Building the Bronze Age

Architectural and Social Change on the Greek Mainland during Early Helladic III, Middle Helladic and Late Helladic I

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Table of contents

List of tables

List of figures

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Introduction

Topic and aim

The purpose of this study is an analysis of Early Helladic III (EH III), Middle Helladic (MH) and Late Helladic I (LH I) domestic architecture with reference to social organization and change (Table i). On the one hand, it aims to provide a better understanding of EH III–LH I domestic architecture on both a regional and a temporal scale. On the other hand, it aims to reconstruct social organization and change from the viewpoint of domestic architecture and the household.

Objectives

The objectives of my research on domestic architecture are threefold. First, reconstruct patterns of domestic architectural homogeneity and variety on a communal; local; and, if possible, regional scale. Secondly, reconstruct patterns of domestic architectural homogeneity, variety and change on a temporal scale. Thirdly, relate these patterns to social organization and change, and explore whether functional or symbolical factors (or both) played a role in the formation of domestic architecture.

Justification

The reasons that substantiate the execution of this research are also threefold: the assumed simplicity of EH III and MH society, the neglect of domestic architecture, and the overall lack of consideration of the household level in discussions of social change during the Greek Bronze Age. A detailed discussion of the background to and justification of this research can be found in Chapter 1. In this introduction, I will list only the most important problems and lacunae in research on EH III–LH I domestic architecture and social organization.

The EH III period is characterized by a 'crisis', of which the causes, duration and consequences are still debated. Settlements were deserted and/or destroyed, settlement numbers declined and several regions were heavily depopulated. Monumental buildings fell into disrepair or were destroyed, and the Aegean trade network partly collapsed. What was left was a small number of humble settlements (though some exceptions are known, such as Kolonna), with simple architecture in the form of freestanding houses, inhabited by introverted and poor communities, judging by the overall lack of imported objects and valuables. The problem is that EH III society was assumed, rather than demonstrated, to be undifferentiated, and the same was said of MH society. For example: "The physical remains do not suggest that M.H. society was particularly complex", "poverty seems the key-note of M.H. society" (Dickinson 1977: 38). The Mainland could be considered the "Third World" of the Aegean (Dickinson 1989: 133). The general impression of the simple nature of the EH III and MH societies was not based on a large-scale study of the archaeological evidence, let alone a systematic and extensive analysis of the domestic and settlement evidence. Because of the seemingly simple and undifferentiated nature of EH III and MH society and material culture, more interest was expressed in the EH II and LH periods, while the EH III and MH periods were neglected. Fortunately, research during the past decade has changed the view of MH society as backward and isolated (e.g. Rutter 2001, Felten, Gauß & Smetana 2007, Philippa-Touchais et al. 2010). However, these studies have barely challenged the general idea that EH III and MH societies were largely undifferentiated and homogenous.

Although more interest was expressed by researchers in the EH II and LH periods, this was generally limited to monumental architecture, graves and ceramics. Little research was devoted to the simple domestic architecture and houses, and when it was, research mainly concentrated on the causes of morphological change, rather than on the social significance of that change. Only more recently has domestic architecture started to receive the attention it deserves (e.g. Pullen 1985, Hiesel 1991, Harrison 1995, Darcque 2005, Weiberg 2007). Nonetheless, analysis of EH III and MH architecture is still lagging behind, and so far seems to have received attention primarily in student theses (Lambropoulou 1991, Gorogianni 2002, Weiberg 2007, Wiersma 2009,

Table i Chronological framework (Cline 2010, Table 1)

Period	Abbreviation	Approximate Chronology BC
Early Helladic II	EH II	2650 – 2200
Early Helladic III	EH III	2200 – 2000
Middle Helladic I	MH I	2000 – 1900
Middle Helladic II	MH II	1900 – 1800
Middle Helladic III	MH III	1800 – 1700
Late Helladic I	LH I	1700 – 1600

Figure i Map of regions under discussion

Worsham 2010). This will be discussed more extensively in Chapter 1.2.

So far, research into social organization and change has been mainly based on settlement evidence (size, number, spread) and changes in the material culture. Especially MH III–LH I mortuary practices and (the disappearance of) monumental architecture have received much attention. However, we may assume that in simple, small-scale societies, social relations are expressed and negotiated within and between households. Unfortunately, as follows from the lack of study of domestic architecture, the social unit of the household has barely received consideration in discussions of social organization and change. As I will discuss below (Chapter 1.4.3), this neglect of the household does not pertain to all periods of Aegean prehistory. Households have been studied for other periods, especially the Neolithic (Halstead 1995).

In summary, studies of the EH III and MH period and their domestic architecture are much needed. These topics and this book are part of a current wave of interest in the MH period (Philippa-Touchais et al. 2010) and in Aegean domestic architecture more generally (e.g. Souvatzi 2008, Glowacki, Vogeikoff-Brogan 2011a). In addition, this study considers the concept of the household and changes in social relationships and complexity. Therefore, it also contributes to the ongoing discussion of the 'emergence of civilisation' in the Aegean (e.g. Renfrew 1972, Barrett, Halstead 2004, Bintliff 2010b, Wright 2010).

Chronological and geographical framework

For this study, the chronological framework of EH III to LH I is selected. This specific timeframe enables me to consider how society recovered from a 'crisis' and eventually developed into a society that was, seemingly, socially differentiated. A second reason for choosing this period is the homogenous nature of the cultural material (see also Spencer 2007). The partitioning of the Bronze Age into EH, MH and LH, and the sub-periods I, II and III, is outdated. For example, the EH II period has by now been further subdivided into EH IIA and EH IIB. The EH IIA period is in some areas referred to as the Korakou Culture and EH IIB as the Lefkandi I Culture, while EH III is referred to as the Tiryns Culture. However, these cultural references are of local rather than regional use, and are primarily based on ceramic data. Recent research

has also shown that although change did occur in ceramics, there was also continuity, both in ceramics and in other materials, rendering the chronological subdivision even more artificial. For example, in some areas, such as Euboea, the MH period has been divided into two subperiods, rather than three (see Chapter 3.4.2). For an understanding of social and material change through time, it seems more useful to focus on historically coherent periods, such as the EH III–LH I period.

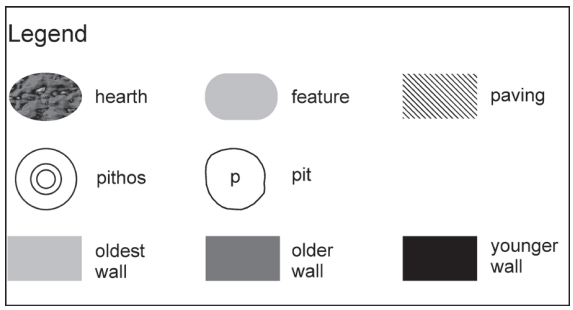
The following regions from the central to southern Mainland were selected for this research (Figure i): southern Thessaly, Phthiotis, Phocis, Euboea, Boeotia, Attica and the Peloponnese, consisting of the regions the Corinthia, Argolid, Achaia, Arcadia, Laconia, Messenia and Elis. It is generally thought (as I discuss in Chapter 1) that EH III and MH domestic architecture was homogeneous and undifferentiated, but this has not been substantiated by any systematic research. Therefore, this is one of the main questions of the study. In addition, there is a need to explore more systematically local, regional and supra-regional developments (e.g. Wright 2010). We need to assess how coherent certain areas were with reference to the relative homogeneity of the cultural material and developments through time. A third reason for selecting such an extensive area is that it enables me to explore whether developments started at certain places and spread from there. For example, from north to south, which is relevant in connection with discussions on migration, invasion and mobility (see Chapters 1.2.1, 1.4.1), or from coast to inland, which is relevant in connection with discussions on influences from and interaction with the wider Aegean (see Chapters 1.4.1 and 1.4.4). Finally, the wide geographical scope can to some extent compensate for the problems concerning the quantity and quality of architectural data available.

Outline of the book

In the first chapter, a more detailed justification of this research is provided. First, an overview is given of research on EH III, MH and LH I domestic architecture, and remaining problems and research lacunae are highlighted. Secondly, an overview is provided of the study of social change during this period and in the Aegean more generally. This overview shows how much potential the study of domestic architecture and the household has for the study of social change.

Approaches to domestic architecture, the household, and social change are outlined in the second chapter. In this way, a framework of research into and interpretation of domestic architecture and change is constructed. The chapter ends with an outline of the method and approach used in this research, highlighting the potential and expectations, but also emphasizing the limitations.

In Chapter 3, the largest of the book, the domestic architectural data are presented. The data are presented in subsections covering each specific region. Each of these regional subsections is accompanied by a catalogue of houses, which can be found at the end of the book. Each subsection starts with an introduction on the specific region, in which the geology and chronological framework are discussed, as well as the history of research and how this has affected the data available. In this way, an impression is gained of the quality and quantity of the data. Settlements in any given region are discussed in alphabetical order. If applicable, comments on region-specific developments are discussed at the end of the subsection. As a result, the reader gains an understanding of both settlement-specific and region-specific developments. The subsection and catalogues are accompanied with settlement and house plans. These are digitized and to some extent standardized (see legend).



Temporally-specific developments form the core of Chapter 4. The chapter is ordered by chronological subperiod: EH III, MH I–II and MH III–LH I. The discussion aims to identify architectural patterns and changes for each of the three sub-periods. These patterns are further discussed and interpreted in Chapter 5, whereby references are made to the issues discussed in Chapter 2, as well as other evidence, such as mortuary data. In the final Chapter 6, the main conclusions are set out, and suggestions for further research are given.

Chapter 1

History of research

In this chapter, background is provided on the research topics covered in the study. First an overview is given of research carried out thus far regarding EH III, MH and LH I domestic architecture. Secondly, an overview is given of research carried out regarding social change in Bronze Age Greece, although references are also made to more general studies in, for example, anthropology. The discussion is meant to elucidate the gaps in our knowledge as well as the potential of this research.

1.1 Definitions of domestic architecture, houses and the household

Before proceeding to discuss the research history on domestic architecture, I will provide a working definition of houses, households and domestic architecture. According to the Britannica dictionary (Ackerman, et.al. 2013) "domestic architecture is produced for the social unit: the individual, family, or clan and their dependents, human and animal. It provides shelter and security for the basic physical functions of life and at times also for commercial, industrial, or agricultural activities that involve the family unit rather than the community". With reference to EH III–LH I architectural remains this means that all architectural structures uncovered within a settlement should be considered domestic architecture, except for burial architecture. Among these remains are houses, auxiliary structures of possible domestic use, surrounding partition walls, boundary walls, streets and courts.

In this study, the remains of structures used to provide shelter and security for the basic physical functions of life are interpreted and referred to as houses. With reference to EH III–LH I architectural remains, this means that structures of ca. 15 m^2 and larger were probably houses. The presence of internal structures and objects of a domestic nature can further strengthen the identification. Based on such properties, it may be possible to identify smaller structures as houses or larger structures as auxiliary buildings or special function buildings. Architectural remains of unclear use, or of auxiliary or ancillary use, such as storage, are referred to as structure.

The relationship between households and structures and houses needs to be defined, rather presupposed (Souvatzi 2008: 12). No general definition of the household seems possible, as in some cultures a household is dispersed over several houses and/or structures, while in others several households dwell in a single house. For example, Bronze Age houses on Minoan Crete were large and could have housed several nuclear families. Driessen suggests that some large agglomerative compounds could have been '*Houses*', which "served as the locus and focus of corporate groups" (Driessen 2010: 54, 2012). This *House* is not only architecture, but it is a device to objectify and materialize the social group and to perpetuate it through time, through use of architecture and objects. Means to do this include rebuilding of houses at the same place or the incorporation of older architectural elements in the new building; considering the house as a living being that needed offerings; the use of heirlooms, such as vessels, but also ancestor bones.

In this study the term household is used "to refer to a constellation of people who live together most of the time and who, between them, share the activities needed to sustain themselves as a group in terms of sustenance and social needs [...], and we assume a close correlation between this unit and domestic architecture and arrangements" (Stig Sørensen 2010: 123). For the moment, and based on research carried out thus far, it is assumed that a single household dwelled in the EH III and early MH houses. The larger size and more complex layout of a number of late MH and LH I houses, as well as the appearance of outdoor auxiliary structures, suggests the possibility of change in the composition or size of the household. Whether these changes imply the development of '*Houses*' as suggested for Minoan Crete will be explored, but a cursory review of the evidence suggests that this is not very likely. Whitelaw (2001: 22) also concluded that "we need to work out, for the specific culture and communities we are dealing with, what sort of residential organization prevailed". His description of different types of residential areas (in size, density and function) at various Minoan settlements illustrates this.

1.2 Research on EH III, MH and LH I domestic architecture

EH III, MH and LH I domestic architecture barely qualifies as monumental or proto-urban, and has been severely neglected as a result. More recently, increasing interest is expressed in domestic architecture, as shown by publications on Greek Neolithic domestic architecture (Souvatzi 2008), EH II domestic architecture (Peperaki 2010) and Cretan domestic architecture (Glowacki, Vogeikoff-Brogan 2011a). This increasing

interest is also having an impact on study of the MH period, but not yet the EH III.

1.2.1 EH III domestic architecture

The EH III period is relatively short, ca. 2200–2000 B.C., and relatively little material is ascribed to this period. This is due to the low population density of the period, but perhaps also due to the difficulties of recognizing EH III ceramics in survey material (Rutter 1983b), and regional differences in pottery sequences (e.g. Rutter 1988: 15, note 38).

Beside site excavation reports and publications, EH III domestic architecture is only summarily discussed as part of larger studies on Aegean Bronze Age architecture (Sinos 1971), EH architecture (Overbeck 1963), EH social organization (Pullen 1985), EH III culture change (Forsén 1992, Maran 1998), and in handbooks on the Aegean Bronze Age (Pullen 2008, Forsén 2010). The general impression one can gain from the domestic architecture is that of small and simple apsidal freestanding houses, though rectangular houses were also constructed. The impression of architectural homogeneity and simplicity within and between settlements and regions has been assumed rather than demonstrated. It should be systematically explored whether differences existed on the level of the settlement, the region and supra-regions. For example, the settlement of Kolonna on Aegina was different in many respects. Here, houses were constructed into insulae (assuming the reconstruction of the houses is correct), and the settlement was surrounded by a defensive wall (Walter, Felten 1981). Much awaited was the publication on the architecture of Lerna, which is considered the EH III type-site (Banks 2013)[1]. The architectural remains were so far only preliminarily published by Caskey (1966) and summarily discussed by Banks (1995) in the publication of the EH III pottery from Lerna (Rutter 1995). Among these houses one house has been referred to as the 'Chieftain's house', indicating architectural and social differences.

Discussions of EH III architecture that do exist revolve around the introduction of the apsidal house shape, the megaron shape and the disappearance of monumental architecture (Warner 1979, Pullen 1985, Hägg, Konsola 1986, Forsén 1992, Werner 1993). These studies busy themselves with the general description and spread of architectural change. Architectural variation and the meaning of change are little considered and it remains to be investigated how architectural changes are related to social questions.

A publication that considers EH III domestic architecture in more depth is the PhD thesis of Weiberg (2007). She discusses how EH people may have experienced and interacted with their built environment, and she elaborates on the use of space at EH III Olympia, Lerna and Tiryns. Important issues raised by Weiberg concern continuity and discontinuity in the use of space reflected in reuse of older walls, rebuilding of houses on the same locations, and continuity or change in settlement layout. Furthermore, she relates architectural patterns and practices, such as architectural continuity and the creation of mounds, to the concept of memory, such as a memory of the past, ancestors, a building or an event. In this way, architectural continuity becomes a symbolical and ideological basis for the creation of identity or ownership. This study offers useful approaches to the interpretation of domestic architecture from a symbolical perspective. However, questions remain. For example, what were the causes of change? Because the discussed EH III remains were single case studies, it remains unclear whether the importance of the concept of memory was of a local nature or more widely shared by EH III society.

In summary, EH III house architecture is largely neglected in studies of domestic architecture. Overall, house architecture is considered to be rather simple and homogenous, which may have led to further neglect of discussing these remains more thoroughly. However, no systematic study of EH III domestic architecture has ever been carried out to substantiate these assumptions. The few architectural studies that do exist revolve around a description of change, rather than a discussion of possible causes and the meaning of change.

1.2.2 MH domestic architecture

Lerna is also considered one of the type-sites for the MH period. Unfortunately, a selection of the architectural remains is so far only published as part of a PhD thesis (Zerner 1978), in which the beginning of the MH period is discussed. A more detailed study of the MH houses and households is in preparation (Voutsaki & Zerner, forthcoming). The architectural remains of MH Asine are also published as part of a PhD thesis, but this is done thoroughly and completely (Nordquist 1987). Other comprehensive settlement publications include the settlements of Argissa (Hanschmann, Milojčić 1976, Hanschmann, Bayerlein 1981), Pevkakia (Christmann 1996, Maran 1992a) and Agios Stephanos (Taylour, Janko 2008). However, each of these studies has certain limitations.

It has already been mentioned that EH III Kolonna was different in many respects from Mainland settlements, and this continues during the MH period. The most recent find that substantiates this is the uncovering of the Large Building Complex, which was used over a long period (MH I/II–LH I/II) and modified and extended several times (Gauß, Lindblom & Smetana 2011).

Sinos (1971: 75-84) gave an overview of MH architectural remains on the Mainland. House shape, room

1 This book was published during the final revision stage of this study, and could only for some extent be incorporated.

numbers and roof type are discussed. It remained to be investigated though how MH architecture changed through time. Dickinson (1977: 32-33) offered a summary of MH domestic architecture, which has remained the general impression of MH architecture for a long time: settlements were overall small, and houses were scattered, though in level areas they might be arranged in rows. During the later MH, houses were more densely packed. Houses were built of mud brick on stone foundations and generally consisted of a porch; a long, rectangular main room; and an apsidal back room. Trapezoidal or rectangular houses with internal partitioning also existed. During the later MH, houses became more complex, with square or rectangular rooms. Except for small storage rooms at Eutresis and Korakou, all uncovered structures functioned as dwellings. This description still holds, but local and regionally specific developments need further attention in the future, as well as the causes and meaning of the increasing architectural complexity during the later MH.

Beside site excavation reports and publications, MH domestic architecture is relatively little discussed. Werner (1993) discusses the spread and development of the megaron house shape, including houses from the Greek Bronze Age Mainland. He concludes (Werner 1993: 128) that "there are no proofs of other purposes for the buildings than those of dwelling or functions supporting it". Werner (1993: 73) states that it is "difficult to see a trend in the occurrence and relationship of the megaroid examples at the different settlements within these parts of the Greek mainland". However, it is possible that a thorough contextualization of the megaron house, in relation to other house shapes may solve this issue. Werner relates the introduction and spread of the megaron house shape to influence from other areas. A consideration of the local or regional meaning and impact of the new house shape may also further clarify its occurrence.

Two theses on MH remains were hindered in the discussion and interpretation of the architectural material, due to the lack or quality of data available. In the first thesis, an overview of MH architectural and burial remains in the Argolid and the Corinthia showed differences in development and organization (Lambropoulou 1991). In the concluding sections, settlement patterns and organization in particular were elaborated on to substantiate this. An evaluation of the domestic remains was considered difficult, as only the remains from Asine and Argos had been published to some extent. This problem illustrates the importance of assessing architectural evidence on a supra-regional scale, in addition to a regional and local scale. The second thesis concerned a study of social organization in MH Boeotia (Gorogianni 2002), in which the architectural analysis carried out was primarily based on Eutresis. This settlement was, overall, unorganized. Residential structures were apsidal or rectangular, while auxiliary structures were more irregularly shaped. The apsidal house shape was more popular during the earlier MH and the rectangular shape during the later MH. Based on house size, internal structures and investment, Gorogianni observes difference between houses and suggests that house S may have had a central role. The existence of auxiliary structures for cooking and storage suggests that some cooperation and sharing of resources on a community level took place, which would have been facilitated by kinship relations. The combination of architectural, economic and social considerations is extremely useful and should be implemented more widely. The developments at Eutresis may be considered more widely in regional and supra-regional developments to further strengthen the interpretation and meaning of differences and change. For example, the suggestion that house S may have had a central role, does not clearly emerge from the architectural evidence.

That little attention has been devoted to MH architecture clearly appears in three handbooks on Aegean prehistory published in the past decade. In his review of this period, Rutter (2001) mentions the special nature of the settlement of Kolonna and refers among other things to its monumental architecture. At Asine, no public architecture or particularly wealthy households were uncovered, but it is suggested that social ranking may have existed, based on variety in house size and room numbers. A lack of systematic study hinders a further discussion of architectural remains. Also in the addendum (Rutter 2001: 151-155), it becomes clear that much time is devoted by researchers to the study of MH ceramics, burial customs and publication of site reports, but not to architecture specifically.

The MH period is, in the Cambridge Companion to the Aegean Bronze Age (Shelmerdine 2008), incorporated in a chapter entitled Early Mycenaean Greece (Wright 2008). Wright (2008, esp. 233-239) argues, based on architectural remains uncovered at Asine, Lerna and Eutresis, that residential location determined the spatial organization of settlements. He substantiates this with reference to continuity of house placement at Lerna and Asine and with reference to intramural burials. Houses were probably long-term family residences, and the burial record indicates the importance of lineage. Houses were loosely arranged during the earlier MH, but more organized during the later MH. Like Dickinson, he observes that houses tended to be apsidal in layout during the earlier MH and rectangular during the later MH. Variety is observed in rectangular houses, being freestanding, grouped into pairs, or internally subdivided, which could reflect increasing household size and the need for more organization of space. Wright furthermore observes that at most settlements no structures or areas for storage were uncovered, except for the back or side room of houses. During the later MH, settlements increase in number and expand especially into marginal

inland areas. Some settlements (e.g. Argos, Kiapha Thiti) constructed defensive works. The subdivision of space into functional and social areas is visible at some settlements, which may mean that some activities were beginning to be centralized. Wright mentions Malthi and Argos, where rooms built alongside the fortification wall were used for storage (though the dating of the remains at Malthi is problematic). Wright has also referred to MH architecture in articles discussing Mycenaean architecture (Wright 2005, 2006). The observations made by Wright go beyond a mere description of the architectural remains and include a consideration of changes in the domestic economy and social relations, which was much awaited. However, as the discussion of the MH remains is not based on a systematic analysis (and because the text is published in a textbook and necessarily brief), the outlined developments and interpretation of them had to remain generalizing and were not discussed in much depth.

In the Oxford Handbook of the Bronze Age Aegean (Cline 2010), it is pointed out by Voutsaki (2010d: 102-103), that subtle changes and developments did take place in domestic architecture. During the MH I–II period houses were fairly homogenous, freestanding and usually irregularly positioned. During the later MH, larger and more complex structures appeared, and some settlements were also more organized. For example, at Argos the houses were arranged in a row of attached houses, encircling the summit of the hill. It is suggested that kinship was an important concept for organizing social relations, but this observation is primarily based on mortuary analysis (see further below). Voutsaki (2010d: 108) argues in the end that close empirical analyses of settlement and funerary data are needed to further reconstruct social developments.

In her thesis, Worsham (2010) discusses the MH architecture of Lerna and Eutresis and also elaborates on the EH III remains at Lerna. Houses were freestanding, replaced within a generation or two and often associated with burials, indicating the importance of the kinship group over the community. The reconstruction of houses perhaps served as a message of ownership (Worsham 2010: 88-89). Social identification with the settlement and household cooperation may have increased during the later MH, perhaps due to increasing contact with other settlements. This is reflected in the construction of defensive walls and extramural cemeteries (Worsham 2010: 98). Through time, more differentiated structures, such as a foundry, were developed at both Eutresis and Lerna. Complex simultaneous production[2] is thought to be associated with central leadership, which Worsham (2010: 86) identifies in one or two house complexes at both settlements. Of importance for the expansion of power was, on the one hand, an emphasis on kinship groups and ancestry, and, on the other, control over exchange and prestige goods. The former remained important throughout the MH period, while the latter emerged during the later MH. These interpretations are plausible, and they are reinforced by other research (see below). However, some explanations of architectural differences are problematic. For example, house size differences at Lerna are tentatively attributed to diachronic change in wealth or the development of a multi-tiered social system, while differences in functionality and household size to explain the variation are considered implausible (Worsham 2010: 82). Worsham seems to assume the relationship between house size and wealth, as no analysis is carried out of associated assemblages or the quality of house construction. According to Worsham (2010: 83), display of wealth and family relations at MH Eutresis took place in the form of the construction of small auxiliary storage buildings, while at EH III Lerna this was done through the construction of a single large house. The comparison of the architectural remains from Eutresis and Lerna is useful, but also debatable. The remains from Lerna primarily date to EH III and MH I, and the remains from Eutresis – especially the auxiliary structures that are often referred to by Worsham – date primarily to MH II and MH III. Worsham opposes the architectural patterns at Lerna and Eutresis, but a consideration of social and economic change through time as an explanation for these differences may result in a different interpretation.

Philippa-Touchais (2010), in her study of MH architecture at Kirrha, Argos and Eutresis, concludes that there was an absence of monumental or central buildings. This absence underlies her assumption of an absence of a central authority and a low degree of socio-political complexity. Her more in-depth study showed variation within and between communities regarding the subdivision of space and specialized use of space. Consequently, it is becoming increasingly clear to us that differences in economic orientation, social practices and relations did exist, and that variation increased over time.

Voutsaki elaborates specifically on MH domestic economy and kinship economy. Analysis of MH I-II houses at Asine showed no evidence for intensification of production, surplus accumulation or an increase in craft specialization (Voutsaki 2010b). Houses seem to have had their own storage, while craft production was

2 The term complex simultaneous production is used by Wilk and Rathje (1982) and refers to tasks that are carried out by a group of people all doing something different (specialized) at the same time. See for a further discussion of linear and simple simultaneous tasks Chapter 2.5.2.

dispersed (e.g. household industry). Intensification of exchange may be attributed to the pooling of resources within a group of related families. Based on the duplication of functions (such as cooking areas) within some large and complex MH III–LH I houses, it is argued that some houses were multi-family dwellings. Pooling between these families would increase their economic capacity, while in addition it might have weakened obligations to share with the wider community. Valuable goods were circulated in the settlement, but not accumulated. Voutsaki (2010b: 774-775) therefore argues that a segmentary network of exchange existed between families and kin groups (but we may assume also between other people and groups). Perhaps pottery exchange within and between communities took place to maintain networks of social relations. Consideration of the domestic economy is an important step towards understanding the function of houses and households and changes therein. Economic cooperation among households or families seems plausible, but is not necessarily substantiated by the duplication of functions inside houses.

Based on household, settlement and mortuary evidence, Voutsaki (2010c: 92) argues that kinship was the main structuring principle during early MH. As kin relations embedded authority, there was no need to substantiate authority with material evidence such as monumental architecture. During the later MH, status differences became increasingly important and were accompanied by mortuary changes, emphasizing kinship and descent (Voutsaki 2010c: 97). The discussion of these later developments is exclusively based on mortuary evidence, as architectural evidence is scant (Voutsaki 2010c: 93). The combination of mortuary and settlement data is useful, but a more detailed analysis is needed. The outlined developments are specific to the Argolid, which was a vibrant region during the MH. It may be useful to contextualize the results obtained so far with developments on the wider Greek Mainland.

In summary, it is especially in recent years that MH domestic architecture has received scholarly attention. These recent analyses show both potential and problems. Detailed analyses of architectural remains show (subtle) differences within and between settlements, but such analyses are often limited in extent and not systematic. For example, although analyses of single sites or regions go some way to outline and understand developments through time, it is clear that emerging patterns may be much better identified and understood when contextualized with Mainland-wide data, especially in cases where little data are available. Furthermore, it is necessary to distinguish more systematically earlier MH architectural patterns and later MH patterns. Finally, we need to assess systematically whether different regional developments took place. What is known so far about domestic architecture is primarily based on the settlements of Lerna, Asine, Argos and Eutresis, located in the vibrant regions of the Argolid and Boeotia. Therefore, we are likely to have an incomplete impression of Mainland-wide and regionally specific developments. Explanations and interpretations of the observed architectural differences and developments are not always offered or are problematic. Differences and changes have been related to social and economic circumstances, as well as locally specific circumstances. As a result, it often remains unclear whether developments were specific to a settlement, region or period. Kin group relations, economic cooperation, and the concepts of property, descent and kinship have been raised as explanatory factors. These factors each have potential, as has been shown above, but they need more systematic exploration through an analysis of not only house plans, but also house furnishings, associated assemblages, storage capacity, auxiliary structures, demarcation of space and property, and signs of (economic) cooperation between households and between the household and the community at large.

1.2.3 LH I domestic architecture

Research on LH I domestic architecture has focussed more on the level of the settlement than on the individual house. Population and settlement numbers increased during the later MH, and marginal areas were exploited (Dietz 1991, Wright 2004a, 2010, Bintliff 2010b, Zavadil 2010). New settlements were especially located in easily defensible locations. The population increased, and inland movements were followed by architectural change. Rectangular houses replaced apsidal houses. Dietz (1991: 294, 325) suggests that during this transitional period, social and economic conditions became altered. Maran (1995) also observes that during the Shaft Grave period resettlement and expansion into marginal areas took place, and that there was a specific concern for defence, considering the construction of defensive walls and the positioning of settlements at defensible locations. However, at the same time a discontinuity of settlement took place, whereby the settled area was turned into a burial ground. These discontinuities are related by some (Maran 1995: 72 and note 25) to a restructuring and reorganization of settlements, which arose out of a polarisation of social differences within society.

The focus on settlement rather than house is due to the overall poor preservation or limited uncovering of LH I domestic architecture. Construction works and building practices of the later LH period have obliterated or covered up many early LH structures, and knowledge about this period is mainly derived from mortuary data (Shelton 2010a: 140). In addition, identifying LH I in survey material is difficult (Rutter 1983b: 138). The identification of LH I remains is further complicated by the continuous production and use of

MH-type ceramics during the LH I (Wright 2008: 230-231). This problem especially applies to central Greece and Thessaly, where Mycenaean influence did not permeate as rapidly as in some other areas. Lately, progress has been made in the dating of LH I ceramics on Aegina and in the northeastern Peloponnese. This includes the more precise dating of Aeginetan Solidly Painted and Aeginetan Bichrome Painted wares and shapes to early LH I at Kolonna (Pruckner 2011). Mainland Polychrome Matt Painted ware in the northeastern Peloponnese is more firmly dated to LH I (Mathioudaki 2010a, 2010b, non vidi). Lindblom (2007: 119), lists a number of additional characteristic LH I ceramics including ceramics with iron-based paint, "either lustrous pattern-painted on a light background or as a semi-lustrous to lustrous background for white pattern-painted decoration". Possibilities to identify LH I survey material, assemblages and houses with more certainty in the future are therefore improved.

A LH I type-site does not really exist. For LH I ceramics, reference is made to Mycenae, and to the small inland settlement of Tsoungiza in the Corinthia (Mountjoy 1993: 5-9, 33-36), but only at Tsoungiza were these accompanied with intelligible LH I architectural remains (Rutter 1989). Several comprehensive overviews of LH domestic architecture have been published (Shear 1968, Sinos 1971, Hiesel 1991, Darcque 2005). Because of aforementioned reasons it is difficult to distil from this information an impression of LH I domestic architecture. Wright (2005) attempted to incorporate observations on Late MH–Early Mycenaean architecture in his discussion of the development of Mycenaean architecture. He (Wright 2005: 15) observes much variation during MH II–LH I and argues this was encouraged by elite competition.

1.2.4 EH III–LH I domestic architecture: problems and potential

The history of research into EH III, MH and LH I domestic architecture has been shaped by different problems and interests. Little is known of LH I domestic architecture, simply because little architecture has been uncovered, preserved or dated to LH I. Much more data are available for both the MH and EH III period, but until recently little interest has been expressed in simple, non-monumental architecture. The lack of a comprehensive overview of EH III–LH I domestic architecture is at odds with the much more elaborate discussions of ceramics and graves and with the availability of data. Indeed, although in some regions little architectural data are available, enough data are at hand to enable analyses and comparisons.

A comprehensive and systematic analysis of EH III–LH I domestic architecture has potential and is needed in many respects. First, the preceding overview has shown that a systematic analysis is needed to contextualize and comprehend what is happening in less well-researched or -represented areas, as well as in the wider Mainland generally. Secondly, we need to look more at not only settlements, but also regions. In this way, we can explore whether the prevailing picture of homogeneity is valid and to what extent differences, similarities and developments were of a local, regional or supra-regional nature. Thirdly, we need to expand our research beyond the house plan and incorporate data on furnishings and associated assemblages, even though analysis of such assemblages is often hindered by the quality of preservation, excavation and publication. Only then, we can further explore the social and economic functioning of houses and households, as well as change through time. Fourthly, we need to outline more meticulously the architectural developments through time, also making a distinction between developments during the earlier and later MH. Such distinctions have barely been made until now. Finally, the meaning of the architectural patterns that emerge should be considered more fully. Patterns can be related to functional circumstances, such as the domestic economy or composition of the household, as was, for example outlined, by Voutsaki and Worsham. Concurrently, architectural patterns can have a symbolic dimension, such as communicating property or descent claims, as, for example, outlined by Weiberg and Wright.

The focus on this material category and the EH III–LH I timeframe rebalances study of social complexity, which so far has (too) heavily relied on analysis of mortuary practices, specifically during the MH III–LH I period. Understanding the meaning of architectural patterns and developments during the MH specifically offers a context for reconstructing social relations and complexity. Moreover, it can help interpret the patterns of social change observed in the mortuary record. In this way, the emergence of 'elites' and social complexity during the later MH can be scrutinized.

This brings us to the second part of this chapter: an overview of the study of social change in Bronze Age Greece and subsequently more specific suggestions for ways in which the study of domestic architecture can contribute to our understanding of social change.

1.3 Aspects of social organization

Before proceeding to discuss the research history on social change, I will provide a brief outline of the scope of the term 'social organization' in this book. In addition, various aspects that constitute social organization are mentioned. This is by no means a complete list, but rather a selection of aspects that can be archaeologically visible and that are of use in relation to the study of domestic architecture.

Social organization is defined by "the structure of social relations within a group, usually the relations between its subgroups and institutions" (Dictionary.com), and especially by differentiation among individuals

or groups of people. Increasing inequality and heterogeneity are often considered when researching the development of increasing social complexity. In this book, social organization specifically refers to the relationships and differences between houses, although also settlements are considered. Various aspects of houses and settlements may enclose information about inequality and heterogeneity.

As is set out in the methodology (Chapter 2.6) data are collected on settlements, including the spatial organization of settlements, settlement size, density and location. Data are also collected on houses, including house shape, house size, number of rooms, furnishings and finds. These data are used to consider to what extent differences existed between settlements and between houses. The observation of differences in for example size does not automatically mean that differentiation existed (see Chapter 2.5.2). What caused these differences is a matter for further exploration. This brings us from an analysis of architectural characteristics to the exploration of relationships between houses within communities and between settlements from a social and economic perspective (see Chapters 2.2-2.5).

Regarding settlements, I have considered to what extent they may have been dependent on other settlements for marriage partners or resources. Likewise, I have considered for households to what extent they were economically self-sufficient or dependent on the wider community. In case of seeming self-sufficiency, I have also explored signs of the transmission of resources through time. Finally, I have collected signs of occupational specialities of households.

It is only through a combination of various (architectural) patterns and relationships that a plausible suggestion for differentiation can be made. Inequality is signalled by differential access to material. For example, several houses or settlements have stored more goods then they need, while the remainder have stored less. This could be reflected in the size of storage rooms and the type of finds recovered. When the number of houses or settlements with excessive storage decreases, while the number of houses that have less and less further increases we can speak of increasing heterogeneity (also depicted as a pyramid-shaped division of the society). These various aspects of social and economic relationships between houses and between settlements are discussed in more depth in Chapter 2. Of course, the archaeological architectural data are problematic in several respects, as is set out in Chapter 2.6.5. For example, preservation of the remains and the quality of excavation and publication strategies much affect possibilities of understanding the architectural record.

Other aspects that constitute social organization and that can be analysed for differentiation include for example ranking of the individual, administrative hierarchy and political hierarchy (e.g. Pullen 1985: 45). These and other aspects are not considered for two main reasons: in this study our data are limited to architecture. Secondly, EH III and MH society have shown so far no evidence of complex social organization which would for example include administration.

1.4 Research on social change

In the following sections, an overview is provided of the study of social change in Bronze Age Greece. Each section considers a certain approach to, or cause of, social change. The approach is briefly outlined, and subsequently examples of such approaches in Aegean archaeology are discussed. This overview is not meant to be exhaustive, but includes issues applicable to (past) study of social change during the EH III–LH I period.

First, external influence as a cause of social change is considered, whereby the Mainland is largely seen as a passive recipient of this influence. This is followed, second, by a discussion of physical environmental circumstances. Thirdly, and in relation to the previous approach, the production of agricultural surplus is related to the development of social complexity. Finally, increasing interaction with the wider Aegean is discussed in relation to conspicuous consumption of goods and competition over social status. In this discussion, the Mainland is considered an active player in trade relations. Considering the overall lack of study of domestic architecture, it is no surprise that only some of these approaches touch upon the aspects of social organization discussed in the previous section.

1.4.1 Social change and external influences

Social change was generally ascribed to evolutionism in the 19th and early 20th centuries. Evolutionism is the belief in progress from simple, primitive societies to advanced and civilized ones. This growth is assumed to be unilinear in its progression, and to take place in universal stages. In the early 20th century, this theory was gradually abandoned. Instead, change was ascribed to external influences in the form of invasion, migration and diffusion.

In Aegean archaeology, Evans is a prime example of both evolutionary and diffusionistic approaches (MacEnroe 1995). For example, his research on Minoan Crete led him to believe that Minoan technologies were brought to Crete by migrating people from Anatolia. Subsequently, the Bronze Age civilisation of Mainland Greece could only have developed under the influence and political domination of the much more complex Cretan communities (e.g. Evans 1931).

Migration and invasion or the so-called 'coming of the Greeks' and Indo-European speaking people, were also considered causes of change during the EH II–III and EH III–MH period on Mainland Greece (Blegen 1928a, Caskey 1960, Hood 1973, Howell 1973, Cadogan 1986, Hood 1986, Doumas 1996). Invading people were

thought to have caused settlement destruction and desertion, and to have been responsible for the introduction of new material culture. More recently, the intensity of the break in material culture has been downplayed by emphasizing continuity (Runnels 1985, Forsén 1992, Hartenberger, Runnels 2001). Furthermore, analysis of EH III destruction layers of settlements has shown that destruction did not take place simultaneously – in either time or space (Forsén 1992: 251). Therefore, an invasion of the Mainland by hordes of foreign people seems unlikely. The EH III–MH I transition is now considered to be of a gradual nature, not least because the characteristic MH Minyan ware had a predecessor during EH III, called Fine Grey Burnished pottery (Rutter 1983a).

However, some exchange, movement and mobility did take place during EH II and EH III. Interactions are, for example, suggested by the introduction of some new material culture, such as the appearance of the apsidal house shape, shaft-hole hammer axes, tumuli, the Kastri-Lefkandi I assemblages (see for summary and references Manning 1995), and incised Cetina wares at Olympia (Maran 1986, 1987b, 1998, 2007b, Rambach 2010). Also of interest in this context are the observations and suggestions by Rutter (1988: 85-86) regarding EH III pattern-decorated ceramics. The patterns may have been, to some extent, influenced by basketry. Rutter suggested this influence could perhaps be related to an increased use of baskets as storage containers, which in turn might be related to increased mobility. This relation between EH III pattern painted decoration and basketry is further explored by Nakou (2000, 2007). She suggests that decorated bases may imitate the point of initiation of woven baskets (Nakou 2000: 44), and that some of the different types of zonal distributions of painted patterns may imitate solidly woven containers or half-woven containers with solid lower bodies and openwork or knotted open regions (Nakou 2000: 46).

Change during the late MH and early Mycenaean period has also been ascribed to invasion (Diamant 1988), but this notion was immediately criticized (Diamant 1988: 159). More prevalent are references to Crete as a source of influence leading to "increased sophistication" of the Mainland (e.g. Evans 1931, Dickinson 1977: 57, 1989: 136). Minoan Crete was in many ways more developed than the Mainland, as it boasted several palace-like buildings that united economic, social, administrative and religious functions. Minoan (influenced) objects have been recovered on the early MH Mainland, and these seem to have ended up here as a result of indirect trade, rather than directed exchange from palatial centres on Crete (Cadogan, Kopaka 2010). The imitation of Minoan vessels suggests some stimulation of cultural change on the Mainland. Minoan objects and symbols became increasingly important on the Mainland during the Shaft Grave period, perhaps to stimulate the emergence of regional centres. However, Crete cannot be considered the sole explanation for changes taking place on the Mainland, as is pointed out by Voutsaki (2005: 139), based on the timing of the changes, the distribution of imports and rich tombs, and the nature of the changes. For example, Minoan imports and rich tombs were also found in areas that were not in contact with Crete during the earlier MH, and the new mortuary customs of the Mainland were not comparable to customs on Crete. That Crete did play an important role though, is indicated by the peaking of changes on the Mainland during MH III–LH I, which coincided with the creation of the new (second) palaces on Crete and the expansion of their influence in the wider Aegean. In the Cyclades, the transformation of villages into towns during the Middle and Late Cycladic period is attested. It is suggested (Bintliff 2012: 157) that a basis for explanation of this change may be a synergy between internal change, the rise of palaces on Crete, and the transformation of marine navigation as sailing boats were introduced (see further Chapter 1.4.4). Perhaps a somewhat similar explanation can account for the changes on the Mainland.

In summary, material changes appearing at the beginning of the EH III, and during the EH III–MH I and MH III–LH I transitions, had at first been ascribed to external influences. Now, the EH III–MH I transition is considered to be of a gradual nature, and external influences have been (somewhat) downplayed for both the EH III and the MH III–LH I period. Nonetheless, external influences did play a role during both periods. Regarding EH III changes, more consideration should be given to the concept of mobility, rather than to invasion and migration (Maran 2007b). Regarding MH III–LH I changes, a better understanding of preceding developments on both a temporal and spatial scale is needed to understand the influx of Minoan influence on the Mainland. Furthermore, a systematic analysis of houses and settlements is needed to balance the data on external influences, which are now primarily based on ceramics and on objects coming from mortuary contexts.

1.4.2 Social change and the physical environment

From the second half of the 20th century onwards, an increasing interest was expressed in cultural adaptation to environmental change (e.g. Fried 1967, Steward 1977). Environmental and ecological changes were used to explain cultural change, or to explain why contemporary and geographically close societies could differ in social organization and complexity. For example, Sanders and Webster (1978) considered environmental and ecological circumstances to refine stages of social evolution. For every environment under study, they assessed how risky and diverse it is. The risk and diversity of the environment determine the intensity of resource exploitation, and this has repercussions for social relations and

organization. Therefore, the type of environment and changes therein can lead to different stages of social evolution.

Environmental circumstances were also considered to explain change during EH II–III. Land degradation due to over-exploitation, as well as climate change, were suggested as causes of settlement decline and depopulation (Renfrew 1972, van Andel, Runnels & Pope 1986, van Andel, Zangger & Demitrack 1990, Zangger 1992, Manning 1997, Whitelaw 2000).

Bintliff (2012: 92) suggests that erosion might be due to a combination of three factors: one, open, largely treeless landscapes enabled rain to wash away soil deposits. Two, sea level dynamics (Zangger 1993: 83, 1994, Shriner, Murray 2003, Shriner et al. 2011), and three, climatic fluctuations. Lack of fine dating makes it difficult to assess whether changes in agricultural land were perhaps a factor in the EH II decline, or were perhaps the result of the decline as abandoned land was being washed away.

Weiberg et al. (2010) argue that erosion was a short-term effect of nucleation of settlements, a nucleation that was not accompanied by a decrease in population during EH II. The change in settlement pattern led to a centralization of the agricultural system and intensified exploitation of the land, the latter eventually leading to erosion. Another trigger for change was increased interaction, which led to the development of new material culture and new identities (Weiberg et al. 2010: 157). Furthermore, it is argued that although long-term and short-term climate changes may have affected ecosystems, the human factor (e.g. human decision making and perception) may have been a more important factor of change (Weiberg et al. 2010: 154, 158).

Bintliff (2000, 2012) is inclined to ascribe more importance to extreme weather events. He writes (Bintliff 2012: 92) that "there *are* extraordinary, hard to dismiss cultural and environmental coincidences between the environmental sequence in the Aegean over this period and events in the Eastern Mediterranean", referring to flood levels in Egypt, severe climatic fluctuations typified by draught in Syria and Israel and earth-science climatic data that confirm a major arid period. Weiberg and Finné (2013: 12-14) do not dismiss the evidence for climate change. However, they argue that "there is no straightforward evidence for the direct impact of climate change on the history of the societies in northeastern Peloponnese". They substantiate this by stating that there are no detailed climate sequences available for central and southern Greece. Regional differences are seen in climate data that indicate discrepancies between the Near East and Greece (Finné, Holmgren 2010, Finné et al. 2011).

In summary, it has been argued by several scholars that ecology and environment may affect changes in population numbers and in land use. Differences and changes herein may lead to different types of social organization. Climate change probably did take place during the Early Bronze Age, and it affected the environment in the wider Aegean (Nüzhet Dalfes, Kukla & Weiss 1997). However, the exact timing, extent and effect of these changes are not yet clear in the southern Greek Mainland and need further research.

The discussion on environmental circumstances and change is primarily one that revolves around methodological questions and the collection of data. The repercussions that these environmental changes may in theory have had on social relations and change are only minimally considered (Weiberg et al. 2010, Weiberg, Finné 2013).

1.4.3 Social change and agricultural surplus

The seminal work of Renfrew (1972) on the emergence of civilization in the Aegean Bronze Age can be considered part of this approach. One of the models Renfrew developed was coined the subsistence-redistribution model. In this model, the emergence of social complexity was the consequence of subsistence changes. Simply put, the diverse Mediterranean landscape coupled with the systematic exploitation of cereals and new food plants such as olive and grapes, led to specialization and flexibility in subsistence strategies and a change in the organization of agricultural exploitation. Agricultural production increased and more systematic storage facilities were developed. Surplus was first redistributed within settlements, and local chiefs emerged to handle the surplus (1972: 364-369). The chiefs were subsequently able to support craft technology. Thus, redistribution was in need of coordination. This need for a central control facilitated a "locus for an emerging hierarchy of power and of wealth" (1972: 481).

The development of a model of causal relations to explain change was, at that time, fairly new for Aegean archaeology. However, the causal relationship Renfrew inferred, as well as the evidence to prove these are in several respects problematic. For example, Renfrew assumes that grapes and olives were systematically exploited early in the Bronze Age. In the 80s and 90s too little archaeobotanical data was available to substantiate this (Runnels, Hansen 1986, Hansen 1988, Hamilakis 1996). Recently, major scientific retrieval programmes have led to an accumulation of data for the use of olives. Margaritis (in press) presents this evidence, which indicates the presence of olives from the Neolithic onwards, and an increase in the third millennium BC. It seems that olive trees were initially used for their wood. The pruning of the plant was beneficial for its fruit, and over time led to domestication. Overall, evidence for grape and olive exploitation is accumulating, but does not necessarily indicate specialization. Bintliff (2012: 84-85), poses that the limited number of presses found in the archaeological record are not a reflection of the frequency of

production, as production could have been small-scale and perhaps done without the use of stone presses. Margaritis (in press) adds to this that the limited quantity of olive remains is indicative of how its by-products were used and discarded and that installations may have been located outside the settlement on the fields.

Problems remain, are becoming more complex and focus on methodology. For example, it has started to become clear that detecting the domestication and large-scale cultivation of grapevines is more complex than initially thought (Valamoti 2009, chapter 7, non vidi). Evidence on polyculture is increasing, but it is difficult to reconstruct the subsistence base and the impact of (changes in) the subsistence base on the society. It should be stressed though, that the model presented by Renfrew has given much impetus to research on social evolution in relation to agriculture.

The causal relationship between surplus production and the development of status differences formulated by Renfrew, received further consideration in research on social complexity in the Aegean. Three conditions need to be met: first, an incentive is needed for surplus production, because it is expected that simple, small-scale societies normally only produce as much as they need (Sahlins 1972, chapters 1 and 2). Secondly, households should be enabled to exploit the surplus for their own benefit. For this to happen, obligations of sharing with the larger community should be downplayed (see Chapter 2.4.1 for a more elaborate discussion). Thirdly, fissioning of the community needs to be prevented, as under normal circumstances it is expected that people try to prevent the development of status differences, through, for example, fission.

This third condition was first explored by Gilman and Gamble. Under certain circumstances, people or communities might choose not to fission. Such circumstances could be high input in subsistence strategies, for example, the introduction of plough agriculture, Mediterranean polyculture or irrigation works. High input subsistence strategies may prevent fissioning of communities, as people do not want to start cultivating their land all over again. Based on this idea, Gilman (1981) argues that capital-intensification of subsistence preceded but also enabled the emergence of an elite. People could rise to elite status as defenders or protectors of assets, for example, draft animals, vineyards and olive groves, or irrigation systems. This suggestion is somewhat modified in a later publication, in which Gilman (1991) argues that an elite could arise by, for example, renting cattle or land to others. It seems plausible that people could rise in status through surplus production, and subsequently lending or renting cattle or land to others. However, the incentive for surplus production remains enigmatic. Problematic in his discussion of the prehistoric Aegean, is that Gilman (1991) collapses evidence from the Mainland, Crete and other islands, as well as evidence from the EH II, MH and LH. Moreover, he considers these three periods as being linear in development, which they were not. Social and economic circumstances changed during EH III and MH, and they were wholly different from developments taking place on Crete.

Gamble (1979, 1980, 1981, 1982) provided a different reason that prevented fission of communities. On Melos, elite power was based on forcing the population to live in large, nucleated settlements from which self-sufficient mixed farming was impractical. After all, farmers had to travel too far to herd animals and work their fields. As a solution, farmers were forced to intensify and to specialize in particular products. Because of specialization, farmers became dependent on a managing and redistributive elite to obtain and redistribute other products. Once people were dependent on the elite, they could not return to their previous self-sufficient subsistence economy.

The outline provided by Gamble is problematic for several reasons. First, settlement nucleation does not necessarily lead to intensification. Secondly, it remains unclear how political pressure is used to force people to specialize and simplify. Thirdly, it is hard to imagine why people would willingly give up their self-sufficiency. Fourthly, Gamble's argument is circular (also pointed out by Halstead 1988: 523), as the production of surplus led to the rise of elite, which led to the production of surplus. It seems that Gamble was to some extent aware of the circularity, as he writes (Gamble 1981: 222), "Instead of arguing about the place of a surplus in the Aegean emergence, it might be more profitable to turn to our themes of social development and political control and their relationship with the organizing productive forces." This is a key problem also encountered in some other works discussing surplus and social development. Instead of approaching this issue bottom-up (from the household economy), they approach the issue top-down (from the palace economy, and assumed functioning of it).

Halstead (1994) further elaborated Renfrew's premise that regional differences in complexity can be related to differences in the environment and available resources. Furthermore, he specifically discusses incentives for the production of surplus, and causes of a decreasing obligation to share resources. Halstead considers the use of surplus in relation to the rise of social differentiation, and begins his discussion by providing an incentive for surplus production. His point of departure is that people in Greece always had to cope with the possibility of food shortages, due to periodic or inter-annual fluctuations in agricultural yields, for example, due to variation in temperature and rainfall (Halstead 1994). To cope with this uncertainty, people can follow any or all of four strategies: diversification of production, storage of surplus, exchange and mobility. Halstead argues that the reciprocal nature of food exchange normally practiced among

households or neighbouring communities would turn into exchange of food for valuable tokens when distance between exchanging communities increased. Tokens are easier to transport. In addition, increasing distance between communities may have rendered the otherwise reciprocal nature of the exchange less effective. Halstead also called the exchange of food and tokens a form of 'banking' some of the surplus, through social storage in return for valuables. In times of need, the valuables could be exchanged back for staples. Inequality could be the result of sustained imbalances between the production of people living in marginal areas and that of people living in fertile areas. Successful farmers overproduced and acquired valuable tokens, and were subsequently able to gain control over the production and labour of others (Halstead 1981, 1988, 1994, 1995, Halstead, O'Shea 1982). It remains somewhat unclear how exactly an elite emerged in the model presented by Halstead. It seems that overproducing farmers eventually became the elite, in their role of producers, mobilizers and redistributors of surplus.

Halstead suggests that inequality existed in Thessaly during the Neolithic, while in southern Greece complexity emerged during the Early Bronze Age. Halstead explains this difference by arguing that the type of environment exploited (diverse versus marginal) led to different mechanisms to buffer periods of inter-annual fluctuations in agricultural yields. These different mechanisms affected social relations, as they could require households to share, pool or store agricultural surplus. In my opinion, a comparable model is likely to prove helpful for exploring EH III–LH I households and social and economic organization as well, but applications have not been carried out so far. Halstead did discuss EH II and LH material, but unfortunately omitted the intermediate EH III and MH periods, while at the same time considering what was economically happening from EH II to LH onwards as a continuous development. Dickinson (1989) expressed critique of Halstead's model. He argued that there is no evidence at rising MH or LH I centres of them being more fortunate agriculturalist, or specialists in specific forms of agriculture or stockbreeding. Furthermore, there is no evidence of large-scale storage facilities, or administrative use of seals or script, which would be expected regarding the mobilization and redistribution of surplus.

In summary, the process of surplus production leading to social change consists of several stages or processes. First, an incentive is needed for surplus production. According to Halstead (1994), Greek households always tried to produce some surplus to cope with inter-annual fluctuations. Secondly, fission of communities had to be prevented. Large amounts of labour input in agricultural land could prevent fission, as could other circumstances, such as scarcity of available land or warfare (Carneiro 1970). The growing of olive trees (which take years to produce a first harvest) and the use of plough agriculture have been brought forward as possible circumstances preventing fission in Greek Bronze Age society. However, it is difficult to substantiate these developments with data for EH III–LH I. Thirdly, the obligation to share household surplus on a reciprocal basis within one's own society had to be downplayed. Otherwise, no profitable activities could be undertaken with the surplus. Halstead argued that increasing exploitation of marginal areas led to less sharing between households and more hoarding of staples within the household. We should explore whether settlement number increase during the later MH and LH led to comparable changes in household economics. Finally, profitable activities had to be undertaken with the surplus in order to create and sustain wealth differences. Halstead suggests the exchange of surplus for valuables, but other possibilities are numerous and could include the buying and renting of land, animals or labour. We should explore whether we see (increasing) signs of profitable activities in the EH III–LH I domestic sphere.

Although Dickinson argued, in response to the model of Halstead, that there was no evidence of large-scale storage facilities or of administrative use of seals or script, we should be aware that EH III–LH I domestic architecture has never been thoroughly analysed for more subtle changes in function or storage capacity on the household level. Although analysis of storage practices and capacity is rarely possible due to the quality and quantity of data, we should try to incorporate such considerations in our research. Considering storage practices has much potential for understanding social organization and interaction (e.g. Aravantinos, Psaraki 2008, Psaraki et al. 2010).

1.4.4 Social change and increasing interaction

The EH III period is characterized by shifting and changing trade and interaction patterns. Compared to EH II fewer imports reached the Mainland and regional styles developed. The sailing ship was probably introduced into the Aegean at the end of the EBA and beginning of the early MBA in the Aegean (Broodbank 2000: 342), and this must have revolutionized trade opportunities and interaction patterns. Interaction patterns were dynamic during EH III-MH II and are difficult to grasp (Kiriatzi 2010: 684).

A steady increase of imports is seen in the Mainland from MH onwards, and it is suggested that different interaction zones existed in the Aegean during the MBA. A south-western network, including Crete, Kythera and the southeastern Peloponnese; an island network including the Cyclades, Attica and southern Euboea; and a northern Aegean network including northern Euboea, central Greece, northern Greece, Macedonia and northwest Anatolia (Broodbank 2000: 354). More recently, it

was suggested (Pullen, Tartaron 2007: 153-154, 157), that Kolonna may have controlled the Saronic Gulf during the Bronze Age. Minoan imports are more frequent in the southern Peloponnese and Cycladic imports in Attica. It has been shown by Dietz (1998) that Attica and the Argolid had substantial relations with the Cyclades during the MH III period. Dietz (1998: 31) argues that the 'Shaft Grave Phenomenon' was already well established before Minoan influence on the Mainland became very strong, and that the Mainland communities (in the Argolid) probably played a more active role in interaction patterns than was often believed.

Minoan influence on the Mainland intensifies during the later MH and LH I, while Cycladic ceramics are no longer imported on the Mainland during the later part of the 17th century (Dietz 1998: 29). This phenomenon coincides with the Neopalatial period in Crete and the 'minoanisation' of the island Kythera, as well as settlements on other islands, such as Akrotiri on Thera and Agia Irini on Kea. The late MH and LH I Shaft Graves uncovered at Mycenae contained many imports from Crete. Explanations for the sudden influx of goods were therefore first sought in increasing interaction with Crete. The rich graves at Mycenae were, for example, thought to hold the remains of Cretan princes. Under influence of publications discussing gift giving in Archaic and simple societies (e.g. Mauss 1966, Sahlins 1972) the valuable goods in the graves were considered gifts of the Minoan elite to the Mycenaean elite. It has also been argued that the gold and amber may have come from Transylvania and was exchanged for swords and technological expertise in bronze casting (Davis 1983).

Instead of interpreting the ostentatious burial gifts as a representation of elite status, Voutsaki sees them as a means to create status. In primitive kin-based societies, the consumption of goods would take place on a communal scale, and act as an integrative force. Due to increasing contacts with other (cultural) areas, there was a need for Mainland communities, or segments of these communities, to define their group/culture and shift political alliances (Voutsaki 1999, 2001). Kin relations were redefined, and conspicuous consumption in mortuary practices was transformed into a mechanism for the creation of both economic and social differentiation. Ownership of precious goods by the kin group was being communicated through deposition of these goods in ancestral graves. In this way, consumption was turned into a mechanism for the creation of asymmetry. To crystallize these new social values, material signs and Minoan symbols were used to equal prestige. In summary, people used mortuary display and conspicuous consumption as a strategy of exclusion and differentiation, to acquire status in the process of differentiation, and as a key weapon in social competition (Voutsaki 1995, 1997). In the settlement context, Kiriatzi (2010: 698-699) suggests that during the MH, the Mainlanders incorporated ceramic vessels of a variety of technological traditions and producers (such as Minoan or minoanized vessels). These vessels had different biographies, probably functioned in different social contexts and were socially charged in different ways. "Through their circulation and use, they obviously participated in the introduction of new practices or transformation of old ones and consequently in the negotiation, or even diversification, of social roles and identities, in different context and at different levels".

Voutsaki elaborated extensively on the use, deposition, and meaning of valuables in the mortuary record. However, what the means (goods, staples, labour?) were to acquire these valuables was not considered. Kiriatzi relates the increasing Minoan impact to human mobility that intensified and eventually resulted in the incorporation of Minoan-like production and consumption practices. It remains to be investigated why some settlements or areas were more receptive, or why some people or kin groups could acquire and consume valuables while others could not. Wright did suggest, albeit indirectly, a possible scenario for the collection of means to acquire valuables. Wright (2004b: 71) argued that leadership is a result of personal prowess, negotiation and manipulation. Leaders can create factions through the recruitment and maintenance of a group, based on the self-interest of the supporters. Wright (2001) proposes that several factions headed by emerging leaders operated within and among MH and early LH communities. Faction leaders continually had to build and maintain their group. It seems that a larger social group could have pooled its resources to acquire valuable goods or to attract more followers, resulting in further expanding networks of (social) relations, alliances and exchange. Faction leaders subsequently manipulated external resources to benefit themselves and the faction. Competition could arise between leaders for access to distant resources (Wright 1995b: 72).

In summary, changing and increasing interaction patterns during MH and LH I played a role in social and material changes. Some scholars see the increasing interaction as a cause of internal change, while others seem to consider the increasing interaction to be a result of internal change, or a strategy to cope with internal change. The mortuary record suggests a process in which households coalesced into kin groups or factions, and this allowed the development of differentiation between them. However, whether and how increasing interaction and social changes were reflected in the domestic architecture, such as the presence or absence of communal buildings and the size of the house and the household, has barely been considered (but see Voutsaki 2010a, Voutsaki et al in press). For example, of interest for the analysis of households is the remark by Wright that to understand social evolution, we need "to understand

the role played by the structure and dynamics of individuals, especially in households and communities" (Wright 2004b: 69). A systematic analysis of architectural remains will allow us to reconstruct houses, households and communities, and their changing position and function in areas of increasing interaction (Voutsaki 2010d: 108). For example, the transition from a closed to an open economy (see Chapter 2.4.2) could enable the development of architectural variety.

1.4.5 EH III–LH I social change: problems and potentials

Causes of social change during the transitional EH II–EH III, EH III–MH I, and MH III–LH I periods were first attributed to invasion, then to migration, and then to cultural influence. Later, consideration was given to climate change and to indigenous and evolutionary processes, such as the production of surplus. Most recently, scholars have tried to attribute MH III–LH I change to a combination of internal and external processes. In these scenarios, the Mainland underwent internal social change, seemingly caused by both internal development and external influence. The social change seems to have been of a competitive nature. The acquisition of valuable goods and meaningful symbols that were used in these competitions was partly caused by, but also led to, an intensification of interaction with other areas.

The causes of EH II–III change are still debated, or explanations are pluriform. According to a synthesis (Rutter 2001: 145) of this period, alternative models for the invasion and migration theories and climate change have not been formulated yet. However, it is realized that we are dealing with complex processes, affecting different regions in different ways. The concept of mobility and movement (Maran 2007b) may prove useful in the formulation of a new model for material and social change during EH III. However, cause and effect of such concepts are not always clear or archaeologically traceable; that is, does mobility lead to social change, or vice versa? Does climate change lead to mobility, or was there already mobility?

Subtle changes occurring during the earlier MH have only recently been observed in, for example, the mortuary record (e.g. Voutsaki 2004, Milka 2006, forthcoming, Voutsaki et al in press, Ingvarsson-Sundström et al in press). Generally, the period is considered as one in which gradual growth took place. However, the sudden appearance of elite graves and the influx of valuable goods during the later MH suggest that more changes must have taken place during the earlier MH than have been observed archaeologically so far. We might especially expect changes in surplus production and, coupled to that, changes in household production and cooperation, as well as changes in the relationship between the community and the household. The observation of some age and sex differences, and some valuable goods, in the mortuary record may be related to such economic and social developments. For example, at MH I–II Lerna, differences between houses were observed regarding storage capacity, surplus and imports, while analysis of the MH I–II graves indicated the importance of kinship, descent and the transmission of property over time (Voutsaki et al in press). It is suggested (Voutsaki 2010c) that the main social organisation of the early MH period was based on kinship rather than status, as kinship-based relations did not need ostentatious gestures such as monumental houses or graves for their legitimization. Recently, it is suggested though that at Asine the first signs of emerging asymmetries are possibly already visible during MH II, and that some segments of the society demarcated themselves (by means of mortuary practices) from the rest of the community (Ingvarsson-Sundström et al in press).

During the later MH, a transformation of personal, social, and collective identities and a redefinition of age and gender relations took place in the mortuary record (Voutsaki 2004). Increasing emphasis was placed on kinship and descent, reflected in the reuse of tombs, secondary treatment of burials, and the construction of new types of tombs to facilitate this secondary treatment, such as shaft graves and chamber tombs (Voutsaki 2010c). Therefore, increasing economic and social cooperation of households belonging to the same kin group can be assumed. We might expect to see traces of such changes on the level of the household (as tentatively suggested by Voutsaki on the basis of the Asine data, Voutsaki 2010a). The causes of change occurring during the later MH and LH I, and the interrelation of these causes, are not entirely clear. As was the case during EH III, we are dealing with complex processes, affecting different regions in different ways. The Cyclades, Minoan Crete, trade relations, social competition, and the acquisition of valuables were significant factors in these processes, and these issues have received much scholarly attention. Economic developments were needed to bear the costs of interaction and exchange, but these have barely been considered for the MH period. Less consideration has also been given to developments occurring in inland areas compared with coastal areas. Coastal areas developed especially rapidly during MH, but some inland areas did too, yet these were seemingly less involved in external trade. It is therefore with good reason that attempts are made to relate MH III–LH I changes to both external stimuli and internal developments (Voutsaki 2005). In addition, we need to gain a better understanding of changes occurring on a local, geographic and temporal scale. Fully solving the problem of material and social change on the EH III–LH I Mainland is a very complex task which needs to take into account several factors. A systematic study of house architecture and domestic assemblages is a further step towards solving this problem.

1.5 Research questions

The preceding overview of the history of research into EH III–LH I domestic architecture and the study of social change in the Aegean reveals problems as well as potential. In the following section, some of the research lacunae are restated. Subsequently, the research questions and aims of this study are outlined.

1.5.1 Old omissions and new questions

The EH III and MH I–II period have largely been ignored in research, as these periods were considered a 'Dark Age' – socially simple, small-scale, undifferentiated and introverted. In addition, in studies of EH III and MH material, the domestic or non-monumental architecture has been largely ignored and generally considered simple and homogenous. However, some significant social and economic changes took place during the transitional EH II–III period, which have gone largely unnoticed. Furthermore, recent research indicates that architectural and social differences and developments did exist and took place during EH III and the earlier MH. These have never been studied systematically.

Therefore, the main question examined in this study, which changes took place regarding domestic architecture and the spatial organization of settlement during EH III–LH I in Mainland Greece, and how did these changes relate to social change? Sub-questions include the following: what is the extent of architectural homogeneity and variety in space and over time, and in which respects does domestic architecture become more complex over time?

Explanations for social change have been sought in external influences, natural causes, and economic developments. However, there has been little consideration of the domestic context.[3] It can be assumed that changes in economy and social relations are reflected in the household and its functioning. For example, the functioning of the domestic economy, such as sharing, pooling and hoarding of resources, could be a means of differentiating between households. Analysis of domestic architecture, the house, and the household can contribute to the study of social change. More specifically, we have to learn more about the independence of, and cooperation between EH III, MH and LH I households within a community. Additional questions addressed in the study therefore include the following: can we reconstruct the extent of self-sufficiency of households? Can we observe an increasing specialization, particularly of storage activities, in space over time? How did the household economy function and change over time? What is the social and economic relationship between households, and between the household and the community? And how did these relationships change over time?

Besides architectural analysis, such issues as mobility and permanence must be considered. From this follows the need to consider the relationship people had with their land and the place in which they lived. Related to this is the need to consider how people thought about issues of property, ownership and inheritance. Such considerations must be made in light of the EH III movement of people and desertion of settlements, as well as in light of increased permanence and increased numbers of settlements during the later MH. Such issues have to some extent been considered for Neolithic Greece and Bronze Age Europe generally, but barely for the EH III–LH I period. Additional questions addressed in this study are the following: What signs of increasing or decreasing mobility and permanence are visible in domestic architecture and the spatial organization of settlements? Can we observe a relationship between people and the place they inhabited? And do these relationships communicate meanings of property, ownership or inheritance?

Finally, in some cases a continuous social and economic development from the Neolithic period onwards is assumed rather than demonstrated, as outlined above. At the same time, it is evident that things 'turned bad' during EH III compared with EH II. Analysis of households and household economics from EH III onwards is likely to shed more light on the rate and extent of such developments. A final question addressed is therefore whether any or even all of the architectural patterns contribute to the contextualization of the emergence of 'elite' graves during the later MH and LH I.

3 Much consideration has (instead) been given to the palatial context of storage and redistribution on both Minoan Crete and the Helladic Mainland.