and Hellenized ones? Probably not: in Mylasa, even the sanctuaries that buy and rent properties are largely identified as Carian. In the lower Maeander Valley, wet pastures were exploited by a population of *Pedieis*, apparently nomadic pastoralists who coexisted with a Hellenized population cultivating the hillsides and dry areas (Thonemann 2011, pp. 14–16). In other cities, the sources mention free agricultural populations, owners of the property that they exploit, but not holders of the citizenship of the city, in this case Colophon (Étienne and Migeotte 1998, with the *enektêmenoi*).

The Polis and Agriculture

Organization into *poleis* has strongly framed the development of agropastoral activities. In Classical Greece one had to belong to a *politeia*, that is, to be a polis citizen, in order to be a landowner. This right of *enktesis* directed certain socio-legal groups toward, or diverted them from, these activities. The praise of husbandry was a frequent literary theme and highlighted how much this activity helped to build good citizens (Howe 2014b). A famous passage of Xenophon on this subject is often quoted (*Oec.*, 5.1–5.11). Agricultural products occupy a prominent place in the oath of the Athenian ephebes (Rhodes and Osborne, No. 88). The role assigned to the earth in the ideal cities of philosophers goes in the same direction. But we must not be deceived either: during the Archaic and Classical periods, the land was largely a good like the others; it was sold, bought, and rented. A passage from a speech of Lysias demonstrates this well (7, *The Matter of the Olive-Stump*, 4–10). In practice, the existence of many *poleis* in much of Greece has also largely determined the movement of livestock. Where the city was the norm, it was difficult to organize large-scale transhumance like that set up in Republican Italy. The animals moved, but only inside the territory of the city. The agreements organizing their circulation concerned only neighboring cities, which wanted to regulate the cohabitation of pastoralists in the border areas that separated them. The case of Hierapytna, in Crete, was very exceptional: this city seems to have pioneered the

Hellenistic era policy of favoring the access of its pastoralists to grazing located throughout the eastern part of the island (Chaniotis, 1995).

The Greek city also affected agriculture by the tax levies it imposed. On this point, the conversation has evolved a great deal since the time of A. Boeckh, when Athenian examples were used to reject the idea that the land and its products could have been the object of a taxation which was considered characteristic of tyrannical regimes (for example, under the Pisistratids: [Arist.] *Ath. Pol.* 16.4) or Hellenistic monarchies, unless they affected dependent peasant communities such as the Messenians (Paus., 4.14.4–4.14.5; Migeotte 2014, pp. 229–244, pp. 504–507). This dynamic has been challenged recently (Pernin 2007). If it remains valid for the Athenians of the Classical period, it is because Athens could afford the luxury of non-taxation, thanks to the income that it possessed, particularly that derived from its silver mines. It should be noted, however, that the Athenian *eisphora*, instituted in 427 BCE and imposed in exceptional but all too frequent intervals, was indeed a property tax, since the agricultural lands were entered in the declaration of the goods (*timema*) of the citizens. Moreover, Athens did not hesitate to create a tax on cereal production from its north-Aegean *klerouchia* (Stroud 1998). In places other than Athens, epigraphy reports multiple instances of regular taxes paid by the citizens on agricultural production in independent cities and thus not subject to the royal taxes. An inscription of Teos from the end of the fourth century BCE, on the occasion of the incorporation of a small neighboring settlement, gives a sense of the experience, taxing working oxen (which can also be requisitioned), sheep, and pigs, and even products of the forest. This list faithfully reflects the resources of the mountainous region in which the taxes were imposed (Robert 1976). A list of tax farmers from Cos, in the Hellenistic period, also mentions the levying of taxes collected from wine produced at Kalymnos, from gardens, and from wool (*Syll.*³ 1000). The tax farmers (*telónai*), who generally had a rather bad reputation, did not hesitate to levy taxes on the rural population (Etienne and Migeotte 1998). The weight of these civic taxes would be added to those demanded by kings on the subject cities. Examples of agrarian taxation show that the preferred solution was to tax production rather than land. For livestock, on the other hand, it was easier to collect taxes on the animals themselves. Finally, it seems that the practice of agrarian taxation was more frequent in Asia Minor, which could be explained in part by the antiquity of the practice, as it goes back to the Achaemenid monarchy. The balance of all this, however, is a very different image from what we have for European peasantries of the Middle Ages and modern times, which were subject to heavy taxation. The same was not true of Greek agriculture, which was able to develop without too many fiscal burdens being imposed on it.

Another aspect of civic intervention in agriculture concerns crisis management. Disasters were a reality in ancient Greece, caused first and foremost by climatic hazards: abundant rains (and therefore devastating floods), late frosts, or excessive drought. These crises generated a recurring risk of poor harvest (*aphoria*). Athens even had bad olive years. Around 170 BCE, an Athenian decree shows that the city was forced to import oil for the needs of its population (*Syll.*³ 640). Plutarch relates that during the winter of 307 BCE, at the time of the Dionysia, very strong and unexpected frosts destroyed the olive crop and the fig trees and compromised the entire grain harvest (Plut. *Demet.*, 12.5–12.7). Faced with these risks, religion offered some help. Here, it is necessary to comment on the agrarian dimension of Greek religion. A sacrificial tariff from Mycalian Thebes in Ionia demonstrates how mountain pastoralists honored deities from their herds' productions in the fourth century BCE (*IvPriene* No. 362). In the Hellenistic period, several new religious holidays incorporate a dimension of this kind. When Magnesia on the Maeander organized the festival of Zeus Sosipolis ("who saves the city"), it was decided that the bull to be sacrificed would be consecrated by the city at the

time of sowing and that all would then say a prayer for the success of the crops and the prosperity of the flocks (*Syll.*³ 589). A festival in the same tone was organized in 120 BCE by the city of Bargylia in honor of Artemis Kindyas (*SEG* 45, 1508).

War was the other great cause of crisis. From the beginning of Greek history, raiding was necessary to feed armies while on campaign. Beginnings with the Peloponnesian War, this was expanded to the destruction of crops in order to harm the enemy more directly, although the method was too complex to implement on a large scale (Hanson 1983). This practice continues in the fourth century and the Hellenistic period. The flight of part of the slaves working on the farms, as well as the loss of seeds and plow oxen, often aggravated the situation. In addition to these perennial threats, the cities of Asia Minor long had to face the raids of the Galatians after their invasion of 278 BCE. The risks associated with war have sometimes been taken into account in agricultural leases where the payment of rent is suspended or the period before the end of the lease is extended (Pernin 2014, pp. 519–521). Eretria's contract with Chairephanes (see above) includes the possibility that a war might prevent the beneficiary from exploiting his land. It is granted to him that he will be able to extend the ten years of use which has been granted to him. Strabo also says (9.2.18 = C407) that the disorders in Boeotia that marked the aftermath of Alexander's death explain why the Chalcidian Crates could not complete his infrastructure work. And yet, cities and kings tried to take measures to protect the crops. From the fourth century BCE onward, protecting the crops was integrated into the policies for protection of the territory (*phylaké tês chōras*). Not only are all the things that can be transported placed out of reach of the enemy (see Athens at the beginning of the Peloponnesian War, Thuc. 2.14), but the cities also developed their network of rural fortresses so that the farming population could find refuge. They also put some of their armed forces in the service of crop protection (Ober 1985; Boulay 2014, pp. 56–73). The city of Cyzicus during the decade of 270–260 thus invested part of the money given by the dynast Philetairos of Pergamon into securing the *chōra* against the Galatian invasion (*OGIS* 748). By this time, however, management of food crises (*spanositiaî, sitodeiaî*) by the cities no longer directly concerned agriculture, since the solution adopted at that time was to try to improve the external supplies of cereals and to distribute them to the urban population.

The Dynamics of Agriculture

The image of a routine and immutable system of farming is without doubt one of the most difficult ideas to get rid of. Yet the picture of Greek agriculture toward the end of the first century differs from that which might be common in the beginning of the fifth century. The two images offered at the beginning of this chapter, the Attic one from the fourth century and the other from Hellenistic southeastern Asia Minor, are misleading in that these were peak moments in settlement density, something that did not happen at the same time in both regions. In the latter Hellenistic period, when the lower valley of the Maeander was flourishing, Attica was in a process of decline. We know this through archaeological surveys, which made it possible to set up a periodization for the history of the countryside and also to tease out differences from one region to another. This work has compelled us to take account of the changes that affected Greek agriculture and also to question the idea of historical progress and linear development.

Survey methods originated in the 1960s and began to be applied in Greece in the 1970s and 1980s. After that, archaeological survey became commonplace everywhere in Greece, though used to a lesser extent in Asia Minor. Since the mid-2000s, the interest in survey has

decreased, although it is still often deployed. Some initial conclusions were drawn 25 years ago by Susan Alcock in a landmark book (Alcock 1993, pp. 33–92). There, Alcock found that the published surveys reflected the same evolutionary arc: at the end of the Archaic Period, the number of rural sites had grown gradually and then accelerated in the sixth century, while in the Classical era sites appeared everywhere, suggesting an age of settled countryside, with a defined hierarchy of rural sites. The most numerous of these were of rather modest size and were interpreted as hoplite farms, the larger sites in turn corresponding to estates or villages. In addition, land near cities appears to have been heavily farmed. The scattering of a patch of sherds on farmland was seen as evidence for manure fertilizer from the inhabited centers. Regionally in the second half of the fourth century, and then more generally in the course of the third century, Alcock saw a decline in settlement: small sites disappeared, and only a few rural centers survived. This decline was to last until late antiquity across the Argolis, Boeotia, and Attica. At the same time, as observed by Bintliff (2008, p. 23, p. 28), the urban centers of these regions experienced a significant retraction, a sign that the population seemed to be disappearing from the countryside but also had not retreated to the cities. The explanations given for these phenomena were diverse: overexploitation of the environment and impoverishment of soils, and cities being more and more dominated by a narrow elite. It is difficult to translate these archaeological findings of a decline in the number of rural sites into economic history, but it is tempting to see the signs of the triumph of large estates.

Since Alcock's study, new surveys have qualified its synthesis (review in Bintliff 2008). First, in the same regions, cities do not always suffer the same fate. In Boeotia, for example, the Tanagran countryside seems to have been less affected than the other cities by the decline of sites in the Hellenistic period. In the Oropos region, decline was only slight, and occupancy was still based around small sites that appear to be farms (Cosmopoulos 2001, pp. 57–60, pp. 74–79). Oropos, which for a long time was a frontier region disputed between Athens and Boeotia, seems to have been much better off than the south of Attica. There, difficulties become clear only in the first century, when many sites were abandoned. Yet, this Hellenistic “depression” was not ubiquitous. Laconia, which has been documented by thorough survey (Cavanagh et al. 2002), presents a very different situation. Here, we see a peak in development in the years 550–450 BCE, with the decline occurring in the middle of the fifth century. In contrast, the end of the Classical period marks a renewed interest in the countryside, especially in the northern part of the region, toward Sellasia, though this activity too decreases over time. It is therefore tempting to relate this to the vagaries of Spartan history, as Graham Shipley cautiously did (Cavanagh et al. 2002, pp. 257–337). More notable are the signs of a new economic geography of the Greek countryside. If Attica, Central Greece, a good part of the Peloponnese, and the Cyclades seem to enter an age of deserted countryside, some regions are experiencing the opposite trend. Achaia and Aetolia – Greece on the western peripheries – seem to have very dynamic countrysides during the third and second centuries BCE, as do the eastern shores of the Aegean Sea. The research carried out by H. Lohmann in the region of Miletus shows that the Hellenistic period was an age of settled countryside (Lohmann 2004, 2014). We see the same thing on Samos and Chios. This dynamism corresponds to what is believed to be a shift in the economic heart of Greece from the western shores to the eastern shores of the Aegean.

Another sign of change: agricultural knowledge enters the field of literature. The fourth century BCE sees the writing of the first agricultural treatises, although Hesiod, with *The Works and Days* and its agricultural calendar, can be considered a model and predecessor (Amouretti 1986, pp. 223–238). These agricultural treatises must be taken for what they are, i.e. not studies of agronomy per se. It would indeed be anachronistic to put this production on the same

level as that which develops after the eighteenth century and which is then based in particular on a scientific revolution. Moreover, the Greek word *agronomos*, when used as Plato does in the *Laws*, designates a person in charge of the rural police. The other difficulty is that we have almost nothing left of this abundant technical literature, except the *Oeconomicus* of Xenophon or the echoes we find in Aristotle, Theophrastus, and Athenaeus, in the Latin treatises of agriculture (see the list of Greek predecessors given by Columella, *Rust.*, 1.1.7–1.1.11), or in the Byzantine *Geoponica* (see discussion in Chapter 30 of this volume). Yet these are enough to show that from the fourth century BCE, sometimes very specialized works had been written such as those of Charetides of Paros or Apollodoros of Lemnos (Arist. *Pol.* 1.1258b40–1258a1) or Androtion, who had written on arboriculture (Thphr. *HP* 2.7.2–3; *CP* 3.10.4). The Athenian Euphronios and a certain Kommiades were interested in viticulture (Boulay, 2012, p. 96). This production had not slowed down in the Hellenistic period—on the contrary, even King Attalus III of Pergamum was recognized as an author to be read on these questions (Varro *Rust.* 1.1.10; Plin. *HN* 18.22; Columella *Rust.* 1.1.8). Agricultural science also participated in the wider intellectual dialogue. When Aristotle was able to describe the development of the chick in the egg (Arist. *HA* 6.3.561a6–562b) or Theophrastus the effects of rainfall on crops (*CP* 2.2), both reflect the integration of agricultural knowledge into botany, zoology, medicine, even philosophy. On the other hand, it seems that the agricultural treatises tried to describe agricultural practices and to encourage the ones that seem the best—for example, the advice about planting. The intended readership was the big landowners, from whom we sometimes see a real curiosity for experimentation (we see it, but outside our geographical space, in the archives of the nome of Apollonios in Egypt in the third century BCE: Clarysse and Vandorpe 1995). Of course, all of this was already noticeable in Xenophon (Kanelopoulos 1998). The practical dimension of these texts is undeniable even if they could also be the subject of scholarly or recreational readings.

Evolution of practice was also reflected by the exploitation of new plant and animal species that complement those that the Greeks had inherited from the Archaic Period. In this area, change was slow but steady in the long term, experiencing some acceleration from the conquests of Alexander. At that time, new trees such as hazel, cherry, peach, and apricot appear. The first citrus fruit (*Citrus medica* L.), also comes from the East (Amigues 2005). In gardens, melon and cucumber were seen as novelties. For previously known crops, the change was reflected in the multiplication of cultivars. Between Theophrastus and Pliny, for example, varieties of olive trees and grapes have greatly increased. These and other changes profoundly altered the diet of the Greeks. The breeding of hens spread from the middle of the Classical period, while the goose was until then the poultry par excellence. Another animal made its appearance in the Hellenistic period, without it being possible to understand the reasons for its expansion in Asia Minor (but not in Greece): the zebu (*Bos taurus indicus*), the ox with hump that comes from the East (Figure 14.6). But in animal husbandry, the most apparent sign of change was the continued growth in the size of some domestic animals such as cattle, as archaeozoology shows (Kron 2014). This was achieved through hybridization and improved breeding techniques and was part of a general trend toward the development of agricultural techniques that was first highlighted for processing equipment (grinders and mills; see Amouretti 1986, pp. 140–147, pp. 162–175) but which appeared also in efforts to improve the biennial crop rotation, notably by exploiting fallow by growing legumes. In winegrowing, we see the diffusion of new practices that testify to the progress of the empirical knowledge of winemaking processes. The appearance in the course of the Hellenistic period of the fashion for *thetalattomenoi* wines, that is to say the “sea water” wines, is a well-known phenomenon (Ath., 1.32d–1.32e), affecting a particular area of the Greek world, the south-eastern Aegean (e.g. Cnidus, Halicarnassus, Myndos). This practice consisted of adding salt



Figure 14.6 Detail of the so-called Archelaos of Priene relief showing a humped ox (zebu) being prepared for a sacrifice to Homer, second century BCE. This Hellenistic work has been discovered in Italy, but the artist who created it was from a city in the Maeander valley. Zebus were progressively replacing normal cattle in this part of Asia Minor during the Hellenistic times. Coins from Magnesia on the Maeander regularly depict a humped ox, clear evidence that the Archelaos relief was designed in the native land of the sculptor, and not in Italy, where the zebu remained always unknown during Antiquity. British Museum, photo of the author. Source: Courtesy of the British Museum.

during winemaking, which prevented the proliferation of bacteria. To stabilize the wine, heated gypsum was also added (Boulay 2012, pp. 103–105). These practices have proven effective, and while all this certainly does not make an “agricultural revolution,” it definitely removes the image of a routine activity and unchanging attitudes.

Conclusion

To see agriculture as an area where only routine practices prevailed misses the economic dimension. If we extend the perspective to include the Archaic and Imperial Roman periods, the impression of constant evolution is even clearer. Over time, we see a process that has resulted in the diversification of crops and agricultural practices, the conquest of landscapes, the integration of the countryside into the world of trade, and the development of large farms managed in a complex and efficient way. In this way, Greek *poleis* have been able to feed men by combining production and commerce. Obviously, these gains have not always been sustainable; the slow depression into which the countryside of much of Greece sinks in the Hellenistic era, which Imperial Rome will try to stop, shows that nothing was ever static. To put it another way, the Greek countryside has a history. Here again, surveys have served us well and deserve the historian’s attention. Archaeological survey should be integrated into the questions of historiography – their role in the history of war has been especially fruitful. In sum, it is time to give the countryside a place in the history of Greek economics and religion.

ABBREVIATIONS

<i>Syll.</i> ³	= Dittenberger, Wilhelm, et al. 1915–1924. <i>Sylloge inscriptionum Graecarum</i> , 3rd ed., Leipzig.
<i>OGIS</i>	= Dittenberger, Wilhelm. 1903–1905. <i>Orientalis graeci inscriptiones selectae</i> , Leipzig.
Rhodes and Osborne	= Rhodes, Peter J. and Osborne, Robin. 2003. <i>Greek Historical Inscriptions. 404–323 B.C.</i> , Oxford.
<i>SEG</i>	= <i>Supplementum Epigraphicum Graecum</i> . 1923. Leiden/Amsterdam: Gieben/Brill.
Welles	= Welles, C. Bradford. 1934. <i>Royal Correspondence in the Hellenistic Period</i> , New Haven.

FURTHER READING

Two books can initiate the reader into the main conversations about ancient Greek agriculture. L. Foxhall (2007), about olive cultivation, is in fact a broad study about agriculture and a brilliant overview of 20 years of academic progress on this topic. In a very different way, N. Papazarkadas (2011) offers a systematic inquiry about a special class of inscriptions, land leases in Classical Athens. His conclusions are nonetheless important. Two shorter (and older) papers, Lohmann 1992 and Pritchett 1956, give a glimpse into survey archaeology and to rural life in Athens. Students and scholars must be aware that important work has been done and still is in other academic languages; therefore I recommend two books, one in French (Amouretti 1986, about grain and oil, as this book is a good example of anthropological approach of ancient agriculture) and the other in German (Schuler 1998, about Hellenistic Asia Minor).

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