Plain of plenty: farming practices, food production, and the agricultural potential of the Late Bronze Age (1600-1200 BCE) Argive Plain, Greece

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Chapter 2

Mycenaean society and economy

The 'Mycenaean period' covers a time of *c.* 400 years at the end of the Bronze Age (*c.* 1600-1200 BCE).[1] It is marked by the emergence of complex palatial hierarchy and administration which used a specific writing system, Linear B, to record its activities. Even though the societies examined in this thesis are mainly located in the southern mainland Greece and the Aegean, archaeological finds from Cyprus, Egypt, Levant, Hittite empire, southern Italy, Sicily and Andalusia bear witness to the extent of the Mycenaean trade exchange and influence. Late Helladic (henceforth LH) and Late Bronze Age (henceforth LBA) are the chronological terms often used side by side to describe the societies inhabiting the Aegean between *c.* 1600 and 1200 BCE. Alongside them, the term Mycenaean is still widely used to specifically indicate the southern mainland populations from other LBA Aegean societies, for example (the Minoan) Crete, the Cyclades, and northern Greece (e.g. Manning 2012; Shelmerdine 2008b).[2]

Like other Late Bronze Age Eastern Mediterranean civilisations, the Mycenaeans sustained themselves with crop cultivation and animal husbandry. At the same time, their political and economic organizations went through major changes, which may have changed the nature of the subsistence production. While agriculture is the main topic of this thesis, the following chapter gives an overview of some of the key characteristics of the Mycenaean societal, political, and economic structures as they appear in textual evidence. Understanding the organization of subsistence strategies, land use and ownership in a hierarchical society has relevance to the ways farming may have been practised and how the farmer communities can be reconstructed.

The extent of Mycenaean Greece and chronology

In mainland Greece, the Late Bronze Age is commonly defined through its own chronological system, the Helladic chronology, which is mainly based on pottery typologies (see Table 2.1 and appendix 1). According to this chronology, the Mycenaean period extends from the Middle Helladic III/Late Helladic I (henceforth MH III/LH I) to the Late Helladic IIIC (henceforth LH IIIC) (Manning 2012: 13–14). In absolute chronology, the period begins *c.* 1600 BCE. Two competing systems for defining absolute chronology for the Mycenaean mainland exist. The Low Dating is based on similarities of the Greek ceramic types with Egypt and Mesopotamia. The High Dating is based on more recent results of radiocarbon dating, which has given more accurate results for the Early Helladic period but shows a larger error margin for the Middle and Late Helladic periods. Although there are yet unresolved issues with the accuracy of the High Dating for the beginning of the LH period, due to the thriving research interest towards improving it, it is preferred in this thesis.

The Mycenaean period thus began *c.* 1600 BCE, during the transition from the MH III to the LH I period, when notable political changes are observed in the Aegean.

Table 2.1. Simplified chronological table of the Bronze Age in mainland Greece showing the relative chronological system and the two absolute dating systems commonly used to describe the period (adapted from Shelmerdine 2008a). This thesis mainly uses the relative dating system, but whenever relevant, the High Dating is referred to (see footnote 2).

Period	Abbreviation	Low Dating, BCE	High dating, BCE
Early Helladic	EH	3300-2000	3100-2100/2050
Middle Helladic	MH	2000-1600	2100/2050-1700/1675
Late Helladic I	LH I	1600-1500	1700/1675-1635/1600
Late Helladic IIA	LH IIA	1500-1430	1635/1600-1480/1470
Late Helladic IIB	LH IIB	1430-1390	1480/1470-1420/1410
Late Helladic IIIA1	LH IIIA1	1390-1370/1360	1420/1410-1390/1370
Late Helladic IIIA2	LH IIIA2	1370/1360-1300	1390/1370-1330/1315
Late Helladic IIIB	LH IIIB	1300-1200	1330/1315-1200/1190
Late Helladic IIIC	LH IIIC	1200-1100	1200/1190-1075/1050

[1] See Shelmerdine 2008a for further information about the dating of the Mycenaean period.

[2] All three terms are used in this thesis. Late Helladic (III) is preferred whenever it is possible to focus the discussion on the last centuries in the end of the Late Bronze Age in the mainland. However, it is often necessary to discuss more broadly about the LBA, since the evidence used in this thesis expands chronologically and geographically beyond the peak of the Mycenaean period (14th-13th centuries BCE, see Shelton 2012: 143-144). The term Mycenaean is especially useful when the discussion touches upon common cultural aspects of the mainland communities.

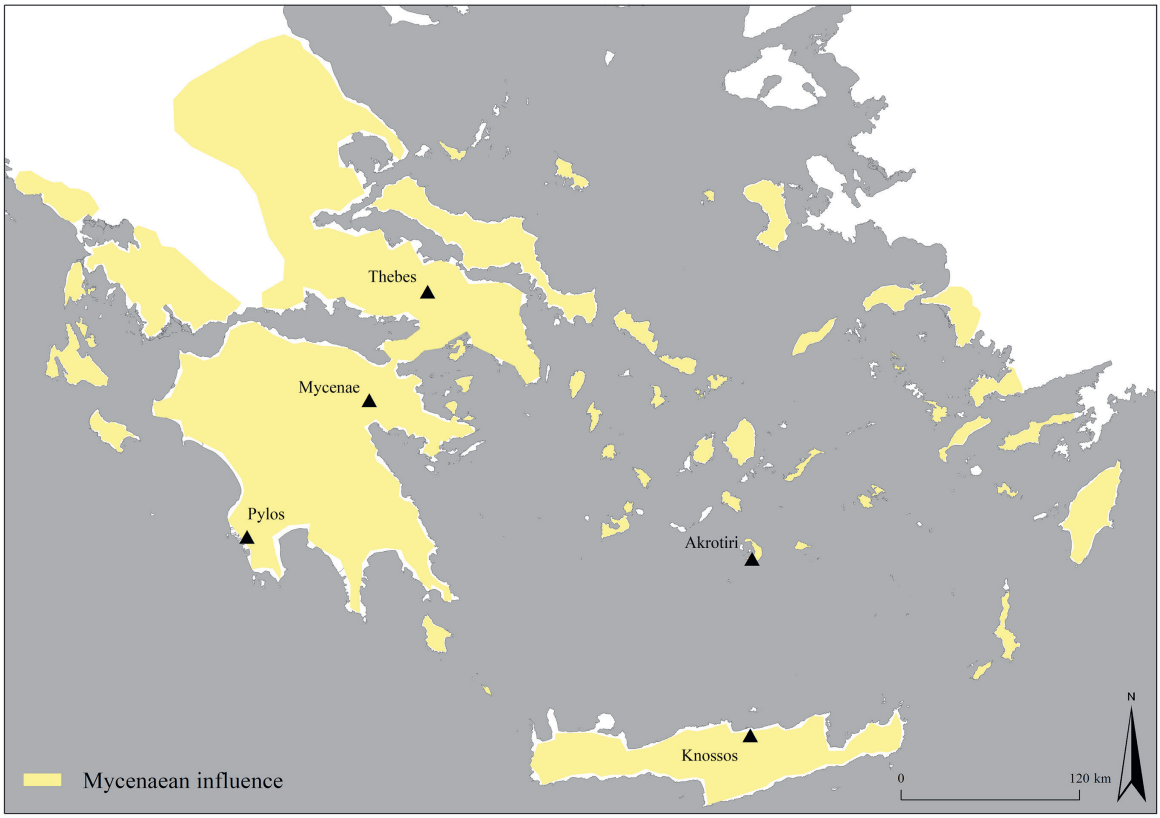

Figure 2.1. The extent of Mycenaean assemblages in the Aegean in the LH III period.

These include the gathering of wealth by elites, and the construction of the first mainland 'palaces', large settlements with fortification walls, quarters for administrative and diplomatic purposes, and sophisticated infrastructures. The emergence of the new elite and the increasing control over the society is accompanied by more uniform material culture (Bennet 2013: 242-43; Shelton 2012: 139–40).

The LH IIIA period marks the beginning of the 'palatial period' for the Greek mainland. During this time, the Mycenaean culture was widespread over the Greek mainland and the Cycladic and Dodecanese islands (see Figure 2.1). The Peloponnese was one of the most important Mycenaean areas. On its western side, the palatial centre of Pylos, also referred to as the Palace of Nestor, controlled a large territory, covering most parts of modern Messenia (the palace was first excavated by Carl Blegen and the University of Cincinnati; see e.g. Blegen 1957; Blegen and Rawson [eds.] 1966. Since then, the site had been studied by the University of Cincinnati teams led by Jack Davis; see e.g. Davis 1997, 2022; Stocker and Davis 2004; Davis and Bennet 2017 for extensive project bibliography). On the northeastern side of the Peloponnese, there were various palatial centres of the Argive Plain. In the south, the palace of Ayios Vasileios oversaw the area of Laconia (Vasilogamvrou 2012; Voutsaki *et al.* 2018; Wiersma 2016; Wiersma *et al.* 2020). In addition, many Mycenaean sites, including the heavily fortified Teichos Dymaion in Achaea, have been recovered in the northern Peloponnese (e.g. Gazis 2017; Papadopoulos 1978; Tartaron *et al.* 2006).

Attica, on the southern mainland, underwent extensive 'Mycenaeanization' (e.g. Laffineur 2012; Papadimitriou *et al.* 2020). In Athens, remnants of large fortification walls and some small house structures remain underneath more recent architecture, suggesting the presence of a potential palace (Iakovidis 1962, 1983; Sioumpara 2018; Wright 1994). On the central mainland, Mycenaean culture centred around the palatial sites of Thebes, first excavated by Keramopoullos (Praktika Tes en Athenais Archaiologikes Etaireias [PAE] 1911, 1912, 1921, 1922, 1927, 1928, 1929; Dakouri-Hild 2001, 2005, 2012; Aravantinos and Kountouri 2014), and Dimini near modern Volos (Adrymi-Sismani 2004, 2014; Pantou 2010). A major fortified site of Gla was also located in Boeotia, southern central mainland (Iakovidis and Threpsiades 2001; Maggidis 2020). Most of the islands of the southern Aegean Sea had Mycenaean occupation, including notable settlements at Aegina, Euboia, Thera (Santorini), Milos, Naxos, and Paros (Berg 2019).

Whereas the southern mainland Greece withheld was where many of the Mycenaean heartlands were located, the northern mainland consisted of communities with more localized cultures. These communities, and their notable local centres such as Toumba Thessaloniki and Assiros Toumba, lacked similar centralized and hierarchical administrative structures to the Mycenaean centres in the south. Therefore, the northernmost areas of modern Greece have not been directly included in the Mycenaean core areas, although they adopted many aspects of the Mycenaean material culture during the Late Bronze Age (see e.g. Andreou 2012, 2020; Dickinson 2006: 26, fig. 2.1). Before the palatial period on the mainland, the emerging Mycenaean palatial elite was closely connected to the Minoan palaces on Crete (Bennet 2013: 235). From the LH I onwards, these formerly Minoan palaces transformed into Mycenaean ones when new Mycenaean(ized) elites took over (Bennet 2013: 243).

The palatial period in LH IIIA-B marks the peak of Mycenaean culture. Palatial buildings gained their form in the LH II/LH IIIA (see pp.25-30), as did most of the pronounced tholos tombs used by the elite (Hitchcock 2012: 202-205; Mee and Cavanagh 1990). By the LH IIIB, besides becoming spaces for administrative and diplomatic purposes, palatial centres included religious facilities such as the Cult Centre at Mycenae, as well as large artisans' quarters for the manufacturing of valuable objects, such as those made of precious metals and ivory. Animal sacrifices, feasting, ritual hunting, and processions were part of the spiritual and social practices of the Mycenaean elite (Boyd 2014; French 2002; Hamilakis 2003; Hamilakis and Konsolaki 2004; Hruby 2008; Palaima 2004; Walberg and Reese 2008). Outside the palaces, the Mycenaeans founded sanctuaries, which had a level of independence and power (French 2002: 47; Maran 2006: 78). Road networks and other infrastructure to expand and improve land use and connections were constructed in the LH IIIA and B (Brysbaert *et al.* 2020; Jansen 2002; Lavery 1990, 1995; Mamassis *et al.* 2015; Smith 1995). Mycenaean pottery in its homogenised form can be found across the Eastern Mediterranean (Shelton 2012: 145; van Wijngaarden 2002), while exotica and raw materials trade extended far across the Mediterranean to coastal western Asia and coastal Aeolia (e.g. Cline 1994; Dickinson 1994: 235, fig. 7.1, 196-206; French 2002: 48, fig. 15; van Wijngaarden 2002). Most of the records of the palatial centres, the Linear B texts (see below), date to the *c.* 100-year period of the LH IIIB (Driessen 2008; Nakassis 2013).

The Bronze Age collapse

The Mycenaean period ended around 1200 BCE, at the end of the LH IIIB2 period (Jung 2012: 172, table 13.1). Even before this final crisis, in *c.* LH IIIB1, many of the palatial centres had faced major destruction. Collapsed walls and buildings are visible in the Argive Plain citadels of Mycenae and Tiryns as well. During the LH IIIB2, some of these structures were rebuilt and other profound changes were implemented inside the fortified citadels, such as the construction of water installations and other infrastructure. Some of the fortification walls were also reinforced and extended (see §3.3). In LH IIIB2, many of the large palatial settlements were nevertheless destroyed, leaving behind collapsed buildings and signs of major fires (Deger-Jalkotzy 2008: 387-90). The citadels were not rebuilt, apart from a few exceptions, such as Tiryns (Maran 2009, 2015). In addition, Linear B stopped being used (Deger-Jalkotzy 2008: 390; Shelton 2012: 146). In the aftermath of the crisis, changes are visible in the burial types, which shift from communal chamber tombs to more modest single cist and pit inhumations (Maran 2015: 285; Pappi and Triantaphyllou 2007).

The Mycenaean period is followed by a population decrease and the abandonment of many of the key sites. However, this is not evident at every notable LBA settlement, as rebuilding and settling continued or even increased after the crisis years, for example at Tiryns (Maran 2006; 2009: 255-257, 2015: 283-286). Similar changes were seen not only in mainland Greece and the Aegean, but all around the Eastern Mediterranean (Shelton 2012: 146). This has been labelled 'the Bronze Age collapse' (e.g. de Menocal and Cook 2005; Middleton 2012; Weiss 1997; Wilkinson 1997) or, more recently, 'crisis' (e.g. Kaniewski *et al.* 2013; Knapp and Manning 2016; Maran 2009).

Many arguments have been presented as to what caused the LBA collapse. The crisis has been linked to a foreign invasion by the Sea Peoples, migratory groups of various nationalities attacking the coastal settlements of the Eastern Mediterranean from the sea. The Sea Peoples are described in the cuneiform texts of the LBA Ugarit and depicted in wall reliefs at Medinet Habu in Egypt (Kaniewski *et al.* 2011: 1). However, in the Aegean there is no tangible evidence of the destruction in the LBA citadels being caused by a foreign invasion (Deger-Jalkotzy 2008: 391). In recent years, rapid climate change and other rapid environmental catastrophes have been connected to the crisis (e.g. Drake 2012; Kaniewski *et al.* 2013, 2015; Moody and Watrous 2016; Tsonis *et al.* 2010a; Weiss 1997). A severe period of drought, lasting for years, might have caused a dramatic depletion of staple resources such as food, and resulted in societal unrest. So far, paleoclimatic studies have shown some signs of a brief period of unstable or drier climatic conditions during the LH III (see details in §5.2.2). However, the most high-definition dating available now places the event *c.* 50 years earlier than the Bronze

Age collapse (Finné *et al.* 2017). The scale of this dry period is unknown, and therefore rapid climate change cannot be confirmed as the trigger for the LBA crisis. The over-exploitation of resources and workforces by Mycenaean elites might also have contributed to the collapse. Nevertheless, the most recent estimates of the workforce and resources needed for the palatial construction projects in the Argive Plain do not indicate that large-scale construction activities would have threatened local subsistence (Brysbaert 2013, 2015; Timonen and Brysbaert 2021). Thus, to date, the exact reasons for the collapse remain unknown, although it seems likely that it occurred due to a number of changes in both political and environmental circumstances.

It has been further questioned whether 'collapse' or 'crises should be used at all to describe the end of the Bronze Age. In the Mycenaean context, material evidence demonstrates that in many places, settlements continued be at least partially inhabited in the sub-Mycenaean period, and the subsequent changes seem less dramatic as previously described. Rebuilding took place at many Mycenaean palatial sites, although on a smaller scale, and comprising housing areas instead of palatial quarters. While many sites were abandoned, some sites, such as Lefkandi on the island of Euboia, experienced growth in wealth and size after the collapse during the post-palatial period (Lemos 2006: 525). Trade in the Eastern Mediterranean continued (see e.g. Dickinson 2007 for Aegean and Eastern Mediterranean trade in the Early Iron Age). Thus, the collapse mainly applied to the political and economic structures related to the Mycenaean palaces and their elite. The subsistence activities of the non-elite likely remained fairly unchanged after the collapse.

Summary: The Mycenaean period in Greece

The Mycenaean era, spanning approximately 400 years during the Late Bronze Age primarily concerned societies in southern mainland Greece and the Aegean islands. Although its chronological span was relatively short, the period oversaw the spread of the Mycenaean culture widely across the Mediterranean. Mycenaeanization, the gradual spread and standardization of material culture, but likely also aspects of political, societal, and religious systems, spread throughout mainland Greece and the Aegean islands.

Recent discoveries for example in the Gulf of Volos, have exposed new Mycenaean 'core areas' (e.g. Karouzou 2020; Lis *et al.* 2023) with several central sites situated in close proximity to each other. Studies into the interactions of such sites with each other but also across the Mediterranean are constantly reshaping our understanding of the societal structures and settlement hierarchy of the Mycenaean cultural group. Even though current evidence seems to suggest that the northernmost areas of modern Greece were not strictly Mycenaeanized, future research has the potential to drastically change this picture.

This peak of the Mycenaean period in around 1200 BCE quickly ends in a population decline and site abandonment. The causes to this crisis that remains yet unsolved, and a great interest to anyone involved with Aegean archaeology. However, the main focus of this thesis is on farming communities responsible for sustaining the people inhabiting the Argive Plain during the Mycenaean peak in the LH IIIB. Thus, this thesis is not trying to solve the Bronze Age collapse but examines the sustainability and livelihood of the population in the preceding period. Nevertheless, as this crisis could have been exacerbated by a climatic change causing food shortages and social unrest, it is of interest to this thesis to examine whether the severity of these issues was increased by underlying problems in resource availability.

Mycenaean society in Linear B textual evidence

From the overview of the LBA chronology and the spatial and material achievements of the people referred to as the Mycenaeans, this thesis moves on to examine the general characteristics and the stratification of the Mycenaean society in more detail. The second part of the following section discusses what Linear B records have revealed about the land use and ownership system in the LBA. This is relevant to the ways agriculture could be practised.

Societal organization

Mycenaean society was complex and stratified. The social stratification is most evident in Linear B texts, which list various titles and occupations held by individuals in Mycenaean administrations. Recent noteworthy studies on the tasks and importance of these individuals have been published by Nakassis (2013, 2015), Killen (1984, 1995, 2001), de Fidio (1999), and Palaima (1995, 2004), among others. Social stratification is also evident in a change in the burial styles and wealth, with more elaborate tholos and chamber tombs with more valuable burial items. These tombs were used for communal or family burials, and thus probably reflect the emergence of elite groups (Dabney and Wright 1990).

Many of the individuals mentioned in the Linear B texts worked as officials in the palatial administration (Nakassis 2013: 1-2). The head of such an administration was a ruler, the *wanax* (Lin. B: *wa-na-ka*), who had religious and ceremonial roles (Kilian 1988: 293; Shelmerdine 1999b: 19-21) and was the main supervisor

of the economic activities of the palace. In Pylos, the *wanax* was also the biggest private landholder (Nakassis 2013: 7). Traditionally, the *wanax* has been considered a king (Hiller 1988; Kilian 1988), but in recent research he is regarded as a director, or the 'director' of the administration (Bennet 2001: 28; Shelmerdine 2008b: 128). Below the *wanax* were various bureaucrats, such as the *lāwāgetās* (*ra-wa-ke-ta*), 'the second man in command', the *hekwetai* (*e-qe-ta*) 'followers', and 'the collectors', who were only mentioned by their individual names. Each of the officials seem to have carried out a variety of tasks within the administration, and each of them either owned or possessed rights to agricultural land (Nakassis 2013: 7-8; Shelmerdine 2008b: 130-32). While the executive officers are mainly mentioned in the Linear B texts of Pylos and Knossos, references to the *wanax* are found in the texts and sealings of multiple Mycenaean locales (Shelmerdine 2008b: 129-31), suggesting that Mycenaean Greece might have had a somewhat standardized administrative system.

The LBA palatial centre of Pylos extended its control over a wide territory in modern-day Messenia by dividing it into sub-districts. Here, the region monitored by Pylos was divided into two provinces and sixteen districts. Each province had a governor, dāmokoros (*da-mo-ko-ro*), and each district had its own supervising administrator (Lupack 2011: 212; Nakassis 2013: 9). While some indications of territorial divisions or satellite settlements can be derived from the place names recorded in the Linear B texts found in Knossos and Thebes, evidence of the presence of similar district division as the one at Pylos has so far not been confirmed (Bennet 2011).

The palatial administration regularly hired special labourers, such as builders, herders, crafters, rowers and soldiers. These individuals were usually rewarded for their work either with food rations or land allocations (Nakassis 2015: 596-97). The palatial centre included workshops for skilled craftsmen who worked under a system called *ta-ra-si-ja*. The palace provided these workers raw materials, such as bronze, which they turned into finished products (Halstead 1992: 61; Nakassis 2015: 583).

The palace also had female workers. Most of them worked in the textile industry, often together with their children, and received a reimbursement from the palace in food rations (further discussion in §2.3 and §6.2). Female textile workers at Pylos (PY Aa-series), Knossos (e.g. KN Ak-series), and Mycenae (V- and Oe-series) all received food rations with a similar volume (*c.* 20 l of grain and 20 l of figs), suggesting that standardised industrial and ration systems were in use (see §6.2.1 for fig volumes, and Palmer 1992 for rations). Elsewhere, male workers at Mycenae[3] and female workers at Knossos received *c.* 1.2 litres of rations per day. Palaima (2008: 386–87) notes that this number is similar to the amounts received by Roman slaves (1.13-1.15 l/day). The female textile workers have been noted to represent lower status individuals of Mycenaean society, and their work has sometimes been categorized as slave labour. This is due to the type of payment (i.e., food) they received for their work efforts, and because many of them are described in the records as having a foreign ethnicity (Shelmerdine 2008b, 139). There is, however, no consensus whether slavery in the sense of forced labour existed in the Mycenaean society. Furthermore, at Pylos, men working as sword-makers and wall-makers (PY An 128 and PY Fn 1427) received similar food rations to the female textile workers (Gregersen 1997: 397-98). This could suggest that these food rations were paid to skilled workers. Other labourers, such as the Pylian unguent-boiler, *ko-ka-ro*, even received larger amounts of cereal and figs, estimated to have sustained him for five months (PY Fg 374) (Gregersen 1997: 397-98).

Not much is written on the people who lived and worked outside the palatial sites and the immediate supervision of their administrators. The Linear B texts indicate that the religious sector, including sanctuaries, had their own high officials, such as priests (*i-je-re-u*) and priestesses (*i-je-re-ja*). (Shelmerdine 2008b: 130-34). In Pylos, some members of the religious personnel received food rations from the palace (PY Fn-series). However, the volumes of these rations were so small that it could have not sustained them (Gregersen 1997: 399). It is possible that the religious personnel received their subsistence mainly from outside the palace.

Among the largest landowners and users in the Mycenaean society were the *damoi* (*da-mo*), who seem to have functioned outside the palatial administration. The term *damos* has been understood to mean two things: the political and geographical districts (e.g. 16 in the Pylian territory) controlled by the palace, or the people and their representatives occupying these districts (Lupack 2011: 212). Each *damos* district had local officials, who were also connected to the palatial authority (Lupack 2011: 212; Nakassis 2013, 9). It has been suggested that the people of the *damoi* had their own administrative boards, who were given the power to conduct legal negotiations on behalf of the people. (Lupack 2011: 12-15; Nakassis 2013: 171-72; Shelmerdine 2008b: 134). The Pylos Linear B records imply that the *damoi* controlled substantial amounts of land, which was likely used for subsistence agricultural production.

[3] In a Tablet (MY Au 658) from the West House in Mycenae, male workers received 'z 960' as a monthly payment, which equals to *c.* 0.64 litres of grain per day.

As demonstrated on pp.10-13, due to this control the *damoi* formed a strong social and economic power. However, the same *damoi* were likely also producing the specific goods that the palace collected as taxes. This means that they were not entirely independent entities, economically or politically.

Of agricultural workers, the Linear B tablets mention mainly herders, and some specialized employees performing agricultural tasks. The tablets of Pylos mention at least 154 different herders. Most of them were shepherds, likely managing the flocks of the palace (see also §5.5.1), but pig and cattle herders are referred to as well (Nakassis 2015: 592). One Tiryns tablet (Ef 2) mentions an 'oxherd' (*qo-u-ko-ro*), while elsewhere (TI Cb 4) they were recorded with their names (Brysbaert 2013: 61; Kajava 2011; see also §2.2.3 and 5.5.1 about oxen and plough teams). In addition, 'fig-overseers', *opisukoi* (*o-pi-su-ko*) are mentioned in a Pylos tablet (PY Jn 829), suggesting that at least there, figs were systematically cultivated and their production was part of the palatial economy. Perhaps this special title bore resemblance to the *sycophantae* ('fig-detectives'), a term from the Classical period indicating officers tasked with preventing the illegal export of figs from Attica,[4] or alternatively persons overseeing the preservation of figs offered to gods in times of famine (Berti 2009: 99-100; Loscalzo 2012: 32–33). Nevertheless, the presence of fig-overseers and the use of figs as payment rations by the palace means that the palatial administration was interested in their production in large quantities. Fig production is discussed further in §5.4.2.4.

Among other subsistence-related low status workers are beekeepers, hunters, net-makers, woodworkers, and (rarely) potters (see Shelmerdine 2008b: 142 for a list of specialized workers). These professions were likely recorded in the tablets only because the labourer had some economic interaction with the palatial administration. Many of these tasks were probably part of the work of farmers, who performed them when cultivation and animal husbandry needed less attention.

Farmers are not visible in the textual records. Since crop cultivation was the subsistence strategy of highest importance in the Mycenaean societies (indicated for example by the food rations paid in cereal, and by archaeobotanical remains of cereal species), it can be assumed that farmers were present in large numbers. Linear B records clearly attest that an individual could hold several simultaneous occupations and titles, and that many of the higher administrative officers held land allocations in return for their work efforts. 'Professional' farmers could have worked on this elite land as hired workers or sharecroppers, as Halstead (1999a) has suggested, or they could have owned their own plots for subsistence production. The administrative officers could have also been at least partially responsible for their own subsistence in the lands they owned if their responsibilities for the palace did not extend over the entire year (see further discussion in §2.3). The absence of farmers in the textual records suggests that the palace was not in direct interaction with them, or that perhaps they were so ubiquitous that there was no need to specifically mention them.

In the textual records, Mycenaean society appears as a complex organization of individuals possessing various professions. The elite consist of bureaucrats (often with a military function) working for the palace, supervising its economic activities. Despite the obvious hierarchy, led by the *wanax*, the palace did not seem to strictly control the activities of the people living in its territory (e.g. Lupack 1999, 2008). Below the palatial elite, many labourers with surprisingly specialised tasks worked for the palace, receiving distinct types of reimbursements depending on the type of 'contract' they had (e.g. Killen 1998; Nakassis 2013; Zurbach 2013). Outside the palatial centres, other settlements had their own administrative officials and specialised workers. In general, many had the right to own property and to make legal decisions without palatial intervention (Killen 1998; Nakassis 2013; Zurbach 2013; see also the following section 2.2.2). In this complex system, the farmers formed a large, but relatively independent group of workers, whose main task was to sustain themselves and, likely, the society by supplying some of their products, or their labour, to the palace. This taxation system is further explored on pp.15-16.

Landowners and users in textual evidence

Farmers practicing agriculture might be absent from the LBA textual evidence, but according to the Linear B texts, various individuals and groups were able to own land, or hold the rights to it. In fact, land seems to have been among the most valued possessions in Mycenaean society, and the recording of land management was one of the most important tasks of the (Pylian) administration (Zurbach 2008: 826). Landownership regulations would have had a major influence on the terms under which land could be cultivated, who was able to enjoy the profits, and how much could be produced on a piece of land. The best textual evidence of the landownership system in the Mycenaean society comes from the Linear B tablets recovered in Pylos.

[4] According to Athenaeus's (*c.* 1st-2nd *c.* AD) *Deipnosophistae (book III)* Sycophantae are mentioned in the History of Attica by Classical author Istros. Only this secondary fragment remains of the reference of Istors. However, *sycophantae* are mentioned by other Classical and later historical authors as well. More recently, the term became to mean someone dishonest and corrupted, using his (political) power for slandering (Berti 2009: 99-100).

More fragmentary evidence is available in the tablets of Knossos and Tiryns (Zurbach 2008: 826) The following section presents a brief overview of the Mycenaean land use system as it is currently understood. The topic is debated, however, and many contradicting perspectives on landownership issues exist.

A series of Linear B tablets from Pylos (the PY E-series) has recorded transactions related to landownership and use. This series includes three sets focussing specifically on landownership; the En/Eo, the Ep/Eb, and the Ea. (Lupack 2008: 55). These tablets were likely compiled for the use of the local palatial administration, who wanted an inventory of the lands (and individuals) from which they could collect taxes. This assumption is based on the notion that these texts only describe the identity of a landholder and the size of the holding, but not, for example, the location of the plot(s). Thus, the palatial administration was mainly interested in the target production of the various landholdings (Bennet 2008; Killen 1984; Lupack 2008: 53-57).

The Pylian territory was divided into two governmental areas, the Hither Province and the Further Province. *Pa-ki-ja-ne*, the sanctuary of Poseidon, was in the Hither Province, close to the palatial centre of Pylos. Various types of landholdings are associated with this sanctuary. The two main categories of land recorded in the Pylos texts are *ke-ke-me-na* and *ki-ti-me-na*. They seem to refer to communally owned land (*ke-ke-me-na*), and privately owned land (*ki-ti-me-na*) (Lupack 2008: 63; Uchitel 2007: 474; Ventris and Chadwick 1956: 233).

The *ke-ke-me-na* land was owned (or at least controlled autonomously) by the *damoi*, local village communities who held a position of power in the Pylian state and were able to act with partial independence from the palatial authority (Lupack 2008: 55-57; Zurbach 2020: 16-17). It is unclear whether all individuals belonging to the *damoi* owned land, or if only few individuals of this group were landowners (Bennett Jr. 1956: 133). In the latter case, the landowners could have been included in a group called *ko-to-no-o-ko*, which was likely a representative committee of the *damos*, 'the most prominent men' or 'a group of elders' (Deger-Jalkotzy 1983: 90–91; Lupack 2008: 55). The people of the *damoi*, nevertheless, are considered to represent the farmers of the Mycenaean society.

The status of the *ki-ti-me-na* land is less clear. The user rights to this type of land were mostly held by individuals called *te-re-ta* (*telestai*), who could hold various professions (Lupack 2008: 55–57; Uchitel 2007: 475–76). *Te-re-ta* were usually bound to provide services in exchange for the rights to the land. This has led some to suggest that *ki-ti-me-na* was given to them by the *wanax,* the Mycenaean 'ruler' who owned the land privately (Deger-Jalkotzy 1983: 102–3). Deger-Jalkotzy (1983: 102-3) argues that the *ki-ti-me-na* land expresses a change in the political system. The land was initially owned by the *damoi,* but along with the development of the palatial hierarchical system, some of the *damos*' land was claimed by the *wanax* to be privately owned. It was then given to the new officials *te-re-ta,* with the obligation to provide services to the palace. However, Lupack (2008: 69-72) has suggested that *te-re-ta* actually owed their service to the *damoi*. In this case, the *ki-ti-me-na* land was also owned by the *damoi*, although it was taxed by the palace (see pp. 15-16 about taxation). Lupack (2008: 72) further suggests that since it seems the responsibilities of the *te-re-ta* were often related to military services, they might have been responsible for the defence of the *damoi*.

Both types of land, *ke-ke-me-na* and *ki-ti-me-na*, could be owned or leased, although the exact types of these arrangements remain mostly unclear. Two common types of landholdings were *ko-to-na* and *o-na-to*. *Ko-to-na* have been interpreted as large estates, while *o-na-to* were small plots related to or intersected from these large estates (Bennett Jr. 1983; Lane 2012: 62; Uchitel 2007: 474). *Damoi* were usually the owners of the *ko-to-na*, while the small *o-na-ta* plots leased to various individuals. Part of the land was left unleased. According to Deger-Jalkotzy (1983: 97) this was private land, individually owned by families belonging to the *damos*. Bennett Jr. (1956: 118-21) notes that, while the ownership rights of the *ko-to-na* land were simple, the *o-na-to* land seemed to have conditional rights of use. *O-na-te-re* could hold rights to several plots of land simultaneously. These plots could belong to different estates (*ko-to-na*). Many (but not all) of the *o-na-te-re* held religious offices, and this group consisted of both males and females (Uchitel 2007: 478).

Although *damoi* seem to have been in control of much of the land recorded in the Linear B tablets, the palace was collecting taxes from these lands in the form of products, or as work contributions. Thus, *damoi* were, to some extent, subordinate to the palatial administration. It is possible that they owned the land but allowed the palace to collect taxes from it, and supervised tax collection themselves (Killen 1998; Lupack 2008). A famous Pylos fragment introduces an argument about a landholding between the *damos* and a priestess of the sanctuary *pa-ki-ja-ne*. The argument concerns *wo-ze-e* obligations imposed on the priestess. *Wo-ze-e* appears to have been a work obligation imposed on the holder of a specific type of land. Deger-Jalkotzy (1983: 98-100) suggested *wo-ze-e* referred to *corvée* labour (unpaid labour, usually requisitioned as personal services by landowners or other persons in power). This means that in return for the right to make profit out of land, its holder had to provide services to the state, for example

in the military, or in construction projects initiated by the palace. The priestess of *pa-ki-ja-ne* appeals to the name of Poseidon and claims that she is freed from these obligations because she or her land possesses *e-to-ni-jo* (Deger-Jalkotzy 1983: 91). Lupack (2008: 66) suggests that the *damos* opposed the priestess' demand because if her land had *e-to-ni-jo*, the burden of taxes (or work obligation) imposed on that land would be divided amongst the remaining *damos* landowners, adding to the amount they had to contribute to the palace. This reference indicates that the palace was not needed as a mediator in the quarrels about landownership or usage rights (Deger-Jalkotzy 1983: 91). It seems that in this case the palace was not even in the position to interfere with a quarrel that concerned land owned by the *damos*. It also suggests that holding land most often included an obligation towards the landowner, either as labour services or turning over part of the profit - despite the profile of the holder.

In return for taking a share of the production or using the labour force, the palace may have offered the *damoi* and land leasers security and aid, for example in the form of military protection, or improved infrastructure such as roads and bridges. Halstead (1992: 69) has suggested the palace could have supported the people with emergency rations of food in case of harvest failures. Another way for the palace to compensate its people could have been related to animal power. Killen (1998) argued that the food (e.g. cereal and figs) needed to provide rations to palatial workers was grown on the *damos'* land, and that to secure production, the palace loaned oxen to the *damoi* to be used for ploughing. The ownership of oxen by the palace is attested in the Pylos and Knossos tablets. The Mycenaean palaces held them in great value, which is indicated by the recording of them by their names and special characteristics (Kajava 2011, although mostly in the Knossian context; e.g. Killen 2015; Palaima 1992). Shelmerdine (2008b: 134) suggests that the lending of oxen to the agriculturalists was an effective measure for creating a dependency relationship between the palace and the people. Such a convention indicated the birth of a new arrangement, in which the Mycenaean administrative elite took control over the older power structure represented by the *damoi*. Nevertheless, in some cases, the *damoi* also seem to have owned oxen (tablet PY An 830) and they were likely not fully dependent on the leasing of draft animals (ibid.). The use of oxen in agricultural tasks is not recorded in the Linear B texts, but show up for example in material culture where pairs of oxen and yokes, are depicted in Bronze Age miniature statuettes (§5.5.1).

Despite the obligations that came with leasing, land was held as an asset in the Mycenaean society. The owners or leasers of land were individuals with diverse backgrounds and skills. There were both male and female landowners, with various professions, from herding to religious offices (women landowners seem to have mostly held religious offices). Nakassis (2013: 124) lists over 130 individuals in the Pylos texts related to land use and/or ownership. A comparison of the different sets of tablets has confirmed that the same individuals are recorded in different tablets in relation to landholdings. This means that a single individual could hold several plots of land. In one case (PY Ae series) a landholder also owned animals, while others were assigned to watch over these animals (Nakassis 2013: 133). The texts also mention individuals who did not possess (or have rights to) plots of land (*a-ko-to-no*) (Nakassis 2013: 119), and in one case, a man was recorded to hold land as a compensation for manslaughter of a family member (Nakassis 2013: 129).

Two major questions remain unanswered: did the *damoi* own all land, and how was the land under the distinct types of ownership, holding, and leasing agreements used? The two provinces of Pylos were divided into 16 control areas, with their own administrative members appearing subordinate to the palace. Killen (1998) suggests that these districts were the *damoi*, local village communities and their governing officials, and that the vast majority of the Pylian land was owned by these communities. At the same time, he (ibid.) introduces four types of landowners belonging to the Mycenaean elite, the *wanax*, the *lawagetas*, three *telestai* and one individual named Wroikion. This indicates that besides *damoi*, individual members of the elite could also own land. Halstead (1999c: 38) has suggested that some two-thirds of the palatial workers in Pylos were supported by the palace through land allocations. Whether this land was, in fact, owned by the palace or handed to the workers in collaboration with the *damoi* remains unclear. It would seem logical, however, that for its private production the palace would have possessed land over which it did not have to negotiate with the local communities (Zurbach 2016). Zurbach (2013: 645) argues that the even distribution and rectangular shape of land plots, also familiar from the Linear B texts of Pylos and Knossos, refers to land distribution controlled by an authority at least in the Archaic context. This could also indicate that the Mycenaean palatial authority was responsible for the distribution of land, although it also strongly suggests the use of specific agricultural land preparation techniques (see below).

When it comes to the practical use of the land, Bennett Jr. (1956: 132) pointed out early on that land use is not recorded in the Linear B texts. It seems likely that most of the land was used for agricultural activities, however. In this way the land, whether it was leased by the *damos* or allocated by the palace, could have

provided subsistence and potential wealth to its user. Furthermore, in Pylos (and to a lesser extent in Knossos, see Zurbach 2008: 832) land was measured in grain, GRA, usually combined with a reference to seed, pe-mo (spermo), and a crop type such as wheat (*120). This has been seen to mean that one unit of land equalled to the surface area, which could be sown with one unit of seed stock (Lupack 2008: 51; Palmer 1992: 481-86; Zurbach 2020: 20). Although this refers to the use of land for (cereal) cultivation purposes, land that was not sown with cereals (but used for tree crops, for example) was measured in a comparable way (Palmer 1992: 481-86). In two separate cases, the landholding area of an individual is marked as GRA 94. Uchitel (2007: 479) has suggested that this was a standard size of a landholding for an official of a specific rank. One of these references (PY Eq 213) lists an individual who owned five plots of land with a total area of 94 units of seed. In the same context presents the only appearance of the word 'field', *a-ro-u-ra*. The locations of these plots are unknown, but it is possible that they were in separate locations. Zurbach (2013: 645-646) has suggested that the orthogonal distribution of plots in the Knossos and Pylos tablets refers to the use of sole ard, which only broke the surface of the soil and, thus, created rectangular plots as a result of double ploughing in a crisscross pattern (in contrast to the plough which turned over the soil and did not require going back and forth to form the furrow).

Finally, no confirmed formula to translate the seed units into size units of land exist, but some suggestions have been made. A woman key-bearer (a high religious office), a major landholder in the *pa-ki-ja-ne* district, contributed 2 GRA to the palace. Nakassis suggested that this would amount to some 200 litres of seed (Nakassis 2013: 130). De Fidio (1977: 176) hypothesised that GRA 3 would equal approximately one hectare of land, thus, a piece of land that could be sowed with 150 litres of wheat seed. This is a little more than Nakassis' figure, which refers to 100 litres of seed sowed on 1 ha of land. Similarly, Chadwick (1973: 236-37) suggested that the ratio of seed could have been 100 litres to 1 ha. Due to these uncertainties, the volumes and plot sizes presented here cannot be directly extrapolated over the available agricultural land. If, however, GRA 3 equalled 1 hectare as suggested by de Fidio (based on comparisons with other seed-land ratios in the Eastern Mediterranean and Near East), the 'standard' major landholding of GRA 94 mentioned above would have amounted to a respectable 30 hectares of land, over ten times the size of a subsistence plot (Halstead 1995a) and a rather sufficient amount for a major landholder (see also Zurbach 2020).

Land use in the Argive Plain tablets

The Pylos E-series represents the most detailed record of the Mycenaean landownership system. However, it is difficult to estimate to what degree the Pylian system can be applied to other Mycenaean core areas, such as the Argive Plain. The Argive Plain tablets (from Mycenae, Tiryns, and Midea) are fragmentary, and they do not contain indications about territorial division into provinces or districts. It is possible that such an organization still existed and that the evidence has since been lost. However, there are many differences between the two regions, including a notable difference in size between the territories of Pylos and the Argive Plain. It is possible that the small size of the plain would have made division into provinces impractical. The considerable number of large settlements with palatial characteristics located close to each other further counters the idea of a district division controlled by one central settlement alone. Here it is assumed that the Argive Plain had a unique territorial division, meaning that the Argive Plain had at least three independent centres, Mycenae, Midea, and Tiryns, each in control of their own subsistence areas. This approach follows the suggestions of Galaty, Pullen, and their co-researchers (e.g. Galaty *et al.* 2015; Pullen 2010, 2013, 2022; to some extent also Kilian 1988: 297, fig. 3). A contradicting perspective, according to which Mycenae took the political and economic control of the Argive Plain and wider regions towards the Argolid peninsula and Corinth in the LH III, has been popular in the Bronze Age Aegean archaeology (e.g. Brysbaert and Vikatou 2022 in relation to the network of highways which begun from Mycenae; Maran 2006, 2009, 2015; Voutsaki 1995, 2010; Wright 1987, 2006). Political geography, and the approaches of this thesis regarding the Argive Plain palatial states are further discussed on pp.31-35 and 132-134.

However, there are a few similarities between the Argive Plain Linear B tablets and the Pylos and Knossos tablets concerning economy and land. Tablets recovered from Mycenae record the system of *ta-ra-si-ja*, in which the palace gave raw materials such as wool to its crafts personnel with the expectation of them working it into finished products in the palatial workshops. Similar organizations of labour have been recorded for example in Pylos. The Mycenae tablets further record the handing out of rations of grain and figs to its workers, again showing similarities to the records of Pylos and other Mycenaean palatial centres (e.g. Bennett Jr. 1953; Chadwick *et al.* 1962; Vermeule and Chadwick 1964). Similarities in one economic activity

could suggest similarities in other areas of economic and political organization in these domains.

Although fragmentary, the Linear B tablets recovered at Tiryns are most informative about potential land use systems. Two tablets (TI Ef 2 and Ef 3) include land-related terminology that is similar to that of the Pylian E-series. For example, the fragments mention GRA 6 (grain), DA (land of *damoi*?), *pe-mo* (seed) and *ke-ke-me* (*ke-ke-me-na* land, i.e., the communal land owned and leased out by the *damoi*). One tablet (Ef 2) further records an individual described as a 'herdsman' or an 'oxherd'. He might be related to the landholdings mentioned, perhaps as the holder of rights to this land (Brysbaert 2013: 61; Godart and Olivier 1975: 44-46).

These few fragmentary lines seem to refer to a similar land categorization system as described in the Pylian texts, although it is not possible to say if this system was as complex as the one presented in the Pylos E-series. Furthermore, unlike the Pylos land use records, which were found in the storeroom of the palatial complex where all linear B records were kept, the Tiryns tablets were recovered in a secondary context. This could mean that they might not be as closely connected with palace activities (Zurbach 2008: 827). Nevertheless, if a similar categorization was used by the Argive Plain communities, it means that here *damoi* also controlled much of the cultivable land and leased it out to various parties - likely for subsistence purposes. The piece of land mentioned in the fragments, GRA 6, would equate to an average plot of a subsistence farmer, 2ha, if de Fidio's (1977: 176) estimate (presented on p. 13) is to be used. It could represent an allocation to the herdsman in return for his services as the tender for large working animals. However, with such fragmented information, this may be considered a working hypothesis only. The fact that the tablet was stored in Tiryns is important: firstly, it can be assumed that the piece of land was located somewhere close to the central settlement, within its 'control area'. Secondly, it seems to support the idea of independent control areas for each Argive Plain centre with an administrative system. If Linear B records are considered as evidence of such system, these would include Mycenae, Tiryns and Midea. This would mean that each of these areas was quite small, because the plain itself does not offer much potential for expansion. For Mycenae, however, an expansion in the north towards the Corinth plateau would have been a fair possibility, as is suggested by the network of Mycenaean highways, many of which (e.g. M1, M2, M3, and M6) lead from Mycenae towards Nemea and the Corinth plateau (e.g. Brysbaert *et al.* 2020, Brysbaert and Vikatou 2022; Lavery 1995).

Summary: Mycenaean land and society

What emerges from the textual fragments is a picture of a complex system of land use, ownership, and status. At the same time, distinct types of landownership and usage activities, such as potential conventions about inheriting land, are not recorded in the Linear B tablets, or the tablets holding the information have long since disappeared (Deger-Jalkotzy 1983: 90). In the LH IIIB, after many of the palaces had reached their peak in wealth and power quite rapidly, the landownership system was likely still in a phase of transition from *damos*-based land control to palatial elites and administration gaining more power over land. This could have led to disagreements between landholders, landowners, and other individuals with power. Bennett Jr. (1956: 133) argued that land leasing by local communities was a relatively new system, emerging on top of the private and communal land division. For example, in Pylos, the establishment of the sanctuary of *pa-ki-ja-ne* could have increased population, creating new subsistence pressure. This pushed the local landowners to develop a system of land leasing, which they would implement on those parts of the land which were not needed for their own sustenance. More recently, Zurbach (2008: 836-837) has also suggested that the different units and methods of measuring land in the Pylos, Knossos and Tiryns tablets (e.g. GRA versus DA/PA) are visible demonstrations of an evolution of property ownership and management system. According to him, however, the palatial control over land was diminishing and different units of private ownership were emerging.

While the palace was taking more control over the entire economy during the LH III, partially because it was able to provide services such as military security and infrastructure in return, the *damos* communities appear to have remained relatively self-sustained. Instead of single isolated farmsteads, the textual evidence seems to point towards communal work and decision making. Deger-Jalkotzy (1983: 91-95) described the land use economy as a 'communal self-government'. Rather than sharing the land amongst individual households, the people of the *damoi* worked their land collectively. The community exercised certain property rights as a group, guided by a decisive committee of elders. Deger-Jalkotzy (1983: 96) further suggests, that *ke-ke-me-na ko-to-na* land, the communal land owned by the *damoi*, was at least partially held by individual households within the *damos*. The palatial administration treated the *damoi* as collective units, types of corporations, recognizing their ownership rights while establishing a relationship based on returning services. On the contrary, Deger-Jalkotzy (1983: 101-102) argued that the *wanax* was

still the ultimate owner of all property, and that he transferred the landownership rights downwards to the *damoi*. Lupack (2008: 67) suggests that, since the *damoi* paid taxes to the central government, they were ultimately subordinate to the system. However, *damoi* were able to manage their resources by themselves and govern their own people with respect to most daily issues. This indicates that they held a level of independence from palatial rule. This is also the preferred view in this thesis, although, as said above, the settlement hierarchy, and thus regional governing was likely different in the Argive Plain than in the Pylos territory.

Mycenaean economy

Centralization of power and resources in Mycenaean palatial centres, and the assumed redistribution of resources transformed into items of subsistence or exotic value in a highly controlled way have dominated our understanding of the LBA Greek economic system. Generally, centralization indicates the increasing control by the central power over the society, while economic centralization describes the control over the production, distribution and consumption of a variety of items.

Recent studies have argued that the Mycenaean economic system developed into a centralized system from the reciprocal relations which were characteristic of the preceding Middle Helladic communities (Galaty *et al.* 2016: 66-68; Nakassis *et al.* 2011: 181; Voutsaki 2016: 76-77). These relations were maintained by a system of gift and service exchange. In time, inequalities created by gift exchange developed into centralization of resources. In this scenario, the maintenance of the kinship relations transformed into conspicuous consumption, in which the emerging elite manifested their power and gained allies by displaying and distributing valuable materials and objects (Pullen 2016: 85; Voutsaki 2001: 205-207, 2016: 76-77). This facilitated the separation of elite from the rest, while beneficial partnerships transformed into dependency relationships (Galaty *et al.* 2016: 66; Voutsaki 2001: 205-207, 2010: 96, 2016: 75-76). Voutsaki (2016: 72) describes the process as 'eroded' reciprocity. According to her, the accumulation of wealth reflects a change from an egalitarian kinship to a stratified and individualistic societal organization.

The following section provides an overview of the main aspects of the Mycenaean economy as it appeared in the LH III period after completing the transformation described above. Understanding the key aspects of the local economic system is relevant to the study of the LBA agricultural practices, since it seems crops were produced in several economic sectors, and for multiple purposes beyond basic subsistence needs. While the LBA subsistence agriculture is discussed in pp.132-149, this section focuses on two other economic aspects: the so-called palatial production, and taxation.

Taxation

The shift of power in the direction of the emerging palaces appears to have been formalized in the development of a centralized tax system (Voutsaki 2001: 204-205). Mycenaean palaces supported themselves by collecting resources, services, and goods from the communities living in their surroundings. These transactions are recorded in the Linear B texts of Pylos and Knossos. 'Taxes' were collected in the form of portable commodities, such as olive oil, textiles, or raw materials such as hives, wood, or spices and herbs meant to be used in the palatial craft production (Halstead 1992: 59; 1999a: 319; Killen 1984). At least in Pylos, taxes were collected from both communal (*ke-ke-me-na*) and privately owned (*ki-ti-me-na*) lands (Killen 1998; Lupack 2008). The Pylian territory was divided into taxable districts, each of which were required to provide the same set of products. Regional specialisation to the manufacturing of specific products did not occur (Halstead 1992: 59). In Pylos, the amount of taxes likely varied according to the size and population of the region (Halstead 1999c: 36), but, as discussed previously (pp. 8-10), taxes could also mean services, such as individuals signed to military duties.

Since at least the three major sites of the Argive Plain, Mycenae, Midea and Tiryns, kept administrative records, does this mean each of them maintained their own tax systems? Neither taxation or the palatial production of staples (see next section) of the Argive Plain have been directly touched upon in recent literature. This is because there is not much evidence, textual or material, to argue for or against such systems. There is hardly any evidence of territorial division amongst the Argive plain settlements, nor are there references to regional administrations, or to settlements subordinate to one of the major centres of the plain. However, the Linear B tablets discovered at the House of the Oil Merchant at Mycenae do mention an extensive list of specific goods, such as herbs and spices, which could represent products collected as taxes (Bennett Jr. and Chadwick 1958: 107). Furthermore, the *ta-ra-si-ja* system recorded in the same tablets is related to the production of wool and leather textiles and metals, and as such could also suggest that at least some of the raw materials, for example hives, were collected as taxes. Many of these items may also have been part of the palatial direct production (as wool likely was) or imported through maritime trade (for example precious metals). Furthermore, the record of a herder together with a specific amount of land (6 GRA) in the Tiryns tablets

(pp. 13-14) seems to resemble recordings in the Pylos E-series which have been interpreted as inventory records for taxation purposes. If so, the Tiryns fragment would be part of a palatial inventory that listed plots of which taxable products were expected. If Tiryns followed a similar taxation system as Pylos, it is likely that the other two centres, Mycenae and Midea, would have had their own systems in place too. Nevertheless, since there is only one piece of evidence, it would be unwise to draw any firm conclusions about the economic systems exerted by individual palaces of the Argive Plain. Thus, the current data cannot answer the questions of taxation in the LH III Argive Plain.

Palatial production

Besides acquiring products from outside producers, Mycenaean palaces executed direct production of certain goods, such as wool (for textiles), wheat, olive oil, and wine. This production was separated from the taxation system and more systematically monitored (Halstead 1999c: 36; Shelmerdine 1999b: 21). Halstead (1992: 60-61) suggests that this direct production was mainly agricultural and that it was located on lands close to the central authority or important sub-centres. This land could have belonged to one of the administrative officers, the *wanax*, or to the *damoi*, who allocated it for palatial use (Halstead 1999c: 39).

At the same time, the control over such items was sometimes ambiguous, as illustrated by the distribution and processing of wool. Linear B evidence from Knossos, Thebes, and Pylos suggests that wool collected for palatial use was used by the *ta-ra-si-ja* system, in which wool was given to specialized workers such as spinners, weavers, and finishers, who manufactured it into textiles. However, wool was also given to non-textile workers as a reimbursement of their services to the palace (Alberti 2012: 101-3; Rougemont 2014: 358-60; Varias Garcia 2012: 159). Nosch argues (2014: 395-96) that at least in Knossos, the amount of wool collected from the 100,000 sheep recorded in the Linear B texts was so high that the palace could not afford to support all the workers needed to manufacture it into textiles. Therefore, rather substantial amounts of the palatial wool could have been used as reimbursement. Wool was also sent away from the palatial centres to other settlements, sanctuaries, and individual households, perhaps to special workers residing in these places (Alberti 2012: 101-3; Rougemont 2014: 358-60; Varias Garcia 2012: 159). In conclusion, it seems that the raw materials and finished products, also described as palatial production, did not remain solely for the use of the palatial elites but were distributed more widely.

Part of the direct production was likely used to pay the palatial workers in food rations, although Halstead argues (1999c: 38) that only one third of the palatial workers received rations while the rest were paid in land allocations. In the Pylos tablets (Er-series), these landholders were required to contribute wheat or other agricultural products to 'Poseidon and others' (for example to the sanctuary of Poseidon, *pa-ki-ja-ne*). Killen suggests (2008) that these records describe a system in which the landholder was expected to give a share of the production (preferably wheat, but also other foodstuffs as an equivalent of wheat) to the central authority in exchange for the holding. The size of this contribution depended on the size of the plot.

As described in detail in this dissertation on pp.8-10, in many cases the nature of the landholding was linked to the products and services the holder provided to the palace. In exchange for the right to cultivate a plot of land, the individual had to accept the terms, for example the production targets, set to the lease by the palace (Shelmerdine 2008b: 130-34). If what Killen (2008) suggests is true, the palace received its sustenance through three channels: taxes in the form of special goods and services, direct production of bulk goods, and small streams of bulk goods from each land lease. Of these, the first two are firmly attested in the research tradition, while the status of the latter remains unclear. Furthermore, if land leasers contributed a share, this contribution could have been made towards any local authority, for example a *damos* or a sanctuary, not necessarily towards the palace.

Control over the availability of goods

Redistribution has been a vastly debated concept related to the Mycenaean palatial economic system, and thoroughly redefined and discussed in a set of recent papers introduced by Galaty and co-authors (2011;[5]). Redistribution refers to centralized collection of resources by a higher authority, and their distribution to the dependents, for example as finalized products of value, or as food rations. In the LBA Greek context the central authority is the palace, from which the products are redistributed back to segments of the community in a controlled way (Killen 2008).

The redistribution theory derives from the works of Polanyi and Finley, and Renfrew. According to Polanyi (1977: 51-52), in 'primitive' societies the economy was embedded in social relations. The organization of labour, land use, distribution of products etc. occurred through social interaction and relations, which functioned through kinship and gift exchange. From the 'primitive stage', the economy evolved towards the 'archaic stage',

[5] Several contributions in the Redistribution in Aegean Palatial Societies forum, published in the *American Journal of Archaeology* 2011, Vol. 112, No. 2 (April 2011).

in which redistribution is the main economic activity. This change entails the accumulation of products by elites, a central authority, and product redistribution. This system created and maintained social structures, such as the elite status. Polanyi (1977: 67-73) did not describe a central place as having had a significant role in the collection of products, but rather referred to the control of the movement of these products by the central authority.

Finley compared the economic model of Mycenaean society with that of Bronze Age Near Eastern examples, which were better documented in writing. According to him (1957: 134-35), the redistributive system was a massive operation that included the movement of personnel, activities, and materials, which were all organized and controlled by the palatial administration. This system of transactions was recorded in the Linear B texts. Elsewhere, he (1979: 63) refers to 'distributing the booty', created by wars and trade, which was first collected to a central storage from which it was distributed forward. In times when 'booty' was not available, relationships were maintained by gift giving, which included objects of value, but also services, rewards, prizes, fees and other types of payments (Finley 1979: 64-66). Finley, however, points out that exchange of essential products must have taken place between rural household outside the redistributive system, since they had no access to the trade of valuables (Finley 1979: 70).

Based on its political and economic system, Renfrew (1972) defined the Bronze Age Aegean as a chiefdom. Chiefdoms were redistributive, and they had a central administration that played a significant role in the economic, political and religious activities (Renfrew 1972: 363-65). The palatial centres of the Mycenaean and Minoan societies functioned as redistributive centres, where exchange of goods took place. Their import was organized through tax collection, and the redistribution by the palace mainly concerned foodstuffs (in some cases also raw materials such as bronze). For the collection of goods, each palace had large storage facilities in which they could store bulk products such as grain and oil (Renfrew 1972: 296–97).

Various reinterpretations of state formation and the redistributive system have since been presented. Killen (2008) saw redistribution mainly as a system in which the palace allocated raw materials to its craft workers. Craftsmen and women were dependent or semi-dependent on these commodities and/or the rations of foodstuffs given to them by the palace. Like Finley and Renfrew, he (Killen 2008) argued that large storage facilities of the palatial centres were used to store bulk goods such as cereals before redistribution. According to Bennet (2001: 25), the Mycenaean 'state' would only collect, store and redistribute staple crops. The more precious resources, such as valuable materials, would be 'mobilized' so the palace could participate in the Mediterranean trade. Thus, the movement of these resources would be supervised, but they would not be centrally collected or actively redistributed.

In the redistribution of products, according to these traditional models, the palace maintained tight control over the society, including the subsistence farming communities. Recent studies (e.g. Galaty *et al.* 2016; Lupack 2011; Nakassis *et al.* 2011; Pullen 2016; Voutsaki 2016) have, however, pointed out discrepancies and the absence of the redistribution and centralization models in the textual and material evidence of the mainland Mycenaean palaces. Such as the absence of large storage facilities in the mainland palatial sites (Privitera 2014). The palace controlled (i.e., recorded) only a very selective variety of materials production and distribution. For example, pottery production it is not mentioned at all in the texts but is present in substantial amounts in the material records (Thomas 2005: 539). Similarly, the absence of pulses in the textual evidence contrasts with their physical presence in LH III storage and household contexts (Halstead 1992; Valamoti *et al.* 2011). Therefore, the limited variety of items recorded by the palace does not credibly prove that all subsistence items were centrally collected and distributed. The redistributive system was not all-encompassing as previously suggested.

The idea that the palace would have had almost complete control over all levels of the society has come into question. Nakassis *et al.* (2011: 177) call the model 'inaccurate and misleading'. Instead, redistribution is now seen as one among a variety of exchange strategies (Earle 2011: 241–43; Nakassis *et al.* 2011: 177). Nakassis *et al.* (2011: 181) refer to parallel economies, which operated alongside each other. The ration system, which had palatial labourers receiving a share of cereal and other foodstuffs, formed one such economy, while land allotments given to other workers of the palace (likely with a higher status) formed another, and people living in the countryside belonged to yet another parallel economy. Earle (2011: 238-241) divides the BA Aegean economies into four sectors: the subsistence economy, the trading economy, the religious economy of sanctuaries, and the political economy of palaces. While the political economy has been at the centre of scholarly interest, the subsistence economy, practiced by the local farming communities, has received much less attention, and the relationship between the two remains poorly understood. Each economic sector seems to have had some autonomy, but they were also intertwined since, for example, the palatial economy relied on seasonal corvée labour and in return supported the subsistence economy with animal power,

or infrastructure (pp. 8-10). There was no central control over the entire economy, only stricter control over some sectors of the economy. A similar conclusion has been presented, for example, by Voutsaki (2010, see in detail in pp. 31-35) in relation to the political and economic situation in the Argive Plain. Mycenae may have controlled the circulation of precious raw materials and objects, all the way from their acquisition through foreign trade to their final placement in burials with the deceased. However, even as such, this type of control only covered specific areas of the political and economic system of the area, and there was plenty of space for the autonomy for other functionaries.

For the palatial economy, the latest research prefers a decentralized model. In this system, the palace was involved in the final contributions of products, collected as taxes or produced on palatial land (Halstead 1992: 59; 1999c: 36). Instead of redistribution, scholars now use 'mobilization' to highlight that products are not really being redistributed and their movement is in one direction only, namely towards the palatial elite. Such mobilization of products was used by the elite to maintain and reproduce their power (Nakassis *et al.* 2011: 180). The evidence for the presence of elite-serving mobilization of products has been linked to a lack of substantial storage facilities in Mycenaean palaces (see pp. 82-84). It could also explain why the amount of land owned directly by the palaces appears to have been quite small (pp. 25-31), and probably could only serve the elite and their dependent workers (Nakassis *et al.* 2011: 180; Halstead 2011: 231).

Conclusion: Evidence of economic transactions

Much of the evidence available of the Mycenaean economy is textual, and therefore concerns the elite-economy, more specifically the transactions and resources that the Mycenaean palatial centres were interested in. While certain aspects of the Mycenaean economy, for example the use of specialist workers to make sophisticated products from allocated resources, or their payments in food products, seem to have been standardized between palaces located in the mainland an in Crete, local environmental and cultural characteristics notably shaped palatial economies. Therefore, models of Mycenaean economies from other regional contexts cannot be directly applied on other regions where evidence of transactions is scarce.

The current understanding of the Mycenaean economy implies that redistribution did not encompass the entire economy, although it was functional in specific economic sectors, such as the craft industry (Christakis 2011: 197; Earle 2011). It is, thus, possible to separate parallel but intersecting economies within the Mycenaean socio-economic system, and to examine them individually. The subsistence economy seems to have functioned more or less autonomously from the palatial economy. Therefore, it is logical to examine it in its own right, as will be done in this thesis.

Unfortunately, there is much less evidence of transactions between rural communities or non-elite individuals, or economic activities related to everyday staple products. Therefore, indirect, non-textual evidence, such as the presence of ceramics and their distribution across the mainland has to be taken as an indication of the existence smaller-scale economic interactions. In addition, ethnographic accounts can help to shed light on the nature of resource acquisition and use in non-elite communities (see pp. 139-150).

Summary: Mycenaean society and economy

The picture of the society and economic system of the Mycenaeans emerging from the Linear B textual evidence is complicated and, in many parts, still unclear. Some interesting general aspects can be collected from the presentation above, however.

Firstly, although Mycenaean society was stratified, the top of the hierarchy, the *wanax*, nor the palatial elite held absolute decisive power over the society. Various parties had power to perform economic transactions (Lupack 1999: 2008). The ability to function independently without the intervention of the palatial authorities might have created opportunities to grow wealth and power (Halstead 1993: 2001).

The local *damos* communities had decisive or, at the least, negotiative power over land. These communities likely consisted of farming households and groups of households. It is possible that the *damoi* represent old power structures which by the LH III had been partially taken over by the newly emerged palatial elite (e.g. Deger-Jalkotzy 1983; Lupack 2008). This means that, politically, Mycenaean societies might have been in a state of transition, and that this could have created some level of social unrest (Deger-Jalkotzy 1983). This transition could have taken place at different times in different regions. This could even partially explain differences in settlement patterns between areas such as the Pylian state and the Argive Plain.

Secondly, land was held in high value in the Mycenaean societies, likely because it could be used for subsistence purposes, but also because it could provide small stock through bulk or specialized products. Complicated categorizations, agreements and rules regulated the use of (agricultural) land (Bennett Jr. 1956; Lupack 2008). Land could be divided into smaller plots, and one individual could own several plots located away from each other (Uchitel 2007). However, such organization

does not seem to describe land fragmentation through a hereditary system, which has been characteristic of recent Greek agricultural communities. Land was an interest to the palatial authority, which means it was measured, and production targets were imposed on it (Killen 1998, 2008; Uchitel 2007). Textual evidence points to much of the land being used for agricultural production.

Thirdly, it seems quite possible that each individual or party holding some level of rights to production land were obliged to contribute part of its production to a higher authority. This authority could have been the palace, but it could also be a *damos*, or a sanctuary, or a private landowner. This provision had to be considered when anything was produced on the land (see Killen 2008 for further thoughts on provision). The provision could have been part of a tax system, in which case the production target was imposed over a larger community and overseen by the local administrative members of this community.

Finally, the Mycenaean economy consisted of various sectors which can be observed separately, although they did not necessarily function in complete independence (Earle 2011). The palatial economy formed its own entity and had diverse needs related to the subsistence economy of the local farming communities. While the first has been studied in detail, the latter remains more unknown. This thesis hopes to contribute to the study of the Mycenaean subsistence economic sector through its case study area, the Argive Plain. The following chapter will, therefore, focus on examining this specific area in more detail.