University of Cardiff
School of History, Archaeology and Religion

Cooking, space and the formation of social identities in Neolithic Northern Greece: evidence of thermal structure assemblages from Avgi and Dispilio in Kastoria

Evanthia Kalogiropoulou

Volume 1: Text

Submitted for the Degree of Doctor of Philosophy

May 2013

Abstract

This dissertation analyses the spatial and contextual organisation of thermal structures (hearths and ovens) on thirty excavated Neolithic sites from Macedonia and Western Thrace throughout the Neolithic period in Greece in diverse habitation environments (tells, flat-extended sites and lake-side sites). Unpublished material from two settlements, Avgi and Dispilio in Kastoria, will also complement this study. This dissertation raises the question of how communities were organised and how different forms of *habitus* or different kinds of entanglements tell us something of daily life and the formation of social identities. My principal field of research lies in the social interfaces developed around consumption practices in diverse spatial contexts in the course of everyday life. Key questions of this study involve the overall emergence and dispersal of social and cultural traditions in time and in space through the examination of different spatial and material entanglements. My analysis clarifies that intra-site spatial organisation in the area studied does not directly correspond with settlement types. The examination of archaeological data showed that similar configurations of social space can be found in dissimilar settlement types. My study demonstrates that cultural 'assemblages' in prehistory do not correspond to geographically broad united community groups but instead they show local diversity and social complexity. Instead of being modelled as unified, monolithic 'cultures', people seem to have come together around a sequence of chronologically and geographically focused forms of local identities. A local-scale examination of intra-site spatial patterns from Neolithic Macedonia and Western Thrace demonstrated that, although different settlement types are recorded within particular geographical regions, comparable organisation of space among contemporary sites indicates the development of similar social structures.

Στους γονείς μου,
Έφη και Διονύση

Table of Contents

Style conventions used in the dissertation

References

Citations and references are given according to the Harvard System of referencing.

Abbreviations

Standard scholarly abbreviation such as 'e.g', 'cf,' and 's.v.' as listed in the Oxford English Dictionary, are included in the main text. Periods are used in acronyms such as 'cal BC', 'EN' for the Early Neolithic, 'MN' for the Middle Neolithic, 'LN' for the Late Neolithic and 'FN' for the Final Neolithic.

Measures and Numbers

Measurements are metric. Numbers are given in metres (m) for all measurements and in m^2 for areas. Arabic numerals are used throughout. In the text all number from one to ten are spelled out. Numbers larger than ten are giving in numerals.

List of Figures

MAPS

FIGURES

PLANS

List of Tables

Acknowledgements

This dissertation owes much to the support and kindness of numerous friends, colleagues, and institutions, whom I am pleased to thank here.

First, I would like to record my indebtedness to my two supervisors, Prof. Alasdair Whittle and Prof. James Whitley, who always thought I could do it. I am very grateful to Alasdair Whittle for helping me forming coherent ideas out of what initially seemed 'untameable'. His unfailing support, his ability to guide me into the essence of research questions and always keeping me in track, along with his joyful spirit that had been urged to teach me the colloquialisms of the English language, really kept me going. I am grateful to James Whitley for his abiding support, for his to-the-point observations and his constructive advices that kept reminding me the broader perspective of my research. I would also like to thank him for believing in me and for always trying to find solutions that would ensure the best possible conditions for finishing my thesis.

I am indebted to Dr. Georgia Stratouli, of the IZ' Ephorate of Prehistoric and Classical Antiquities in Pella and Director of the Avgi project for suggesting to me the study of the thermal structures remains and for granting me the invaluable opportunity to examine this architectural material. I am also thankful to Prof. Giorgos Hourmouziadis of the Department of History and Archaeology at Aristotle University of Thessaloniki and Director of the Dispilio project, for granting me the opportunity to study the site's thermal structures remains and always encouraging me with his comments. I thank them both for many discussions, comments and suggestions that have helped me to sharpen my approach.

Many colleagues and friends from the excavation projects of Avgi and Dispilio provided information and friendly advices. I thank them all for encouraging me during the process of research and writing my thesis: Stella Papadopoulou, Tasos Bekiaris, Yiannis Voskos, Stella Kyrillidou, Georgia Koromila, Elli Tzanni, Chrysa Kolliga, Nikos Katsikaridis, Fotis Ifantidis, Eirini Delidaki and Yannis Stavridopoulos. I am grateful to Nassia Hourmouziadi and Marina Sofronidou, who spent much time discussing with me the difficult undertaking of stratigraphy, architecture and organisation of space at Dispilio. I would also like to thank Dimitris Kloukinas for many discussions on the Greek Neolithic, for his understanding and for never failing to give me his unconditional support.

I am grateful to Prof. Nikos Efstratiou for many heated discussions on the Greek Neolithic and for trusting me the study of thermal structure remains from Makri in Alexandroupoli. Although I did not finally have the time to accomplish my initially ambitious plan and introduce Makri in my dissertation analysis, the conditions for future collaboration are formed. I am also thankful to Prof. Kostas Kotsakis for a brief but essential discussion on Neolithic habitation choices and lifeways that took place in the margins of the International Conference 'A Century of Research in Prehistoric Macedonia' in Thessaloniki. I am indebted to Dr. Maria Pappa for giving me access to her unpublished thesis and for providing me permission to use some of her unpublished figures from Makriyalos, Thermi and International Fair of Thessaloniki excavations in my dissertation. I would like to thank Dr. Christina Ziota for her interest in my research, her encouragement and for being very generous in providing me copies of her forthcoming articles and unpublished information from her research at the Neolithic site Kleitos in Kozani.

I am most grateful to Steve Mills and Ian Dennis for training me in GIS and Adobe Illustrator respectively, and for always being patient to help me with any small or major crisis. Without their expertise and support none of the plans and maps of this dissertation would have been possible. I am most indebted to Penny Bickle, who did most of the editing and improved my English, made constructive comments and effective suggestions throughout the long process of writing. She has been a valuable friend to me. I am also grateful to Catherine Draycott and Daniel Galadza, who edited part of my thesis. I am thankful to all three of them for their hard work and for spending much of their free time for helping me. I would particularly like to thank Catherine Draycott as our ongoing discussions on community identities helped me to put my thoughts in order and contributed significantly to see where I am standing in this subject matter. Daniela Hofmann was keen to send me chapters of her published book on the spot and for this I would like to thank her. I am thankful to Vassilis Koutsoukos for his useful suggestions with my map illustrations. I would also like to express my gratitude to Prof. Scott Redford, Director of the Research Center for Anatolian Civilizations in Istanbul, to Dr. Fokke Gerritsen, Director of the Netherlands Institute in Turkey (NIT) and to Gülten Yıldız, librarian in the NIT for giving me the opportunity to finish my thesis in an academically stimulating and friendly research environment.

The people who have shared my enthusiasm and kept me going during hard times are my friends to whom I owe many thanks for their love, support and for keeping me attached with

the ‘real world’: Areti Stefanaki, Kleopatra Roumelioti, Maria Stathakiou, Theodora Pandelakou, Maria Batsioula. I owe many thanks to my friends in Cardiff, who have made me richer with their friendship: Anna Dunthorne, Marc Hare, Chris and Alex Milligton, Yiota Manti, Caroline Pudney, Penny Bickle and Susan Stratton. The Whitley-Hatzimichael family, James, Christina, Izabella and Lilian became my family in Cardiff and always kept an open door in their house for me. Federico Manuelli and Dinç Saraç constituted my fellow writing group during the last five months of writing my thesis in the NIT. Thank you guys, without you ‘the ocean of pain’ would not have been as pleasant.

This research was financially supported by a number of Institutions to which I am grateful: the School of History, Archaeology and Religion of Cardiff University awarded me with a three years Postgraduate Scholarship, the Greek Archaeological Committee in U.K. awarded me with a two years Postgraduate Scholarship, the Gilchrist Educational Trust awarded me with a research grant, the Fitch Laboratory in the British School at Athens awarded me with a small Research Grant for training in Ceramic Petrology. In addition, the School of History, Archaeology and Religion awarded me with several research, travel and conference grants for which I am most indebted.

I owe great debt to Nikos Tsivikis for the love, patience, understanding and support he has given me through the process of thinking and writing this thesis. He created the best possible conditions for me during the last few months of writing and he has been my constant sounding board, help and inspiration.

Above all, I would like to express my warmest and deepest gratitude to my family. My sister, Katerina, has been a constant source of support; her spirit was there to remind me the bigger picture whenever I was losing hope. There are not enough words to thank my parents, Efi and Dionysis. Without their love, confidence in me and financial support, this Ph.D. would not have been possible. I am indebted to them for making my dream come true.

Chapter 1

Introduction: why thermal structures?

'... 'culture' is sometimes described as a map; it is the analogy which occurs to an outsider who has to find his way around a foreign landscape and who compensates for his lack of practical mastery the prerogative of the native, by the use of a model of all possible routes'
(Bourdieu 1977, 2)

1.1 Introduction

This dissertation examines the spatial and contextual configuration of thermal structures (hearths and ovens) in diverse settlement types and analyses habitation lifeways, community organisation and social identities in Neolithic Northern Greece. Northern Greece includes Greek Macedonia (referred from now on as Macedonia in the text) and Western Thrace. The main research areas addressed in this study are: geographical and chronological distribution models of settlement types, intra-site spatial patterns of cooking practices, and material entanglements of kitchen spaces. The principal theme of my research refers to *habitus* developed in the course of everyday routine practices and it examines the social and cultural entanglements that represent local similarities or differences, which accordingly reflect varied social and cultural identities. Thermal structures will be the principal analytical tool for exploring aspects of daily organisation and community lifeways. I will argue that key to understanding social structures and lifeways is the routine daily activities in private and in public contexts. The dissertation will on emphasise regional patterning and local variability of habitation lifeways and it will show that living is a complex process that cannot always be modelled or patterned in 'cultural' categories. In this analytical framework, I argue that the process of formation of cultural and social identities were not uncomplicated. In my analysis I follow a local-scale and spatio-temporal approach aimed at a better understanding of regional lifeways and traditions. This analysis aims at producing narratives that unfold the various forms of community structures rather than a more traditional view of 'cultural difference', with its more monolithic concepts. Hence, this research falls into the discussion of the conceptualization of community and the identification of cultural and social

phenomena in archaeology, while it also examines how culture in its material forms relates to identity as a social construct.

1.2 Sample and scope

This dissertation raises the questions of how communities were organised and how different forms of *habitus* or different kinds of entanglements tell us something of daily life and the formation processes of social identities. What kind of social and cultural processes caused the development of different types of habitation lifeways? How do the material expressions of culture relate to the construction of social identities? Key questions of this project involve the overall emergence and dispersal of social and cultural traditions in time and in space through the study of different spatial and material entanglements (Hodder 2004; 2005; 2011; 2012). Where were cooking facilities located? Did the location of kitchen spaces indoors and/or outdoors relate to settlement types? Can we identify intra-site spatial patterning of kitchen spaces associated with chronological and/or geographical variations?

Regional scale archaeological research has only recently placed an emphasis on Northern Greece and, in particular, on the archaeology of prehistoric sites (Andreou *et al*. 1996; Aslanis 1992; Demoule and Perlès 1993; Grammenos 1991; 1997; Papathanassopoulos 1996). During the Neolithic period in Northern Greece three diverse settlement types are identified (Andreou and Kotsakis 1987; Andreou *et al*. 1996; Halstead 1999b; Souvatzi 2008a; Whittle 1996a). Tell sites constitute the typical and long-lasting habitation form attributed to the Greek Neolithic. These are earthen mounds visible in the landscape created by repeated habitation of the same area over a long period of time. Tells were usually densely occupied. The second category of habitation identified in the area studied is flat-extended sites. This type of settlement cover large areas, they regularly present shallow archaeological deposits and, due to their inconspicuous nature, they are mainly found by intensive survey methods. Buildings are loosely scattered within flat-extended settlements creating open-air spaces for various activities. The third habitation type is lake-side sites, where pile-dwellings are constructed on the shoreline or on the shallow deposits of a lake.

In this dissertation I will present the results of my analysis from 30 excavated Neolithic sites from Macedonia and Western Thrace (Map 3.1; 3.2). My research sample is complemented by intra-site spatial and contextual analysis of unpublished material remains from two settlements in Western Macedonia, the flat-extended site Avgi and the lake-side site Dispilio in Kastoria (Map 3.1). Thermal structures and the spatial configuration of kitchen spaces will be the focus of my analysis, considered as *loci* of daily domestic practices, socialization and frequent interaction and exchange among the participants. In this study, the location of

cooking facilities, in private (inside buildings) and in public contexts (in open-air spaces) within a settlement are considered a means to understand the spatial and social organisation of communities on local and regional scale.

Macedonia is bounded to the south by Mount Olympus and Cambunian Mountains and to the north by a mountain barrier of Mount Paiko, Mount Orvilos and Mount Phalakron, broken by the Axios and Strymon Rivers. Pindos Range constitutes the western physical boundary of Macedonia and along the eastern boundary the course of Nestos River, like all the rivers of Macedonia and Western Thrace, drains into the north Aegean Sea (Map 1.1; 1.2). Western Thrace borders Macedonia roughly along the west of the course of the Nestos River. Further east, the Evros River constitutes the natural and political boundaries of Western Thrace and Greece with Turkey (Map 1.2). To the north, the boundary of Western Thrace with Bulgaria runs along the mountains of the Rhodope massif. On the south, the Aegean Sea is the physical border of the region. Characteristic terrain formation in both Macedonia and Western Thrace are mountains and basins. The mountains are low (less than 3000 m high), while all basins are cut by perennial rivers. The major basins are concentrated in central and eastern Macedonia (e.g. the Yiannitsa plain, the Thessaloniki and the Langadas plains), as opposed to Western Thrace where mountainous terrains and plains are equally distributed (Valamoti 2004, 5–6).

The timeframe of this study covers the broad chronological span of Greek Neolithic from EN (6500-5800 cal BC) to FN (4500-3200 cal BC) period (Table 3.1). Archaeological evidence shows that first material remains of Neolithic populations in Macedonia are dated from EN period and that habitation was continuous in this region throughout the Neolithic period. A small concentration of EN sites in Macedonia was initially recorded in Yiannitsa plain in Central Macedonia, while single-standing or clusters of Neolithic villages of the succeeding MN, LN and FN periods were scattered all-through this broad geographical region. Settlements were generally founded on plains (Central and Eastern Macedonia) and mountains (Western Macedonia) close to water resources (Map 3.1). In Western Thrace, on the other hand, first evidence of Neolithic occupation is dated to MN and continued through the following LN period. Therefore, the EN and the FN periods are not represented in that region. Settlements are located on plains with proximity to water resources and often in close proximity to the sea (Map 3.2).

1.3 Contribution and organisation of the thesis

Thermal structures constitute architectural material remains that have been regularly unearthed in the context of prehistoric settlements. With regard to the frequency that cooking facilities have been recovered in archaeological deposits, research on the Greek Neolithic has paid inversely proportional attention to these features. Hourmouziadis (1979) was the first Greek scholar to identify their functional and social importance as areas of activities within a community. Later, both Papadopoulou and Prévost-Dermarkar developed an analytical approach for the study of prehistoric hearths and ovens, mainly emphasizing their technical and functional characteristics by analyzing the raw materials used, techniques applied and the functional properties of these features (Papadopoulou and Prévost-Dermarkar 2007; Papaeuthimiou-Papanthimou *et al*. 2000; Papaeuthymiou *et al*. 2007; Prévost-Dermarkar 2002).

My approach, founded on previous studies of cooking facilities, identifies the functional significance of thermal structures in the course of daily domestic and community activities and it also regards them as *loci* of everyday social practices that bring people together and enhance social coherence. The study draws upon the work of many researchers that work in the broad area of Northern Greece and who have published the results of their research in monographs or in preliminary fashion (*e.g.* Halstead 1999a; Hourmouziadis 2002a; Kotsakis 1999; Stratouli 2005; Valamoti 2005). The inter- and intra-site spatial and contextual analysis conducted here will contribute to the formation of a rigorous and richer methodology that advocates a more nuanced view of how behaviour does not always come in neat 'cultural packages'. Instead there can be overlaps and intersections with some differences and similarities, which present a much more complex pattern (Clarke 1968). This methodology builds richer models of past human behaviour and will improve our understanding of how communities were organised in this geographical region throughout the Neolithic period. In addition, this study presents the results of my methodological application and theoretical approaches to the unpublished material remains from two Neolithic settlements in Western Macedonia: Dispilio and Avgi in Kastoria. This research identifies regional patterning and puts an emphasis on local variability and diversity, producing small-scale local and regional narratives. Moreover, it initiates a synthesis of construction techniques and functional characteristics of thermal structures with various material entanglements identified in their activity areas (kitchen spaces). This synthesis aims at examining and putting in context the

functional properties of kitchen spaces in Neolithic communities in Macedonia and Western Thrace. Moreover, based on the increasing amount of archaeological evidence coming from the area studied, the significance of my work lies in the development of critical examination of traditional and established interpretations of social space and community organisation in Neolithic Northern Greece (Andreou and Kotsakis 1987; Halstead 1994; 1995; 1999b; Kotsakis 1999). Material remains, here, examined under the theoretical framework of theories of agency, daily life performances, habitation lifeways, social identities and social organization. What makes a study of thermal structures important is their varied and diverse qualities and the impact these feature sustain in the daily life human performances. Cooking facilities bring together various aspects of human life; they not only simply facilitate cooking and consumption practices, but they form the spaces where social interaction and exchange social knowledge and behaviour among the participants are developed.

The thesis is organised in eight chapters. Each one is complementary to the development of the main argument. Volume 1 contains Text and Volume 2 contains Figures (Figures, Plans and Maps) and Tables. A portfolio of A3 paper is auxiliary to the two volumes and includes selected Plans and Maps from Chapter 5 and 7. Chapter 2 develops the theoretical and historiographical framework of this dissertation and critically examines approaches on space, habitation lifeways, community and social identities. Chapter 3 provides a brief outline of Neolithic Greece with emphasis on the historiography of Neolithic research in Macedonia and Western Thrace. Prominence is given to previous theoretical and methodological approaches developed for this geographical region, with an emphasis on habitation patterns and spatial analysis. Chapter 4 introduces the suggested methodological framework for a functional, spatial and contextual study of thermal structures. In Chapter 5, I examine the evidence from the Neolithic site Avgi in Kastoria, which constitutes the first case study site of this dissertation. Chapter 5 incorporates a general introduction of the history of research in the site, the stratigraphic sequence identified in Neolithic Avgi, chronological framework and geology along with the classification of *in situ* thermal structures unearthed on site, their spatial and contextual analysis. Chapter 6 presents the results of the second case study site, which is the Neolithic site of Dispilio in Kastoria. This chapter follows the same structure with the preceding Chapter 5. Chapter 7 develops a broader analysis, incorporating inter- and intra-site spatial evidence from 30 excavated Neolithic settlements in Northern Greece. The analysis of the material remains is organised in three sections: chronological, geographical

and intra-site spatial and contextual analysis of cooking facilities and remains of material culture. Finally, Chapter 8 will pull all evidence together to offer a synthetic discussion that unfolds locality, diversity and complexity of habitation in diverse living environments. In this dissertation I support that social processes are local and context-specific and that they do not always fall into predictable 'cultural' patterns based on the notion of cultural or regional groups.

Chapter 2

Theoretical and historiographical reconsiderations of society, space and daily life

'How important is an individual as individual in cultural production?'
(Shanks, M. 1987, 97)

2.1 Introduction

Much research effort has gone into morphological descriptions of prehistoric settlements, reconstructions of intra-site spatial outlines, the recovery of sites' natural surroundings, their classification into cultural groups and the analysis of interactive networks with other adjacent and contemporary communities (Brück and Goodman 1999a; Clark 1977; Edmonds 1999; Flannery 1972; 2002; Hietala 1984; Hillier and Hanson 1984; Parker Pearson and Richards 1994). In particular, little has yet been discussed on the effect of intra-site organisation of space in enhancing human interaction and establishing social relationships in the arenas of daily domestic routines (Atalay and Hastorf 2006; Boivin 2000; Hodder and Cessford 2004; Overing 2003; Twiss 2007b; Urem-Kotsou 2006). In contrast, special large-scale community events, such as feasts and ritual gatherings, have been frequently suggested as the glue that ensured social cohesion (e.g. Halstead 2004; Pappa *et* al. 2004). Rather less thought has been given to the socialities involved through inhabitation processes and how these were developed by daily interactive routine practices that eventually enhance community cohesion and form social identities. Correspondingly, limited research has been done at the subsistence needs and the prevailing ideology of specific local groups that dictated the formation of certain intra-site spatial configurations. Why are there differences in intra-site spatial organisation of contemporary and adjacent settlements? What does the recovery of diverse settlement form means? What is the nature of these differences and what kind of social and cultural factors might be responsible for variability? Why are there differences in built forms? How does society produce spatial forms and spatial forms reproduces society?

The aim of this chapter is not to recreate another historiographical analysis of settlement types, organisation of space and household *per se*, since such an analysis has repeatedly and successfully been presented elsewhere (e.g. Brück and Goodman 1999b; Lawrence and Low 1990; Parker Pearson and Richards 1994; Stevanović 1996). Rather, the objectives of this chapter are firstly to set the theoretical framework, from where the analytical tools of this study were drawn, and secondly to emphasize the diversity, variability and complexity of material culture in prehistoric societies. A broad range of theoretical themes are examined here. The analytical agenda involves research on spatial methodological and theoretical approaches, settlement archaeology, household studies, daily domestic routines and social identities. Since the above subjects are complementary and interrelated, instead of compartmentalizing them in separate discussions I will attempt to merge them in favour of the production of a perspective of inhabiting that both appreciates and unravels the complexity of prehistoric societies. This study aims as giving emphasis at the diversity of daily life routine practices through the study of cooking performances and to enhance the development of regional narratives that identify geographical diversity of social choices (Mac Sweeney 2009; Whittle 1996a; 2003). This study is greatly influence by earlier works that produced grand narratives of prehistory without diminishing the importance of diversity and locality. Therefore, I repeat the question, '...would there not have been innumerable contemporary ways of telling the same story even in one region at the moment of time?' (Whittle 1996a, xv).

2.2 Approaches to archaeology and (social) space

Archaeology has often incorporated the Cartesian model of division between nature and culture that stimulated further divisions between function and symbolism, male and female, inside and outside, private and public, death and life, wild and domestic (e.g. Hodder 1990). Within this analytical framework, space was primarily approached as a dichotomy, often segmented by small-scale studies of material culture remains and usually dismembered from its natural, social and historical context. In 1974 Lefebvre argued that '...space is not a thing but a set of relations between things (objects and products)' (Lefebvre 1974, 183). In contemporary archaeology, however, space is neither a set of relations between things nor an occupied setting; it embodies relations of humans with things, it involves time, it is a dynamic agent of transformation, it is a social act (sensu Bourdieu 1977; Giddens 1984; Hodder 1982; Shanks and Tilley 1987). Therefore, space is not an object and it cannot be classified and analysed as such. In the present study space constitutes a dynamic mutable palimpsest of humans' many histories and it is approached as the component that brings together the various and diverse dimensions of humans' social life.

Since Clarke's statement in 1977 that archaeologists '...get bits of individual clocks but no account of working systems in their structural individual principles' (Clarke 1977, 7), spatial studies in archaeology have developed markedly. From the time of Binford's holistic approach on spatial uniformity (Binford 1978; 1983; 1989; Binford and Sabloff 1982), to the view of space as an arena of various interactions, as an index of community complexity and as an agent of social action and diversity (Barrett 2006; Hodder and Cessford 2004; Souvatzi 2008b), theoretical approaches on space have been significantly transformed. In the early years of methodological and theoretical growth of archaeology, space was viewed as a neutral, abstract and taken-for-granted template, where human actions occurred and the archaeological records of human behaviours accumulated (Binford 1978; 1983; 1989; Vierra and Taylor 1977; Whallon 1973; 1974). Algorithms and mathematical formulas were also employed to explain past spatial configurations (Fletcher 1984; Hillier and Hanson 1984; Hillier *et al*. 1987). Ethnological studies fed into the archaeological records with analogies that were used as media to decode the spatial past (Hodder 1982; Kramer 1979; Moore 1982; 1996; Wilk 1983). Distribution maps were widely used to identify patterns of human networks, to reconstruct systems of exchange and to explore inter- and intra-site spatial variations (e.g. Hietala 1984; Hodder and Orton 1976; Kent 1990). In addition, the

development of scientific techniques on post-depositional, taphonomic and site formation processes affected considerably the way archaeologists see, identify and interpret space (e.g. Goldberg *et al*. 1993; Karkanas 2001; Schiffer 1983; 1987). Although activity areas linked the patterns of social behaviour to spatial organisation and constituted an influential and methodological framework for archaeological analyses, they also produced segmented and un-contextual interpretations of space (e.g. Kent 1990; Rapoport 1990). Gender studies, on the other hand, see space not as a reflection of gender relations but as a medium for the performance of the spatially embodied gender relations (Sørensen 2000, 145). The relationship between gender and space is not simply involved with spatial gender division but additionally gender is implicated in spatial constructions and is consequently articulated through them (Tringham 1991; Sørensen 2000).

Contemporary archaeological methodologies that focus on high resolution techniques, like microstratigraphy and soil micromorphology, are turning the study of what is known as 'the use of space' into a much more sophisticated enterprise that is oriented to make the most of an otherwise archaeologically fragmented space (Boivin 2006; Karkanas and Efstratiou 2009; Matthews 2005a; 2005b; Matthews *et al*. 1997). Current archaeological approaches see space as embedded and implicated in human action. Rather than always being there, and always having been there, space is constructed and shaped by social actions, which in turns serve to construct and shape. Space is an agent of human actions (Barrett 2006; Boivin 2006; Hodder 2012; Hodder and Cessford 2004; Sørensen 2000; Wheatley and Gillings 2002). In the context of contemporary analytical agenda, Barrett rightly points out that '...archaeological analysis should not be about the mapping of a static spatial order as if it represents some cosmological structural rule, but rather about considering the ways agencies found places for themselves in the context of their own world' (Barrett 2001, 160).

What is social space? What are the prevailing characteristics that define social space? How is social space archaeologically identified? Lefebvre argues that '... [social space] is the outcome of a sequence and set of operations, and thus cannot be reduced to the rank of a simple object...social space implies a great diversity of knowledge' (Lefebvre 1974, 73). To complement the same stream of analytical thought I would also add that since humans are social beings, they also act socially; each work/act is a social act; each act occupies a space; each space is a social space. Space cannot be classified into categories simply based on function, belief, gender and/or ideology. There is no space that does not embody the

assemblage of human 'praxis' and intellect. Space dynamically incorporates unsettled agents and statements of social acts. As a result, it can archaeologically be defined in every aspect of human activities: productive, symbolic, domestic, economic, communal, private, engendered, routine and so forth. What I am suggesting here is that in archaeological contexts strictly antithetical (comparing/contrasting) approaches of space may lead to limited or unified, unhistorical interpretations. A synthesis that approaches space as a dynamic agent of human social action that integrates and acknowledges social complexity and that takes into consideration the geographical, chronological and historical diversities of each place can potentially lead to rather variegated interpretations. An archaeological synthesis-analysis brings together the materialised products of increasingly emerged dissimilar *habitus*, social practices, various lifeways and embedded ways of living and thinking.

2.3 Critical approaches to settlement archaeology: making places in the prehistoric world

Developments in settlement studies represent a significant shift in the research focus of archaeology away from the artefacts as primary analytical units. Trigger (1967, 149) defined settlement archaeology as one analytical direction, which refers primarily at the study of spatial and social relationships by the use of archaeological data. Clarke, on the other hand, acknowledged settlement archaeology as a particular form of spatial studies (Clarke 1972, 47; 1977, 9). He additionally identified two different methodological approaches to the development of settlement archaeology. On the one hand, American approach emphasized in social organisation and settlement patterns (Willey and Sabloff 1980), and on the other hand, European approach mainly dealt with artefacts and distribution maps (Clarke 1977; Hodder and Orton 1976).

The study of prehistoric settlements enjoys a central position in contemporary archaeology and has gradually benefitted from an evolution of theoretical (e.g. domestic space, house, household) and methodological concerns (e.g. GIS and 3D analysis). Major inter-site research themes have been investigating relationships between people and landscape (e.g. Brück 2005; Edmonds 1999; Tilley 1994), spatial configuration of settlements (Clarke 1977; Flannery 1972; 2002; Hietala 1984; Hillier and Hanson 1984), networks of cultural and social interactions with adjacent and/or distant communities, along with territoriality (Whittle 1997) and monumentality (Chapman 2008; Kotsakis 1999; Nanoglou 2001; Tilley 1994). Prominent concern to establish relationships between diverse socio-political organisation, spatial configuration and landscape studies demonstrates the expectation of deciphering cultural processes by monitoring changes of settlement arrangements over space and time. Additionally, inter-site settlement studies contribute to the study of natural environments and the interactive relationships developed between people and landscape. Principal research subjects raised by intra-site spatial analysis investigate the organisation of space, the nature of household groups and the relationships between domestic and ritual activities (Hietala 1984; Kent 1990; Rapoport 1990). These studies gave an emphasis on describing settlement forms (Flannery 1972; 2002), classifying house types (Robbins 1966), generating distribution maps for artefacts (Hietala 1984; Hodder and Orton 1976; Vierra and Taylor 1977), discussing associations between kin groups and families, which for long were regarded as the inhabitants of dwellings (Hodder 2013; Price 1999), and producing models of habitation patterns and

spatial organisation (Fletcher 1984; Hietala 1984; Hillier and Hanson 1984; Hillier *et al*. 1987).

Settlement studies, however, mainly deal with space as a uniform process that produces timeless and unhistorical narratives, often without explaining the environmental, cultural and social causes that produced/and were produced by spatial forms (e.g. Hietala 1984; Kent 1990; Rapoport 1990). Nonetheless, approaching habitation as a unified process disregards geographical diversity, understates the social complexity of communities and produces seamless, and often linear, narratives of the past. Recently, contemporary approaches to settlement archaeology demonstrate contextual and historical directions on settlement studies. These current perspectives acknowledge cultural differences, identify social diversity and accept geographical variability in time and place (Hoffman and Smyth 2013; Mac Sweeney 2009; 2011; Smyth 2010; Whittle *et al*. 2011). A late growing interest on the structure of societies under the lens of the intimate experience of daily life emerged from the contemporary framework of settlement studies (Bailey and Whittle 2008; Overing 2003). In current archaeological theory people is seen as agents of historical traditions that created and inhabited various cultures organised on diverse settlement forms. Ingold suggests that landscape is never complete either built or un-built it is constantly under construction (Ingold 1993, 153), while he also adds that people transform landscape even when they inhabit it (Ingold 1993, 167). In the same stream of thought, Brück supports that there is no fundamental functionalistic logic that can be applied to all people at all times (Brück 1999, 9). The studies of Ingold and Brück outline the dynamics of habitation in time and space and give emphasis on the variability and complexity of communities by suggesting that different forms embody diverse meanings.

Tell sites, flat-extended sites and lake-side sites are the main settlement forms archaeologically identified in Neolithic Northern Greece thus far. A settlement is generally considered to be a spatially and functionally distinctive type of site (Binford 1989, 3; Brück 1999, 55; Carman 1999). In functional terms, it is principally the presence of domestic activities that identifies and characterizes a settlement; therefore, domestic activities are considered to be its primary function. In morphological terms, houses and fire installations have been regarded as prominent indicators and principal features of a settlement. In social terms, the form of a settlement represents spatial order, which is regarded as a reflection of the social order of each community (Chapman 1989, 34). Recently, re-evaluation of the

archaeological criteria and the analytical tools employed to identify settlements has been suggested due to our contemporary, westernised perception of what constitutes a settlement that continues to influence interpretation of past communities (Brück 1999, 56; Hayden 1999). In the request for a new analytical framework new questions were raised, such as the organisation of daily life, the social mechanisms that contributed to the formation of social identities, the impact of objects and space to people. Most recently, increasingly more archaeologists are starting to question the overarching and geographically broad interpretations for the organisation of daily life in a settlement and to turn the research interest into the investigation of local varieties and community diversities (Asouti 2005; Bogaard *et al*. 2009; Fairbairn *et al*. 2005).

Tell settlements: visibility, habitation lifeways and spatial organisation

With special reference to South-eastern Europe and Near East, tell sites constitute the cornerstone of settlement studies in prehistoric archaeology. Their outline, the thick stratigraphy that indicates long-term occupation and their visibility in the landscape made tells the centre of considerable archaeological research and prominent *loci* for settlement studies. During the Neolithic period in Greece, Serbia and Bulgaria, tells were established as the main habitation form (Bailey 2000; Hodder 1990; Pappa and Bessios 1999a; 1999b; Papathanassopoulos 1996; Tringham *et al*. 1985; 1990; 1992; Whittle 1996a). The archaeological research carried out during the last thirty years, however, has identified a greater diversity of settlement types (e.g. Opovo, Selevac, Divostin, Makriyalos; McPherron and Strejovic1988; Pappa and Bessios 1999a; 1999b; Tringham *et al*. 1985; Tringham and Krstić 1990; Tringham *et al*. 1992).

In morphological terms, tells are artificial mounds formed by the remains of past human settlements built upon the same location at a non uniform rate over a long period of time. In particular, the succession of habitation phases resulted in the development of the tell form. According to Chapman, after a minimum of three generations have built their dwellings on the same place a tell site begins to develop those characteristics that make it a tell (Chapman 1990, 51). The remains preserved in tell sites represent a composite of occupational strata, destruction layers and, to a limited extent, additions of natural deposited sediments. The matrix of tells is mainly the result of cultural activity and originates primarily from the residues of collapsed mudbrick and/or stone structures such as dwellings, storage facilities, administrative and/or palace complexes; while they also encapsulate institutionalised social, religious and symbolic forms (Davidson 1976; Rosen 1986). The primary components of the residues in tell sites include mudbricks, plasters, stones, tools, ceramics and organic refuse reflecting the social and symbolic activities carried out in each site. Natural and cultural processes continuously changed and rework the structure of tells after more recent cultural deposits are added on top of the earlier ones (Kontogiorgos 2007; Rosen 1986). What is distinctive in tell sites is the persistence of the location of habitation that influenced significantly the analytical and interpretational agenda of such sites. As opposed to other settlement types, such as flat-extended and lake-side sites, tells retain their imposing bulk even after their abandonment (Chapman 1989, 38).

In order to examine and interpret the causes that produce the succeeding constructions and the duration of occupation, which resulted at the mound outlook, tell settlements became synonymous with lasting continuity of sedentary occupation (Andreou and Kotsakis 1987; Bailey 1999a; 2000; Halstead 1999b; Halstead 2005; Hodder 1990; Kotsakis 1999). For the classification of a settlement as a year-round site or as seasonal camp two main criteria are long established in the archaeological literature. These are the outline of the site (mound or flat) and the appearance of well-structured buildings (Andreou and Kotsakis 1987; Whittle 1996a; Hodder 1990). None of these two criteria, however, are efficient enough to enhance interpretations on geographical, chronological, intra-site spatial and social diversifications. Such an analysis circumvents the undertaking of contextual studies, disregards the complexity of human societies and indicates that habitation had been a uniform, cross-cultural and a-temporal process. The evident variability of archaeological evidence, the diversity of settlement types and the development of scientific techniques (e.g. analyses of organic remains and Bayesian statistics; Halstead 2005; Valamoti 2005; Whittle and Bickle 2013; Whittle *et al*. 2011), made these two criteria limited and outdated. Year-round or seasonal habitation is too complex a process to be captured in archaeological contexts by the mere use of traditional analytical tools, such as typology.

Halstead suggested an analytical model to approach the occupation status of settlements which is close to the traditional model of sedentary Neolithic lifeways. His approach is developed by the use of contemporary scientific studies of faunal remains (Halstead 2005). In his study Halstead examines the time of the year and the age of death of domestic animals (sheep, goats and pigs) from a diverse sample of sites (Halstead 2005). The sites represent different chronological periods, diverse geographical regions and dissimilar settlement types (tells, flat-extended sites and one cave). The results of his analysis support year-round habitation of the sites by at least some of their occupants (Halstead 2005, 49). The sample of the examined sites, however, is small (8 sites overall) and its geographical span is unevenly distributed, since the bulk of sites are from Thessalian plain (5 out 8 sites). A disadvantage of this model is the author's attempt to link the geographically, chronologically and socially diverse settings into a uniform interpretation of the habitation process of Neolithic Greece overall (Halstead 2005, 49). Halstead misses the opportunity to explain the causes that produced the suggested uniformity.

On the other hand, in order to explain and interpret habitation processes Whittle used the example of Achilleion, a tell site in Thessaly, to suggest diversity of habitation and to challenge the established model of sedentary or seasonal living (Whittle 1996a). His argument was built on formalised and ordered activity areas for certain tasks, such as tool use and food preparation spaces, which were found in the unearthed open-air areas of the settlement, rather than within the structures themselves. In Achilleion the activity outside and between building structures is as prominent as the structures themselves. This kind of use of space, he argues, indicates seasonal habitation and it contradicts the conventional habitation model suggested for tell settlements (Whittle 1996a, 57). Even though Whittle did not used hard scientific tools to support his argument, his observations at the time made an important contribution to archaeological interpretations by introducing diversity as a significant dynamic of how to approach and explicate material culture. Although, contemporary scientific techniques in archaeology are progressively developed, it is acknowledged that archaeological evidence is often too ambiguous to record seasonal signatures of the many episodes of the life of a settlement (Fairbairn *et al*. 2005; Halstead 2005; Whittle *et al.* 2011). Present methodological and theoretical approaches on dealing with material culture incorporate the interpretative gains that can be obtained from a regionally contextualized analysis (Asouti 2005; Barrett 2001; Mac Sweeney 2009; 2011; Twiss 2007a). Such an analysis attempts to integrate multiple and diverse sources of information in order to construct meaningful local and regional narratives (Asouti 2005, 89; Hodder 2006; Mac Sweeney 2009; Twiss 2007a; 2007b). The sedentary or seasonal habitation lifeways of settlements are primarily a set of choices with significant effect on how a community is organized at the subsistent, social and symbolic level. These choices are made in different geographical regions, in diverse cultural and social contexts and in varied periods of time. Enchaining a tell settlement with certain habitation practices produces uniform narratives that neither reflect the evident diversity of material culture, nor do they correspond to the identified complexity of human societies. The production of regionally contextualized narratives, on the other hand, acknowledges the diversity of material cultures and enhances our perspective of past societies.

Another theoretical approach that interprets continuity of habitation involves theories of visibility, monumentality and connection with the ancestors. The interpretation of tell settlements with ancestral groups had significant effect in European and Balkan prehistory

(e.g. Barrett 1994; Chapman 1989; 1990; Edmonds 1999; Parker Pearson 1999). As a result of recurrent occupation, their visibility has been connected with symbolic and social indications, which gave the settlements historical and monumental qualities. According to Chapman, sustained spatial residency resulted from ideological security provided by the conviction of historical continuity (Chapman 1990, 51). In this analytical framework, Neolithic tell sites were seen as the physical and social expression of connections with the ancestors who inhabited, lived, grew and acted in the same place (Chapman 1989, 39; 1990; 2008). Tells became the place where the past meets, interacts and is embodied in the present, gradually ascribing monumental dimensions to habitation spaces. In archaeology in particular, tells have been considered social landmarks that preserved memories of present and past histories empowered in daily encounters (Chapman 1989; 1990; 2008; Halstead 1999b; Kotsakis 1999; Nanoglou 2001; Whittle 1996a). Critics of the above analytical framework were made on the principles of methodology and theory. The use of ancestors as a universal analytical tool circumvents the close examination of material culture that is undertaken by contextual analyses and avoids testing specific models against the available evidence (Whitley 2002, 120). It also ignores the diversity of ancestral groups under analysis, indicating uniformity of the established kind of relationships between past and present and eventually fails to interpret the specificity of evidence we seek to understand (Whitley 2002, 122-4). Archaeological literature gave considerable emphasis on ancestors and memory as the principal analytical framework that interprets long-term and repeated occupation in the same place (Chapman 1989; 1990; 2008; Edmonds 1999; Evans 2005; Kotsakis 1999; Parker Pearson and Richards 1994; Parker Pearson 1999; Tilley 1994). In contrast, it pays limited attention to the development of social coherency in the arenas of everyday practices. To give emphasis at the significance of daily routine activities in the organisation of social order, I quote Evans, '...memory was important, but so was ordination' (Evans 2005, 21).

Tells played an essential role in the development, formation and expression of personal and group identities that are reflected in the dynamics of increased and accumulated material cultures. Principally associated with household activities and choreographies of everyday life, intra-site spatial configuration and the organisation of open-air spaces are indicative of the frequency and the kind of human interactions as well as of socialities created among people, kin groups, families and neighbours within tell settlements (Gallis 1985; Halstead 1999b; Price 1999; Joyce and Gillespie 2000). Limited intra-site space in tells resulted in typically

dense spatial configuration of buildings within the settlements. In tell sites there is usually very little un-built space for daily activities, such as community gatherings, pyrotechnological activities, horticulture and animal husbandry, while focal points are also rare (Chapman 1989; 1990; Bailey 1999a; Bailey *et al*. 1998; Byrd 1994; Halstead 1999b; Kotsakis 1999). Therefore, the bulk of daily domestic routines were mainly considered to take place within building structures (Byrd 1994; 2000; Gillespie 2007; Halstead 1996; Hodder 1990; 2006; Kramer 1979; Nanoglou 2008; Souvatzi 2008a; Tringham 1991; 2000). As a result, houses became the central units of both practical and conceptual practices. Hearths and ovens, storage areas and a wide range of cultural remains are regularly found in house deposits. Cooking, storing, sleeping, tool making, weaving and group gatherings were some of the principal domestic and social performances that occurred in dwellings. This kind of spatial organisation demonstrates that daily domestic activities were carried out in private contexts and were only visible to the residents of each house, nuclear families, kin groups and co-residences (Byrd 1994; Gillespie 2000; Hodder 2013; Price 1999). The walling off the household was thus the material expression of the way village communities were structured (Halstead 1999b). Daily household practices and routines had been taking place inside dwellings, in private contexts, hidden from public sphere, while socialities and collaborations were also developed among the inhabitants of the houses. This spatial model shows the physical and symbolic isolation of the household and indicates that individuality and hoarding were preferred to communality and sharing in certain social contexts. Inhabitants were organized in household units rather than in communal areas and social coherency was achieved in different fields of daily performances or periodical occasions, such as subsistence economy, hunting and rituals. In this social context, houses constituted the minimal analytical units of production and consumption, while social reproduction in tell settlements was mostly generated and enhanced within private settings.

Domestic activities directly and tightly associated with buildings occupy central place in settlement studies of small-scale societies, as it has been considered the main mechanism by which economies were organised, social units were created and ideologies were substantiated (Beck 2007; Carsten and Hugh-Jones 1995b; Hodder 1990; 2006; Souvatzi 2008a; Whittle 1996a). While customary approach examines broadly the contents and activities that occurred within tells, major elements of community activities have not been recognised in the sites. It has been suggested that constraints on outdoor activities on tells imply either a range of

activities away from the tell or an increased range of indoor activities, or both (Chapman 1990, 62). Traditionally, archaeological research on tell sites did not extend beyond the mound that stands above the ground. Nevertheless, limited investigation has been performed of off-tell land use, exposing an important lacuna in our understanding of what happened outside of tells, and therefore discouraging a holistic and contextual view of how daily life was structured in societies developed in tell settlements. Few archaeological investigations were organised outside the mound area, however, these aimed to locate and classify off-tell activity areas and built structures, as well as to explore the variation in available usable land around the sites (e.g. Podgoritsa in Bulgaria; Uivar in Romania and Pietrele in Romania; Bailey 1999a; Bailey *et al*. 1998; Hansen *et al*. 2011; Roberts *et al*. 2007). The results from Podgoritsa Archaeological Project in north-eastern Bulgaria made a significant contribution to the social dimensions, agricultural practices and the geology of tell settlements in south-eastern Europe (Bailey *et al*. 1998). Setting tells into their natural environment unfolds their physical and social components and represents them within larger trans-regional networks of agricultural production and exchange. This analytical framework considers tells as tools in the management of labour and resources. In addition, it regards tell sites as agricultural centres and as components of communication systems that bring people together in collaboration and exchange of products and ideas (Bailey 1999a; Bailey *et al*. 1998).

The comparison of tell sites with other settlement types has set habitation on tells as special. Comparisons and contrasts among diverse settlement forms are neither over-simplistic nor unhelpful (Evans 2005, 112), as they demonstrate the consequence of variable, diverse and complex habitation processes, which resulted in the formation of various outlines, dissimilar spatial configurations and, therefore, divergent habitation lifeways. These analyses, however, should share a common threshold on the sense of place tell and non-tell settlement represent. Tells were undoubtedly significant but that also has to be regarded within the context of diversity in various settlement categories (Evans 2005, 115). Tells are not the inevitable result of habitation but an intentional habitation practice, distinctive from others.

Emphasis on the house: archaeological approaches of life indoors

In archaeology, houses have traditionally constituted the focus of research interest and their analysis and interpretation resulted in the production of extensive literature that reflects various methodological and theoretical advances. It has been repeatedly argued that the role of the house in early agricultural societies has been of considerable importance for the constitution and reproduction of communities (Hodder 1990; 1998; Smyth 2010; Souvatzi 2008a; Stevanović 1996; Whittle 1996a; Whittle 1996b). For archaeologists the house is not merely a building for people to live in. Its construction has been attributed with further symbolic, social and economic connotations, while it has additionally been regarded as the principal mechanism for social production and reproduction. Therefore, house has been widely used as central analytical tool to understand prehistoric communities (Hofmann and Smyth 2013a; Smyth 2010; Souvatzi 2008a; Tringham 2000). The early emphasis of Greek Neolithic research at tell settlements resulted in placing house in central place as principal analytical means for unfolding dense intra-site spatial configurations and for overall understanding of social organisation (Halstead 1995; 1999b; Nanoglou 2008; Pappa 2008; Souvatzi 2007; 2008a; 2008b). Here, I will discuss the principal theoretical developments of house and household studies in archaeology, not only within the dense intra-site spatial configuration of tell site contexts, but, in general, as a key analytical tool for the study of prehistoric communities.

To measure social stratification and differentiation, early approaches to house studies examined their morphological characteristics and produced classification models for house forms and sizes. These models examined social complexity, community development and settlement longevity (Hunter-Anderson 1977; McGuire and Schiffer1983; Mc Netting 1982; Robbins 1966; Whiting and Ayres 1968). These analytical models produced ambiguous linear interpretations between form and community organisation, while they also view houses as containers of material objects, as an inactively empty frame to be filled. Conversely, Hodder's (1990) landmark work transcended stylistic restraints and used the house as a metaphor of social and economic strategies and relations of power (Hodder 1990, 44). Hodder introduced the concept of *domus*, which described the activities carried out in the house, versus *agrios* that is closer to the wild and involves exchange and hierarchy, competition and individual display (Figure 2.2). His work examines how the idea of *domus*

spread between adjacent areas, and how we can archaeologically interpret the additional changes and transformations within each sequence. *Domus* carries practical connotations and symbolic elaborations that bind people together and create common histories (Hodder 1990; 1998; 2006).

As Cutting puts it, however, '...there is not one single and immediately obvious way of studying the walls, rooms, buildings and opens spaces that typify prehistoric remains...' (Cutting 2006, 225). Descriptive qualities such as building techniques, raw materials used, designs and decorations can work as a threshold to reveal information on spatial organisation and social operation. In addition, social studies provided archaeology with theoretical and methodological tools to unfold the various meanings of houses and to underpin their social significance as active agents of social activities and community transformations (Bailey 1990; 1996; Barrett 1994; Beck 2007; Donley 1982; Gillespie 2007; Samson 1990; Souvatzi 2008a; 2008b; Whittle 1996b; Wilk 1983). The house as a living body and a dynamic entity is yet another analytical concept employed in archaeological contexts. Within this framework, the house is examined in terms of biography and life-cycle; a house is born, it lives, it dies and is remembered (Bailey 1990, 28; Carsten and Hugh-Jones 1995b; Nanoglou 2008; Tringham 2000; 2005).

Archaeology has developed a long-term and close association with anthropology, the theoretical and methodological effects of which are equally visible in house studies. Household concept, for instance, represents an archaeologically broadly used analytical loan from anthropology (e.g. Borić 2008; Byrd 2000; Mc Netting 1982; Nanoglou 2008; Souvatzi 2008a; 2008b). The household is essentially an active group that encompasses activities related to the function of the house and how people act within it: activities of production, consumption, distribution of goods and reproduction often occur within household units (Wilk 1983, 100). Souvatzi views household as a producer of change rather than as merely response to it (Souvatzi 2008a, 207). It has also been suggested that domestic architecture, food preparation and consumption are indicators of the degree of household autonomy. These two observations enhance our understanding of how people organised their societies (Byrd 2000; Flannery 1972; 2002; Wright 2000).

One of the most influential anthropological models in archaeology has been Lévi-Strauss's theory of the house as a social institution for the study and understanding of 'house-based

societies' (Lévi-Strauss 1982). Lévi-Strauss approached house as a prime agent of socialization, as a centre of social activities and a crucial practical and conceptual unit for economies, for kinship systems and for political organisation of different societies (Carsten and Hugh-Jones 1995b, 5). Although Lévi-Strauss was later criticised for not being explicit enough in his analysis of what 'house-based society' means (Gillespie 2000b), his theoretical framework became widely implemented in archaeological interpretations on house settings (e.g. Beck 2007; Borić 2007; 2008; Carsten and Hugh-Jones 1995a; Joyce and Gillespie 2000; Nanoglou 2008). Ingold's 'dwelling perspective' anthropological model had great impact in archaeological interpretations. His model examines how people organised their private and communal living space with reference to their environment and their position to it (Ingold 2000). What he suggested is the lack of distinction between the natural and artificial world, while he also argued that living is continuous (Ingold 2000, 172). As promising and intriguing as this perspective might be, it, however, does not explain what kind of (social) processes resulted in the forms of certain building environments. Ingold intentionally disregarded the prominent hallmark between the two settings; the artificial world, as opposed to the natural one, has been made from human action.

One more loan from anthropology has been the concept of *habitus*, which originated from anthropology, developed a significant and long-term impact in archaeological theory and practice. Bourdieu (1977) introduced *habitus* to support the idea that it is through everyday practice and the experience of daily life that people learn about the world and recreate it. He argued that social order, change and sociality were achieved through the practice of everyday life. Theoretical approaches and scientific techniques in contemporary archaeology (such as DNA analysis, residue analysis and micromorphology) are currently giving emphasis to reconstruct the multiple lifeways of diverse community groups (e.g. Karkanas and Efstratiou 2009; Matthews 2005a; 2005b).

The theoretical and methodological developments of house studies in archaeology are evident. House is an ongoing subject of archaeological research that continues to attract research attention and constitutes the centre of analytical investigations. The contemporary research agenda identifies houses as ways of binding people together, as parts of the social order and, therefore, it interprets them in terms of social and economic relations (Hodder 2013, 349; Smyth 2010, 13). Nowadays, archaeologists are rather interested to examine what actually went on in these buildings and how people organized their daily routine activities

inside and outside houses rather than try to identify personal identities of their occupants (Bailey 2005; Bickle 2013; Cutting 2005; Hodder 2006; Hoffmann 2013; Nanoglou 2008; Souvatzi 2008a; Westgate *et al*. 2007). Dwellers in prehistoric communities were traditionally attributed to extended family groups, nuclear families and communities bound by kinship ties (e.g. Bailey 1999b; Carsten and Hugh-Jones 1995b; Wilk 1983). Hodder argues against the repeatedly and broadly used hypothesis that Neolithic houses were generally occupied by family units based on kinship. Conversely, drawn from his work in Çatalhöyük, he initiated the term co-residents, which reflects on the term co-eating and co-burying, in order to refer the inhabitants of houses. He also added that buildings were connected to each other by complex ties and that their relationships have to be demonstrated in particular cases rather than assumed (Hodder 2013, 350).

House encompass various functional practices and symbolic meanings. Archaeological evidence demonstrates that people practised a broad range of daily activities inside house structures that reflects many aspects of community organisation: food preparation, cooking, weaving, tool making, storing, sleeping, eating and gathering, along with religious and burial practices are all archaeologically identified in diverse domestic contexts. Indoors activities are primarily addressed to the co-residents of each house and, therefore, become invisible to public sight. It has been suggested that restrained open-air space that limits outdoor activities in tell sites implies either a variety of activities away from tell or augmented indoor activities, or both (Chapman 1990, 62). Activities that took place inside a house, however, and the relationships developed within them should be demonstrated in certain cases rather than assumed or generally applied in different environmental, social and historical contexts. After all '...house is only the beginning of the story' (Hofmann and Smyth 2013b, 12).

Flat-extended settlements: invisibility, habitation lifeways and spatial organisation

It is already noted that systematic and lasting research on tell settlements in South-Eastern Europe and the Near East established a dominant tradition in the study of this prominent habitation form. It was in the mid 1980s that prehistoric research turned its attention from conspicuous mounds to less visible living surroundings (e.g. Opovo, Selevac, Divostin, Makriyalos; McPherron and Strejović1988; Pappa and Bessios 1999a; 1999b; Tringham *et al*. 1985; Tringham and Krstić 1990; Tringham *et al*. 1992). The identification of flat-extended settlements transformed the previously familiar archaeological landscape by introducing new perspectives on the regional use of space. Despite the growing numbers of revealed flat-extended settlements in South-Eastern Europe during the last three decades, these inconspicuous sites are still lacking consistent theoretical framework. Flat-extended sites have been defined from their non-tell morphological characteristics and were approached, analysed and interpreted in comparison and in contrast to tell settlements. Due to their inconspicuous character and the lack of focused and systematic large-scale surveys, necessary to locate this settlement type, flat-extended sites are difficult to identify (Andreou and Kotsakis 1987; 1994; Pappa 2008). Analysis of surveys and public works projects that revealed flat-extended sites in Northern Greece will be discussed further in Chapter 3.

Four main morphological characteristics constitute the classification criteria that differentiate flat-extended sites from tell settlements. All four criteria are space-related, illustrating straightforward and interactive association of people and space, while they are subsequently interrelated to the formation of social strategies. Key quality attributed to flat-extended sites is their wide occupation area. Unlike the restricted habitation space identified in tells, flat-extended sites usually demonstrate unlimited spatial development and covered extensive areas of land. The creation of wide living spaces resulted in unfixed and spacious configuration of buildings within the settlements, where open-air spaces were formed among buildings. Horizontal settlement growth constitutes the third distinctive feature that differentiated flat-extended sites from tell settlements. Based on horizontal spatial model, buildings were not constructed in the same place, but they were instead either distributed in new locations broadening the size of an existing settlement (e.g. Makriyalos in Pieria), or they abandoned the given habitation area to relocate in an adjacent space (e.g. Thermi B in Thessaloniki). The above spatial choices resulted in the development of shallow stratigraphic

sequences that constitute the last classification criterion for the identification of flat-extended sites.

In contrast with year-round occupation that has been largely related with thick stratigraphic sequences, flat-extended settlements have been recurrently attributed as synonymous of short-lived, seasonal and periodic habitation sites. Their attributed ephemeral character was often connected with mobility, a habitation model that is closely related with nomadic communities and groups involved with husbandry (Whittle 1997). A discussion on mobility and mobility patterns, however, requires a clear and consistent analytical framework that emerges from established criteria that identify seasonal and sedentary habitation living forms. It is now acknowledged that in order to legitimate and to establish a discussion on seasonality and sedentism, the use of scientific tools enable the reconstruction of micro-stratigraphy and small-scale habitation phases within settlements. Isotope analysis and studies on organic remains show individual human and animal movements around fixed bases (Whittle and Bickle 2013). Growing amounts of archaeological evidence from South-Eastern Europe prove long-lasting period of habitation in flat-extended settlements and demonstrate that seasonality and sedentary living go beyond settlement forms. Flat-extended settlements from the Greek Neolithic show long-term and continuous habitation for several centuries: for example, Avgi in Kastoria, Stavroupoli and Thermi B in Thessaloniki and Promachonas-Topolnitsa in Serres (Grammenos *et al*. 1990; 1992; Grammenos and Kotsos 2002; 2004; Koukouli-Chrysanthaki *et al*. 1997; 2007; Pappa *et al*. 2000; Stratouli 2007).

As discussed earlier in this chapter, the second criterion to identify the duration and type of habitation in a settlement was traditionally connected with the appearance of well-constructed buildings. In this analytical framework, pit-hut dwellings are regarded as relatively temporal structures, occupied by mobile groups, and therefore are considered as indicative markers of short-lived occupation (Bailey 1999a; Flannery 1972; 2002). Nonetheless, as Whittle pointed out the expectation of future abandonment of a site did not prevent the inhabitants to construct dwellings in the first place (Whittle 1997). Regardless of the duration of occupation, people needed to protect themselves from natural phenomena, such as the sun, the rain, the wind, the cold, and also to guard themselves and their belongings from wild animals. In addition, a house represents the desire to obtain property and to declare individuality, which both constitutes identifiable social components in prehistoric communities. Examples from South-Eastern Europe demonstrate that the duration of

habitation is usually irrelevant to the building form (e.g. Opovo, Selevac, Divostin, Makriyalos; McPherron and Strejovic1988; Pappa and Bessios 1999a; 1999b; Tringham *et al*. 1985; Tringham and Krstić 1990; Tringham *et al*. 1992). In Northern Greece, for instance, pit-dwellings constitute the only architectural type recorded in Phase I at the flat-extended site Makriyalos in Pieria, and did not discourage a lasting occupation that based on radiocarbon results and pottery analysis, exceeded 300 years (Pappa 2008; Pappa and Bessios 1999a; 1999b). The typically large occupation area that characterises flat-extended sites sustained a considerable number of constructions, while buildings are regularly of substantial size creating an impressive outline of the settlements.

Regardless how impressive their form may have been during their occupation time, flat-extended settlements lose their differentiation from the landscape surrounding soon after their abandonment. Chapman suggested that the importance of these sites may have been preserved in the folk memory of community groups even when the sites were unseen (Chapman 1989, 39). Even though legends and folk narratives can preserve a distorted recollection of past community lifeways, the absence of visible (and therefore monumental?) landmarks that can potentially encourage social remembrance, and enhance social coherency, will ultimately result in the obliteration of the life carried out in the settlement. The lack of continuous visibility and monumentality has been added — along with shallow deposits and spacious intra-site spatial organisation — to the list of qualities that were believed to reflect loose connection of the inhabitants in flat-extended sites with their past and their ancestors. Subsequently, lack of monumentality has been repeatedly considered indicative of respectively loose social coherency and community reproduction.

In opposition to the suggested discontinuity if house locations and the lack of monumentality with the traditional way of visibility, I suggest that during the Neolithic-Eneolithic period in South-east Europe universal burning of houses reflects a socially meaningful memorial act. Rather than village-wide fires, deliberate house fires at the end of their use-lives led to a geographically broad phenomenon, also known as the ‘Burned House Horizon’ (Tringham 2000, 115; 2005). In practical terms the phenomenon of house burning can be explained as a measure to eradicate pests, insects or diseases. Tringham suggested that each house was set on fire intentionally to signify the symbolic death of a household, which she named the ‘killing’ of a house (Tringham 2000, 124; 2005). Tringham supported that flat-extended sites are not necessarily lacking a feeling of continuity and attachment with the place, and that

significant variable is how continuity is expressed and achieved through the manipulation of the built environment, '...especially through the aspect of house modification during the later days of its history and its eventual placement' (Tringham 2000, 119-20). Following the same stream of thought, Stevanović added that the remains of vitrified clay ensured another form of the physical house and they also preserved its place (Stevanović 1996; 1997).

Living space in flat-extended sites was either expanded or relocated creating horizontal distributions of houses. Building on latter approaches, what I am suggesting here is that the expansion or the relocation of the centre of activities within a village and the symbolic burning of houses constituted a memorable and monumental event. The rubbles of burned and destroyed buildings remained visible to the inhabitants for a short period of time, until these were naturally covered and constituted monuments of past traditions and lifeways. This intentional act is a form of monumentality, a memorial act that brings the past in (daily?) interaction with the present, indicates continuity with the ancestors, and also marks a territory of locally inscribed cultural and social characteristics. In contrast with the extrovert monumentality of tell sites that remained visible in the landscape for significantly long-time, flat-extended sites indicate a rather introvert form of monumentality, which carries local cultural and social characteristics for a relatively short period of time.

Within the same analytical framework, another suggested interpretation that explains the lack of visibility that was ensued from the intentional abandonment of flat-extended settlements and the choice not to build in the same place, might be related with a purposeful effort to forget and depersonalise (Borić 2010b, 64). The act of forgetting reflects a deliberate communal choice that may introduce the desire to re-construct and re-invent the past (Borić 2010b). Metaphorical sealing of the past with acts of extensive individual or communal burning of buildings demonstrates practical decomposition of the building materials and indicates the symbolic death of a dwelling (Tringham 2000). What I am suggesting here is that, with reference to the particular geographical, chronological, cultural and social conditions, the practical and symbolic decomposition of a house can constitute an act of remembering as well as an act of forgetfulness. When destroying the components of houses within a community, people are aware that this act will gradually make the settlement unseen to future generations and will contribute to its ultimate oblivion. This practice contains and reflects long-lasting communal traditions, conventions and ideologies. House inhabitants constitute its main components interacted on a daily basis. When inhabitants decide to

abandon their dwelling, they turn their house/home into a depersonalised building that lacks both the agents of routine practices as well as the agency of its functional interaction. As soon as a house/home loses its functional and symbolic purposes, forgetting is expedited after its destruction. It has been suggested that forgetting can be so closely tied to memory that it can be considered one of the conditions for it (Ricoeur 2004, 426).

Life in open-air spaces: yards, gardens and daily activities in flat-extended sites

It is now clear that inhabiting practices in Southeast and Central Europe varied regionally and chronologically. House has been regarded the principal mechanism of social production and reproduction and was, therefore, used as key analytical and interpretational tool to understand prehistory. On the other hand, limited research has been done to examine domestic activities carried out outside buildings (e.g. Andreou and Kotsakis 1987; Bailey *et al*. 1998; Byrd 1994; Chapman 1989; 1990; Halstead 1981; 1996; Jones 2005; Kotsakis 1994). Here, I will discuss theoretical developments regarding outdoors activities, mostly taking place at the spacious open-air areas of flat-extended settlements.

Chapman was the first to introduce the discussion on functional, behavioural and cognitive implications of different settlement forms, and he suggested an analytical and interpretational framework for his studies in the Bulgarian Chalcolithic (Chapman 1989; 1990). To build his argument he applied the methods of Built: Unbuilt space (BUB), House Dimension (HD) and the Minimum Inter-Building Distance (MIBD) taken by Hillier and Hanson (Hillier and Hanson 1984; Hillier *et al*. 1987). For flat-extended sites, in particular, Chapman developed the hypothesis of juxtaposition of houses and gardens, which interprets open-air spaces among building structures as arable and grazing lands located in the immediate vicinity of houses (Figure 2.1; Chapman 1989, 39). He added that abundant spaces between dwellings could also be considered as open ceremonial spaces, as areas for the practice of common activities and group meetings, while high temperature pyrotechnological activities could additionally occur there (Chapman 1990, 51). On the social scale, Chapman came to the conclusion that there is no evidence of inter-polity domination at the village level. Instead he identified '...close structural and functional links between parent communities and dispersed farmsteads between settlements of similar size' (Chapman 1989, 39).

In his analysis Chapman made a broad description on the reasons that caused the identified diversity of settlement types in Southeast Europe, while environmental, cultural and/or social agencies were missing from his interpretational agenda. In particular, he commented that '...the distinctiveness of the early Balkan village patterns suggests that they represent specific solutions to general problems of the human use of space and place' (Chapman 1989, 37). Although diversity was acknowledged at a regional scale, the author did not produce interpretations to discuss the reasons for settlements' variability. An emphasis on

morphological characteristics of space and on distinctive spatial configurations between diverse settlements, demonstrates an analysis that sees space as a carrier of human activities rather than as an interactive agent of human life. Another point that Chapman misses in his approach is how people organised their communities, their routine activities and daily lives within the various contexts of diverse settlements types. His approach on spatial organisation of tell and flat-extended sites had a wide and long-lasting effect, especially on archaeologists specialising in Southeast Europe (e.g. Andreou and Kotsakis 1987; 1994; Bailey 1999a; Bogaard 2005; Jones 2005; Valamoti 2005). Later in my analysis, in Chapter 3.7, particular reference will be made to the impact the garden/house hypothesis has had in Greek Neolithic settlement studies.

Overall, spatial behaviour is an important component in the understanding of social interaction. It has been suggested that the distance between houses, households and individuals strongly affects the character of interaction within a community (Byrd 1994, 643; Chapman 1989; Halstead 1999b; Hillier and Hanson 1984). My approach builds on previous theories and initiates a discussion that involves the effect of open-air spaces among buildings on the formation of social identities in communities living in flat-extended sites. Here, I am not approaching open-air space disentangled from the overall social space within a community, but I am attempting an integrated examination of houses, as complementary units of social production and reproduction. I argue that the distinctive characteristic of flat-extended sites in comparison with any other form of habitation (tells, lake-side sites, caves, farmsteads) is their capacity to create focal points, to bring people together in communally visible spaces and to act as community-wide venues; qualities that either directly or indirectly create shared experiences and contribute to the formation of collective and social identities (Bogaard *et al*. 2009; Byrd 1994; Halstead 1995; 1996; 1999b; Kotsakis 1994; 1999; Mac Sweeney 2009; Urem-Kotsou 2006; Whittle 2003). Open-air spaces constitute arenas, where daily and symbolic interactions became visible among the inhabitants. People could see, hear, smell and share episodes of ordinary or exceptional practices in the life of a community.

The development of agriculture model in certain communities indicates ‘intensive’ or garden-scale cultivation and ‘intensive herding’ that could support the hypothesis of juxtaposition of houses and gardens in flat-extended settlements in specific geographical and social contexts (Bogaard 2005; Halstead 1981; 1996; 2000; Jones 2005; Kouli 2002; Magafa 2002). Pollen sequences and faunal evidence from Neolithic and Bronze Age periods in Greece, in

particular, are lacking evidence of extensive woodland or of ox traction for ploughing, which suggest that cultivation was garden-like and herding was small-scale (Halstead 1981; 1996; 2000). Additionally, the strategy of careful management of small plots close to home is compatible with childcare and the use of child labour, while small-scale herding minimizes overnight stays outside the house (Bogaard 2005, 180). In this analytical context, the horizontal expansion of flat-extended sites may be the consequence of crop rotation and fallow. Besides the practical benefits of intra-site agricultural and herding strategies, plants and animals constituted the surrounding 'taskscape' that enhanced the perception of place and created shared moral and sensory community in the experience of living (Bailey *et al*. 1998; Ingold 1983; 1993; 2000; Whittle 2003).

Small-scale arable and grazing plots adjacent to houses, however, would not occupy the entire open-air space within flat-extended settlements. Neolithic examples from Southeast Europe brought to light evidence of architecturally defined yards in close distance from houses. Yards could have functioned as the venue for community-wide activities (Byrd 1994, 659). Cobbled spaces, clay floored areas and postholes as the imprints of enclosed palisades that were all regularly found adjacent to buildings are indications for the presence of yards. Evidence of tool making has been also identified in such contexts (e.g. Thermi B in Thessaloniki; Grammenos *et al*. 1990; 1992; Pappa 2008). Hearths, ovens and platforms have been recurrently unearthed in yards next to building structures. Cooking facilities played an essential role in the negotiation of community relations. The presence of various size platforms, hearths and ovens, found individually and/or in clusters in direct or indirect association with house structures suggests the existence of outdoor kitchen spaces, where food preparation, cooking and possibly even building took place under public sight, enhancing shared and sensory community of the living space. Single cooking facilities in direct association with buildings have been regarded as evidence of domestic scale culinary activities. On the other hand, in the case of dispersed clusters of thermal structures in open-air spatial contexts, the size and the number of features are indicative for the classification of domestic or communal scale cooking events like feasts. Ceremonial and social events have been identified in archaeological contexts; these events bring people together to celebrate, remember and dance. Often eating was part of these rituals (e.g. Makriyalos I, Pit 212; Pappa *et al*. 2004). Respectively, the uncommon presence of kilns found in spaces among houses show high pyrotechnological activities. Pathways created as a result of habitual embodied

movements of people between houses, farming plots, cooking facilities, animal herding enclosed spaces and midden areas actively contributed to the continuum transformation of living space (Bourdieu 1977; Ingold 1993; 2000; Hodder and Cessford 2004; Mills 2006; Whittle 2003). Within settlement boundaries, moving in domestic and open-air spaces can be one of the mechanisms by which people were socialized into particular rules and orientations (Hodder and Cessford 2004, 18). As Ingold pointed out, '...there can be no places without paths, along which people arrive and depart; and no paths without places, that constitute their destinations and points of departure' (Ingold 1993, 167).

Poorly preserved and spatially fragmented open-air areas within flat-extended settlements, may archaeologically look like empty spaces, but they instead constitute places of various and complex social practices. When inhabited, open-air spaces were arenas of regular daily and periodic activities that brought people together, became agents of shared experiences, interacted at the formation of social identities and enhanced social cohesion. Lawrence and Low (1990, 461) disconnected the physical from the social boundaries of a dwelling suggesting that these two may not coincide. My approach challenges the physical and social boundaries of households and questions the separation of social space in segmented units, such as productive, domestic, symbolic, cultural and communal space. With regard to flat-extended sites, the placement of cooking facilities in open-air contexts blurs the physical boundaries of households and demonstrates that domestic routine practices occurred both in enclosed as well as in visible places. It is broadly acknowledged that the location of houses and households are important indicators of social organisation. Although there is often a considerable distance between the location of houses in flat-extended settlements, the spacious open-air areas enhanced social coherency by bringing people together for sharing and experiencing the practices of daily life. Therefore, the spacious distance between buildings is inversely proportional to the close proximity of human interaction developed in the spaces created among houses. The intentionally spacious distribution of dwellings created open-air spaces that constituted areas of common social and domestic activities, brought people together and enhance social coherency.

Social space is a dynamic agent of social living, actively engaged in every human activity (Bourdieu 1977; Lefebvre 1974; Overing 2003). Every human activity is a social act or a statement that interactively refers to other humans, animals and plants and to their collective co-existence. Within this analytical framework social space embodies the assemblage of

human activities materialised in structured space. Key to unfold an understanding of social structures and lifeways in diverse cultural and social surroundings is the routine daily activities in private as well as in public contexts. People who inhabited flat-extended sites made clear decisions for the organisation of their living space, which, to some degree, reflected their view of how they practiced everyday life and how their community was organized. We are confident that, if so desired, open-air spaces could have been occupied with buildings that would have resulted in a rather dense tell-like habitation practice, where focal points would have been lacking and communal sharing of living experiences would have been limited. Archaeological examples demonstrate that communities inhabiting flat-extended sites co-existed with adjacent communities living in tell settlements. This observation confirms that people among different groups knew the existence of different lifeways. The analysis above shows that living in flat-extended settlements does not necessarily reflect seasonal habitation; neither does it represent mobile lifeways, nor is this habitation lifeway a statement of loose social cohesion. Living in flat-extended sites reflects human groups that organised their communities with emphasis on community-wide living spaces, on integrated production spaces and on sharing the experience of daily life. The diversity of habitation practices should not be interpreted antithetically between dissimilar settlement types. These spatial and habitation models emerged from diverse social organisation practices, reflect social complexity and variable lifeways with reference to geographical, cultural and social diversity.

2.4 Approaches to the archaeology of food: daily foodways and society

According to Bourdieu (1977), *habitus* is the foundation of social order and change and the medium of socialization that reflects and incarnates social structure. He also argues that it is through everyday practice that we learn about the world and recreate it. In the same stream of thought, Giddens views social reproduction as a process that is formed by the performances of daily routines and behaviours (Giddens 1984). Food has been regarded as one of the foremost human activities that create community. Given its inclusive effect in human groups the study of food is also the study of daily lifeways and society (Bourdieu 1977; Goody 1982; Overing 2003). On a daily basis people must eat to live — an activity that classifies food as the ultimate *habitus* practice. Meals signify social orders and create routines that structure the lives not only of the preparers but also of the food consumers (Atalay and Hastorf 2005, 109; Bourdieu 1977). Where was the daily meal cooked? What are the recipes used for a daily meal? When was the daily meal eaten? Who takes part in a daily food gathering? Where did food consumption take place? These are some of the common questions traditionally posed to examine the meanings of food and diet in human communities. In archaeology, however, some of these questions remain answered.

Studies in anthropology and sociology have found that in certain cultural and social contexts meals constitute these daily gathering events that most repeatedly bring people together, allowing social renewal, motivating sharing and enhancing community ties (Curtin 1992; Goody 1982; Kahn 1986; Meigs 1984; Mennell *et al*. 1992). Lévi-Strauss developed an influential analytical framework for the study of food with regard to the understanding of society. In his seminal study *The raw and the cooked* (Lévi-Strauss 1969), Lévi-Strauss developed a triangular semantic approach to food, whose three points correspond respectively to three categories: the raw, the cooked and the rotted. Lévi-Strauss saw cooking as a language that unconsciously signifies social structure. He considered that by understanding the meanings of this language he would be able to unfold the structure of societies. As a result, Lévi-Strauss tried to explain the different forms of cooking modes by employing practices and beliefs that he considered attested in innumerable societies: the myth and the rites (Lévi-Strauss 1997, 29). To emphasise the opposition between culture and nature, he approached food as a cultural transformation of the raw, whereas the rotted constituted the natural transformation. His approach was later criticised as monolithic and unified that produced a universal interpretation for the understanding of society (Douglas 1972). The

main argument of Douglas's critique on Lévi Strauss's theory on the association of food and society was that he was searching for a precoded panhuman message in the language of food and he considered that the same food practices carried the same meanings and beliefs to all mankind (Douglas 1972, 62).

Douglas identified meals and drinks as two major food categories that encode social events. As opposed to Lévi-Strauss's holistic approach, she supported the analysis of food categories as the subject of small-scale research involving each family, rather than the appropriation of a universal inter-cultural perspective (Douglas 1972, 62). Douglas makes a clear-cut distinction between the social role of meals and drinks. In particular, she considered meals as small-scale events that involved family, close friends and honoured guests, as opposed to larger-scale drink events that were set for strangers, acquaintances, workmen and family (Douglas 1972, 66). By this distinction she frames distance and intimacy as the most important operators of social order. Douglas attributed the historical perspective to the studies of food and its meanings, she gave emphasis to the significance of daily meals as operators of social order and she pointed out the importance of focused, group-oriented studies in anthropology.

Douglas's interpretation model of the meaning of food for the understanding of social structures made an impact in relevant archaeological analyses (e.g. Atalay and Hastorf 2005; 2006; Wright 2000). Her research, however, accentuates a widespread and problematic tendency in archaeological literature that sees everyday domestic meals and feasts as mutually opposed rather than dialectically related (Twiss 2007b, 51). There has been very little attention paid to the social roles played by food in everyday life (Twiss 2007b, 50). In particular, an emphasis has been given to the gathering of people for certain social events, rather than to the interaction produced in the course of routine everyday activities. In this analytical framework the role of daily meals has been overshadowed by social-scale gathering events such as feasts, burials and rituals. Contemporary approaches in the archaeology of food, however, have been increasingly acknowledged that daily meals, no less than feasts, were involved in the active formation of social structure and that they constitute the social glue that enhances social bonds within communities (Atalay and Hastorf 2005; 2006; Bogaard *et al*. 2009; Cavanagh 2007; Halstead 2004; Twiss 2007b; Urem-Kotsou 2006; Urem-Kotsou and Kotsakis 2007; Valamoti 2005; 2007). Due to the exceptional nature of large-scale community gatherings and the rather ordinary structure of daily cooking

habitus, the focus on the study of 'special' events as a key to unfold social structure signifies an archaeological paradox.

Dominant approaches in archaeological discussions of food often focus on the identification of plant and animal products used in peoples' diets and on the procurement-production of food, rather than on its consumption and its social connotations for the formation of daily lifecycles (e.g. Bogaard 2005; Halstead 1981; Valamoti 2002; 2004). Archaeological research examines the process of food production and/or people's diets, but very little concern has been paid to the methods of preparation; cooking, in particular, has been regularly left implicit. Although there is a wealth of available data that can reveal often complex recipes and cooking practices, such as ceramic pots, hearths, ovens, griddles, pits, the archaeological concern with food preparation and cooking is inversely proportional. Nevertheless, archaeological research has developed a current interest in the neglected evidence of cooking practices (Atalay 2005; Atalay and Hastorf 2005; 2006; Galanidou 1997; Padopoulou and Prévost-Dermarkar 2007; Prévost-Dermarkar 2002).

In spite of a lack of emphasis, cooking methods and practices constitute significant components for the formation and reproduction of a social networks (Goody 1982), for defining group identities (Douglas 1972) and the the reproduction of cultural knowledge in the community (Bourdieu 1977). It has been suggested that '...through the study of foods, meals, and preparations we can get closer to not only daily life but to the mentalité of the past' (Atalay and Hastorf 2006, 284). The active participation of human body in both the food preparation and consumption process led some researchers to consider food as one of the most corporeal and embodied activities (Twiss 2007a; Hamilakis 2000). In contrast with the considerable development of interpretational frameworks that associate cooking and consumption of food as significant practices for the formation of social structure, the relationship between food and (social) identity is a complicated one, mainly due to the fact that social identity is constantly under negotiation. In community contexts consumption brought people together developing interaction and communication that enhance social relationships. It is also through consumption that people constructed themselves as individuals and as social beings (Twiss 2007a, 3). Currently, there are limited studies in archaeological literature that associate cooking practices with settlement types and habitation lifeways (Halstead 1999b). My research will build on earlier relevant works and will contribute to the discussion of the social significance of food in archaeology by examining

the evidence of cooking facilities and by developing an analytical framework that explores the varied *loci* where cooking occurred in diverse social contexts.

2.5 Instead of conclusions: a brief discussion of archaeology and social identities

The relationship between culture and identity has been the subject of much academic discussion, with the central issue being how culture, in both its material and nonmaterial forms, relates to identity as a cognitive construct. The phenomenon of cultural differences developed reflective problems for archaeologists at many levels of theory and practice. Primary questions in such discussions have been involved with why people formed one living tradition instead of another, and how archaeologists know that they produced valid interpretational suggestions with regard to the observed material culture patterns (Shennan 1989, 1). It is now acknowledged that our archaeological interpretations are largely influenced by the collection of 'objective facts' that, to a great extent, reflect personal views of the past. Therefore, it is a commonplace that our selection criteria are very much formed and transformed from both external societal factors (historical/social context) and our subjective individual approaches (Meskell 2001, 188).

The problem of archaeological cultures became central from early years of archaeological research and was discussed broadly and systematically (Childe 1951; 2003). Clarke (1968) defined cultures as 'polythetic sets'. Later, Shennan pinpointed the automatic and often uncritical choice of classifying patterns of spatial variations into entities that have been archaeologically called 'cultures' or 'ethnicity' and had been used to interpret geographically broad habitation preferences of the past in large-scale unified models. Alternatively, he suggested that instead of giving a label to lifeways phenomena without explaining certain patterns, archaeologists need to examine particular contexts and to understand historical perspective at a local scale (Shennan 1989, 19). Identity has been a common term used in archaeological discussions involved with personhood and gender in an attempt to locate people from the past by using a priori Western taxonomies. Meskell identified two levels of operations for the formation of identities: one is defined by association with others and the other one is formed by personal experiences and single subjectivity (Meskell 2001, 189). It is now axiomatic that people's identities are varied, fluid and mutable under constant negotiation (Meskell 2001, 196; Twiss 2007a, 3).

Contemporary theoretical and methodological approaches in archaeology suggest an explicit historical approach that aims at examining social organisation in local contexts and

reconstructing diverse lifeways of settlement-scale in order to unfold their overlooked diversity (Asouti 2005; Mac Sweeney 2009; Smyth 2010; Twiss 2007a). Such an approach reveals similarities and differences among adjacent groups and unfolds regional variability. A regionally contextualised analysis integrates multiple strains of information towards the construction of meaningful local and regional narratives. Asouti (2005) pointed out that each site and sub-region carries different narratives of daily lives and social structures and suggests that these similarities and/or differences need to be examined in their historical context in comparison with other socio-cultural traditions and not as self-evident proofs for linear settlement expansion (Asouti 2005, 90). Various forms and levels of identities are formed in conjunction with or relation in each other (Twiss 2007a, 7).

A range of identities were developed and are archaeologically identified within a settlement context: domestic, communal, group, cultural, family, ritual, gender and so forth. All forms of identities, however, constitute major or minor agents of a community and they all formulate the prevailing social identity. My approach suggests an examination of identity as a part of the social dialogue actively formed in dynamic interaction between internal and external lived experiences in the routines of daily life. This idea refers to *habitus* and the kinds of social/cultural depositions that represent differences and/or similarities between regions, and hence reflect different social/cultural identities. Human communities did not represent unified cultural models. Instead, people seem to have come together around a sequence of chronologically and geographically focused forms of local social identities that encompass different kinds of material entanglements. In my research I am developing a comprehensive inter- and intra-site contextual analytical framework for the archaeological investigation of social identities. In Chapter 4 I describe in details the methodology applied in this study to unfold local social structures and ways of inhabiting. In addition, Chapter 7 incorporates the remains of material culture from Neolithic Northern Greece, it examines the local characteristics of habitation lifeways and attempts a synthetic production of regional narratives. Each community will be examined in its historical perspective, as a specific case, as a local cultural group ascribed in space and time before being compared with adjacent regional groups.

Chapter 3

Outline of Neolithic research in Northern Greece

'And yet there is a certain point at which the continuum of sociability breaks down, yielding to a wild world inexorably foreign to humans'
(Latour 1993, 14)

3.1 Introduction

For many decades, prehistoric research in Greece had been largely regarded synonymous to Aegean islands, Crete, Thessaly and Peloponnese under the banner of 'Aegean prehistory' (Andreou 2005; Fotiadis 2001; 2005; Grammenos 1991; Margomenou *et al*. 2005). This purely geographical term, however, has been also transformed into a chronological one, given the considerable research interest to the Bronze Age (Margomenou *et al*. 2005, 3). The entirety of prehistoric Greek world has come to be co-opted under the term Aegean Archaeology that incorporates and reflects geographical as well as chronological restrictions. As a result, Greek prehistoric research progressively became limited around the 'pond' (Cherry 1983; Cherry *et al*. 2005) and eventually has been marginalized from the contemporary research agenda (Andreou 2005; Hamilakis 2005; Kopaka 2009; Margomenou, *et al*. 2005). In this framework, prehistoric research in Greece paid limited attention to Neolithic and Palaeolithic past, while geographical areas, such as Macedonia and Western Thrace, were neglected by the research interests of Aegean prehistorians (Andreou *et* al. 1996; Fotiadis 2001).

Recently, a growing unease with the label 'Aegean prehistorian' is being increasingly expressed by a generation of Greek prehistorians (Andreou 2005; Fotiadis 2005; Hamilakis 2005). Gradually, a considerable retreat from the domination of Bronze Age research has been accompanied by a rise of interest in Neolithic and Palaeolithic periods and by a shift in the discipline to the study of previously neglected geographical areas. Christos Tsountas's (1908) great discoveries in Thessaly triggered attention to the Neolithic period and introduced a new research era in Greece. For decades, however, archaeological research in Thessaly revealed a rich and dense material culture that constituted the focal point of Greek Neolithic

agenda and overshadowed the exploration of other geographical and cultural areas (e.g. Hourmouziadis 1979; Milojčič *et al*. 1962; Theocharis 1967; Wace and Thomson 1912). In this context, as Fotiadis (2001, 116) puts it, '...Macedonia became the 'Other' of the Aegean'. It is only during the last two decades, when considerable research took place in Northern Greece, revealing a variable and diverse material culture that contributed to the enhancement of Greek prehistory (Table 3.1; 7.1; Figure 3.1; Map 3.1; 3.2). This chapter will draw the historiographical outline of NL research in Northern Greece starting from pioneer scholars, followed by methodological applications and theoretical approaches in the region. The discussion that follows will focus on the main institutions that formed and established past and current archaeological agenda: the Greek Archaeological Service, Greek Universities, major Museums and Foreign Schools.

3.2 History of Neolithic research in Macedonia and Western Thrace

The pioneers: early works

Even though prehistoric finds in Northern Greece appear sporadically in scholarly journals at the end of the 19th century (Makridis 1937), it was only after 1915 that research of substantial scale and lasting significance was undertaken in the region, establishing a new objective for the archaeological discipline in the region (Fotiadis 2001, 116). Prehistoric finds in Macedonia and Western Thrace came to light as the result of military trenches dug near to visible prehistoric mounds (Figure 3.1; Map 3.1; 3.2). It was during and after World War I that research of prehistoric Macedonia acquired a momentum thanks to surveys and small-scale excavations carried out by allied armies. The results of these early explorations were published in the journals of the British and the French Archaeological Schools in Athens (Casson 1918-19; 1919-21; Rey 1917). Rey was the first to introduce a typology of prehistoric settlements distinguishing three types of mounds (*toumba*, table and toumba-on-table or else *trapeza*), while Casson regarded his fieldwork at Tsaousitsa site as the first 'scientific' excavation in Western Macedonia (Casson 1919-21). It is worth noting that, while most of these *toumbes* and *trapezes* were identified as prehistoric, dated at Bronze and Iron Age, some were inhabited as late as the 6th century cal BC. On the other hand, in Eastern Macedonia, Louis Renaudin, a member of the French School at Athens, accomplished three trial excavation works at Dikili Tash, from 1920 to 1922, where he identified a thick stratigraphy of successive habitation layers at the centre of the tell. During these early excavation seasons he was the first to recognize Neolithic deposits at the site (Renaudin 1920; 1921; 1922). Contemporaneously, from 1922 to 1931 W.A. Heurtley's first systematic research in Central and Western Macedonia produced his monumental publication *Prehistoric Macedonia* in 1939, where all the known prehistoric sites were catalogued (some of these sites are included in Figure 3.1; Heurtley 1939). In 1928, coincidental prehistoric finds came to light at Olynthos in Halkidiki in Central Macedonia, when Professor D.M. Robinson started a four year excavation season (excavation seasons 1928, 1931, 1934 and 1939) under the auspices of the American School for Classical Studies at Athens. During the first fieldwork season, small-scale excavation south-western of the southern projection of Megali Toumba at Olynthos in Halkidiki revealed stone foundations of four Neolithic buildings dated from material remains unearthed in their inner and surrounding spaces (Mylonas 1929). At that time, Keramopoulos conducted surveys and small-scale excavation

projects in Western Macedonia (Keramopoulos 1932; 1938; 1940). At the time of his research expedition in Western Macedonia, Keramopoulos also set the first trial excavation at the Neolithic lacustrine site Dispilio in Kastoria (Keramopoulos 1938; 1940).

The second period of exploration: 1960s to 1980s

Nearly thirty years passed without a Neolithic research of great scale in the area. In Western Macedonia the new era began with the joint Cambridge-Harvard project at Nea Nikomedeia Imathias that constituted the earliest farming settlement then known in Europe (Table 7.1; Rodden 1962; 1964; 1965; Wardle 1996). Marija Gimbutas and Colin Renfrew undertook a two season excavation project at the prehistoric settlement mound Sitagroi in Drama in Eastern Macedonia during the years 1968 and 1969, followed by a study season in 1970. Principal aim of this project was to examine the development of farming economy and frame the site in its broader geographical, environmental and social historical context (Figure 3.1; Map 3.1). The key geographical location of Sitagroi places the site in access to the Aegean, the south-eastern parts of continental Europe and western Anatolia. Excavation revealed a rich Neolithic and Bronze Age stratigraphy (Elster and Renfrew 2003; Renfrew 1970; 1971; Renfrew *et al*. 1986). In late 1960s the majority of prehistoric sites in central Macedonia were systematically described by D.H. French (1967). His work built on Heurtley's publication in 1939 by adding new data that came from his small scale and sporadic survey project in the area. Furthermore, a three season rescue excavation was undertaken at Servia in Kozani in Western Macedonia from 1971 to 1973, by collaboration between the British School at Athens and the Greek Archaeological Service (Ridley and Wardle 1979; Ridley *et al*. 2000; Wardle and Vlachodimitropoulou 1998). The abundance of archaeological material proved this was a substantial Neolithic site and inaugurated the salvage excavations in the region. A three season, small scale, rescue excavation started in 1978 at the site Dimitra in Serres in Eastern Macedonia. The main objective was to determine the stratigraphy and chronological sequence of Neolithic and Bronze Age in the region (Grammenos 1997).

Subsequently, and in particular since the 1980s, prehistoric research in Macedonia has expanded considerably, especially through rescue excavations organised by the Greek Archaeological Service. Most are small-scaled and short-term field seasons, however, a few cases of large-scale projects should be also noted. The rescue excavation at the Neolithic site of Thermi in Thessaloniki, for example, started in 1987 and continued with breaks since 1989, 2000 and 2001 (Grammenos *et al*. 1990; 1921; Pappa *et al*. 2000; 2007; Pappa 2008). An overall area of 14000 m² was explored due to large expanse of earth stripped that produced significant Neolithic material culture even though the revealed settlement space was incomplete. From 1987 to 1996 another large-scale rescue excavation was carried out in

Central Macedonia. This is the Neolithic settlement of Yiannitsa B that revealed sections of an extended settlement estimated at 100000 m² (Chrysostomou 1989; 1991; 1993; 1996; Chrysostomou and Chrysostomou 1990). Two more large-scale research works were organized by the Greek Archaeological Service in the 1980s. These are the middle Aliakmon survey project that started in 1985 (Hondroyianni-Metoki 1990; 1992; Ziota and Hondroyianni-Metoki 1993) and the Kitrini Limni expedition that began in 1987 (Fotiadis 1987; 1988; Fotiadis and Hondroyianni-Metoki 1993; Ziota 1995; Ziota *et al*. 1990). Specialists in animal bones, seeds, chipped stone tools, bone tools and pottery were involved in this research project that established methodological standards and widened interpretational approaches in the region at that time. The School of History and Archaeology of the Aristotle University of Thessaloniki organised systematic excavations and research projects in Northern Greece, one of which was the small-scale systematic excavation at the mound site Mandalo in Pella undertaken in 1985 (Papaeuthimiou-Papanthimou and Pilali-Papasteriou 1987; 1988; 1990; Pilali-Papasteriou and Papaeuthimiou-Papanthimou 1989). Another one was the intensive survey project in Lagadas plain in Central Macedonia started in 1986 (Andreou and Kotsakis 1994; Kotsakis 1989; 1990; Kotsakis and Andreou 1992).

At the other end of Northern Greece, in Western Thrace, surveys and excavation works are noticeably limited (Figure 3.1; Map 3.1; 3.2). The pioneering excavation by Professor Bakalakis on the mound of Paradimi in Komotini in 1965 was a consistent attempt to explore issues of prehistoric cultural sequence and ceramic classification in the area (Bakalakis and Sakellariou 1981). From 1961 to 1975, J. Deshayes and D. Theocharis conducted the first systematic prehistoric excavation at the site of Dikili Tash under the auspices of the French School in Athens and the Archaeological Society of Athens. The main objective of this research was to define the stratigraphic sequence of Neolithic and Bronze Age period that was, at that time, unknown in the region (Deshayes 1961; 1973; Theocharis and Romiopoulou 1961). The second period of systematic investigation at the site was carried out between 1986 and 1996 with Ch. Koukouli-Chrysanthaki and R. Treuil as co-directors of the project (Koukouli-Chrysanthaki *et al*. 1997a; Koukouli-Chrysanthaki and Treuil 2008; Treuil 1992; 1996). This period was followed by an overall methodological shift in archaeological theory and practice in Greece. Given that the stratigraphic sequence of the site was known from the time of first expedition, the main objective of this research season was to reveal the habitation layers as broadly as possible. This would allow the study of the building

techniques, the spatial organisation of the successive settlements, and the lifeways of settlers in general (Martinez 1999).

In 1971, D. Theocharis produced a publication that catalogued the then known prehistoric sites in Eastern Macedonia and Western Thrace (Theocharis 1971). This has been the first attempt to study prehistoric settlement patterns in Western Thrace from the Palaeolithic time onwards. In 1987, the Swedish Institute in Athens organised a small-scale excavation project on the right bank of river Nestos at the low mound site of Paradeisos in Kavala (Hellström 1987). In late 1980s, the Museum of Komotini organised two excavation projects in Aegean Thrace. The first one included the site Proskinites in Komotini that is located in the southeast Rhodope region, where two seasons of systematic excavation were carried out between 1986 and 1988 (Efstratiou 1993b, 35-6). The second one has been a long-lasting and spatially broad project that started in 1988 and lasted for nearly 20 years at the Neolithic settlement of Makri in Alexandroupoli (Efstratiou 1989; 1993a; Efstratiou *et al*. 1995; 1998; Kallitzi and Efstratiou 1988; Karkanas and Efstratiou 2001; 2009; Tsartsidou *et al*. 2009; Urem-Kotsou and Efstratiou 1993). Main objectives of both these projects were to enhance Neolithic research in Aegean Thrace, and to investigate questions of stratigraphy, chronology and pottery typology.

The 'big bang': a new era of archaeological investigation

Makriyalos in Pieria has been the excavation that had great impact to our perception of the Greek Neolithic and improved greatly our methodological and theoretical applications (Table 7.1; Figure 3.1; Map 3.1). Makriyalos was a large-scale salvage excavation that began in 1992 by the Greek Archaeological Service prior to the construction of the railway network and the extension of the main national road. The excavated area was 60.000 m². Makriyalos Pierias was the first flat-extended site excavated so broadly in Greece. It brought to light a significant number of new architectural data regarding building techniques, large communal works, as well as a better understanding of the spatial and social organisation of Greek Neolithic settlements. The results of the archaeological works there radically changed our perception of habitation patterns and routine daily life in the region (Bessios and Pappa 1993; 1994; 1995; Pappa 1997; 2007; 2008; Pappa and Bessios 1999a; 1999b; Pappa *et al*. 1998). The excavation set high standards of modern fieldwork and established the values of archaeological scientific techniques in practice to various aspects of prehistory such as ceramics, lithic tools, archaeozoology, archaeobotany, and palaeoanthropology (Collins and Halstead 1999; Skourtopoulou 1999; 2006; Triantaphyllou 1999; Tsoraki 2007; Urem-Kotsou 2006; Valamoti 2004). In Greece, Makriyalos Pierias signified the new agenda for approaching Neolithic past. It affected significantly Greek Neolithic studies and it has been considered a model site for future large-scale projects. Moreover, preliminary reports were quickly published making the site broadly known to the community of Mediterranean and European prehistorians.

In 1992 another exploratory salvage excavation was undertaken by the Greek Archaeological Service at the site Drosia in Edessa in western Macedonia (Table 7.1; Map 3.1; Kotsos 1992). In 1993 one more large-scale excavation started in Central Macedonia. This was the Middle Neolithic site of International Fair of Thessaloniki (I.F.Th.) that represents the oldest known habitation in Thessaloniki (Pappa 1993; 2008). In parallel with salvage works, in 1992 the Greek archaeological Service undertook a large-scale systematic excavation at the Greek-Bulgarian border at the Neolithic settlement known by then as Topolnitsa. Topolnitsa is bisected by the frontier of these two countries and has been named in the Greek literature as Promachonas-Topolnitsa in Serres (Koukouli-Chrysanthaki *et al*. 1993; 1995; 1996; 1997b; 1998; 1999; 2000). The results of the excavation brought to light what has been considered as

an important prehistoric site in this part of south-eastern Europe (Koukouli-Chrysanthaki *et al*. 2007).

The 1990s was a period of rich archaeological activity and intensive exploration of the Neolithic period in Northern Greece. An emphasis has been given to central and western Macedonia (Figure 3.1; Map 3.1; 3.2). In central Macedonia in particular, during a survey project at the coastal area of Thermaic gulf, twenty-one Neolithic sites were identified overall. In 1997, a small-scale rescue excavation was carried out in Polyplatanos in Imathia in central Macedonia (Merousis and Stefani 1998; 1999; 2000), and at the low-mound site Grammi in Pella (Chrysostomou *et al*. 2000; 2001). Additionally, a large-scale rescue excavation occurred from 1998 to 2003 at the settlement Stavroupoli in Thessaloniki, covering an area of 1300 m² in total (Grammenos 2006; Grammenos and Kotsos 2002; 2004). Kleitos 1 in Kozani is one of the Neolithic sites identified from the Kitrini Limni survey project. A short-term and small-scale rescue excavation was carried out there in 1995 (Ziota 1995; 2008; 2009; Ziota *et al*. 2009) but the settlement was extensively explored for two whole years from 2008 to 2010. The complete area of the Neolithic settlement was recovered and excavated during the second fieldwork season, making Kleitos 1 one of the largest Neolithic excavations in Greece to date.

In the 2000s the Greek Archaeological Service in Northern Greece undertook a short-term rescue excavation at Kolokynthou in Kastoria settlement (Tsouggaris *et al*. 2002). In addition, two small-scale and short-term salvage archaeological projects were carried out at Lete I (Tzanavari and Filis 2002) and in Lete III in Langadas Plain respectively (Tzanavaris *et al*. 2002), while in 2002 started the large-scale salvage excavation at the Neolithic settlement Avgi in Kastoria, western Macedonia. The excavation continued up to 2008 and constitutes an ongoing research project (Stratouli 2004; 2005; 2007; Stratouli *et al*. 2010; Tsokas *et al*. 2005). On the other hand, in Western Thrace the excavations at Makri in Alexandroupoli and at Dikili Tash in Kavala (Darque *et al*. 2007) constituted the only ongoing Neolithic research programmes in the region (Table 7.1; Map 3.2). After eight years a third research programme began at Dikili Tash in Kavala in 2008. Its overall aim has been to reconstruct the entire history of the site from first human occupation to modern times. It is worth noting that Dikili Tash in Kavala has been for decades the only excavation undertaken in Northern Greece by a Foreign School.

Furthermore, the School of History and Archaeology of the Aristotle University of Thessaloniki has been as long established and active research body that organized lasting archaeological projects in Macedonia and Western Thrace. A small-scale and short-term excavation started in 1991 at the Neolithic site Arkadikos in Drama under the auspices of the School of History and Archaeology of the Aristotle University of Thessaloniki (Anagnostou and Vargas-Escobar 1991; Peristeri 2002; Touloumis and Peristeri 1991; Vargas *et al*. 1992). In 1992 the excavation at the Neolithic lacustrine site Dispilio in Kastoria started that still constitutes one of the ongoing research projects of the School (Hourmouziadis 1996; 2002a). In 1999 the research programme at Paliambela in Kolindros in central Macedonia was established. The Paliambela project is co-directed by the School of History and Archaeology Aristotle University of Thessaloniki and the University of Sheffield. The project is involved with current research questions, such as the emergence of the village and the household, and the reconstruction of daily lives of the inhabitants of the Neolithic settlement (Blackman 2001; 2002; Kotsakis and Halstead 2002; Kotsakis *et al*. 2005).

3.3 Theories and methods of Neolithic studies in Northern Greece: objectives, trends and biases

It has been suggested that archaeological interpretation of Neolithic Greece has not generally followed the most recent discussions of theory and method and it is true that Greek Neolithic research has been slow to affiliate with theoretical frameworks (Hourmouziadis 2009; Nanoglou 2001, 303). I argue that two are the main reasons for the delayed development of theoretical and methodological home-grown analytical frameworks in Greek archaeology. The one resulted from the lack of research institutions and well defined research centres that would enable analytical and interpretative ideas to grow and to develop in a rather consistent form. Even though Greek Universities have traditionally been the bodies of research progress and development in the country but the lack of resources and their principally educational structure often resulted at the downgrading of research time. The second reason for this delayed development to contemporary theories and methods is associated with the close affiliation of archaeology with the State that often used the past as a mechanism to enhance ethnic identity (Diaz-Andreu and Champion1996; Hamilakis and Yalouri 1996; Hourmouziadis 1978; Kotsakis 1991; Voutsaki 2002; 2003). The manipulation of the past created an implicit cultural historical (and often possibly nationalistic) archaeological tradition in Greece that became reluctant to follow the current research progress. In the following analysis, I argue that key difficulty in the formation of Neolithic research in Northern Greece has not been the failure to quickly follow current trends in archaeological theory and method, but most importantly the unwillingness to develop and establish a distinct regional research agenda that appreciates its geographical position at the crossroad of diverse civilizations as an advantage and as a vantage point for comparative research with adjacent regions and cultures that will unfold the complexity of human interaction. Over the last fifteen years, however, an ongoing interest in interpretational analysis initiated a new research era for the whole of Greek prehistory (e.g. Krachtopoulou 2010; Nanoglou 2008; 2009a; 2009b; Ntinou and Badal 2000; Souvatzi 2008a; Urem-Kotsou 2006; Valamoti 2004).

The discussion preceded in chapter 3.2 showed that British, French and American scholars were the first to organise systematic archaeological expeditions to explore the prehistory of Macedonia and Western Thrace and their work set the foundation for prehistoric research in the region (e.g. Heurtley, Renaudin, Robinson). In these early years, the general research interest was focused on the Greek Classical past (e.g. Olynthos). Exploration of local

prehistory utilised cultural evolutionism analysis aims to prove a direct cultural and ethnic link from prehistoric and ancient people to modern nation states (Hodder and Hutson 2003; Johnson 1999; Trigger 1989). The main objective during the early years of research in Aegean prehistory was to use chronotypological approach of cultural history in order to trace the development of Classical Greece (Andreou 2005, 81). The core idea of cultural-historical approach was to define distinct cultures according to their material remains and to produce catalogues of finds' descriptions that resulted to the creation of timelines based on typological study of artefacts. Prehistoric research in Northern Greece was not an exception. Heurtley's publication in 1939 constitutes the product of such an analytical approach (Heurtley 1939). The discovery of Neolithic cultural remains in Macedonia and Western Thrace, however, was not the result of organised research strategy but, on the contrary, in these early years of research the identification of Neolithic material remains was to some extent accidental, during the investigation of succeeding cultural periods. European and Balkan archaeological research had for a long time been focused on mounds as obvious landmarks in general flat landscapes. Greek scholars followed the established research agenda that was extensively used in adjacent countries to adopt similar research methodologies with a particular focus on the evident tell sites (Keramopoulos 1932; 1938).

After a lacuna of Neolithic fieldwork in the region that reaches nearly thirty years research began with the joint Cambridge-Harvard project at the site Nea Nikomedeia in Imathia. This expedition initiated the processual approach to the study of Neolithic Northern Greece and it conducted environmental, economic and social analyses (Rodden 1962; 1964; 1965; Wardle 1996). Emphasis was given at the excavation methodology and the scientific techniques applied that established an up-to-dated and contemporary methodological agenda (Hodder and Hutson 2003; Johnson 1999). Excavation methodology employed in Nea Nikomedeia was first used by Professors Waterbolk and Modderman in the excavation of the Early Neolithic Bandekeramik site in Netherlands during late 1950's. The equipment used in both Bandkeramic site and Nea Nikomedeia was designed to reveal discolorations. Archaeozoological remains were also collected, washed and sorted for further examination (Wardle 1996, 5). It took some time in Greek prehistoric research until we are finally able to broadly identify the application of contemporary excavation techniques based on scientific and methodological developments.

Two main research trends can be identified at that time in Neolithic Research in Northern Greece. Foreign Schools in Greece and the School of History and Archaeology of the Aristotle University of Thessaloniki gave emphasis to transcend the study of chronological and typological descriptions and to develop systemic and functional models to study past societies by the application of scientific methods to the material remains. In particular, the excavations at Sitagroi, Servia, Dikili Tash and Mandalo set high standards of contemporary archaeological fieldwork. The excavation methodology carried out at these sites applied contemporary and advanced excavation techniques, gave emphasis on scientific applications, such as in archaeozoology, archaeobotany, geoarchaeology and paleoanthropology, and it developed an analytical framework for the examination of overarching research questions such as subsistence economy, neolithization and ideological, cultural perceptions in past societies by the study of pottery,, archaeozoology, archaeobotany, geoarchaeology and paleoanthropology (Elster and Renfrew 2003; Gimbutas *et al*. 1989; Papaeuthimiou-Papanthimou and Pilali-Papasteriou 1990; Renfrew *et al*. 1986; Ridley *et al*. 2000; Treuil 1992). These projects opened up the research agenda to question the developments of subsistence economy, building techniques and spatial organisation. At the time, key objective of the Greek Archaeological Service was to identify chronological and stratigraphic sequences that would reveal cultural developments in the region. This kind of archaeological methodology gave emphasis on small-scale sounding trenches and pottery analysis. Characteristic excavations of such methodological applications are Dimitra in Serres, Paradimi and Paradeisos in Komotini (although organised by the Swedish Institute). A few exceptions should be noted, however, such as the large-scale excavation at Thermi in Thessaloniki, involving a large number of specialists in the study of organic remains, lithic and bone tools and pottery (Grammenos *et al*. 1990; 1992; Pappa 2008; Pappa *et al*. 2000; 2007).

The research framework introduced in the 1960s produced various interpretational biases. A number of small-scale excavation programmes resulted in the segmentation of archaeological space as well as at the limited understanding of spatial use and organisation. Stratigraphic and chronological sequences were mainly achieved by the study of pottery shapes and pottery decoration patterns, rather than with the analysis of charcoal samples and radiocarbon scientific techniques (Aslanis 1992; Grammenos 1991; 1997). Although, flat-extended sites were gradually becoming more visible and identifiable, archaeological research was still

focused on low-mounds and tell sites (e.g. Dimitra, Makri, Mandalo, Dikili Tash, Servia). In late 1980s, however, three extensive survey projects in Macedonia such as the Aliakmon survey project, the Kitrini Limni expedition and the Langadas survey, in late 1980s set the standards for further discussion on settlement patterns, in addition to research on inter- and intra-site organisation of Neolithic communities (Andreou and Kotsakis 1987; 1994; Kotsakis 1999).

Significant changes in theory and method began in early 1990s, when large-scale salvage excavations were conducted prior to bi-scale public works for the construction of railway tracks, national roads, electricity and water supply systems. These public works due to public constructions exposed extensive areas of archaeological sites. Makriyalos Pierias, the International Fair of Thessaloniki, Kleitos 1 Kozanis and Kolokynthou Kastorias are only some of the large-scale salvage excavations of Neolithic settlements. Most of these extended sites came to light due to these public works and have not been identified from systematic survey programmes that would set specific research questions for the archaeology of the region. On the contrary, their exposure posed new research questions and transformed the established archaeological agenda. Kleitos 1 in Kozani is an exception to the series of rescue excavated sites since it was initially located from the Kitrini Limni survey project. One of the advantages of the contemporary research framework has been the opportunity to explore different environments and landscapes in areas that would have been in other cases unexplored. In particular, archaeological investigation shifted from the recurrent examination of low mounds and tells, to the exploration of flat areas. Additionally, large-scale excavation of archaeological sites brought to light a range of architectural forms, different building construction techniques and various spatial organisation practices. These new findings illustrate diversity of community organisation and variability of peoples' daily routines in different settlement environments that formed dissimilar cultural and social site-scapes. These new finds enhanced our overall perspective on the Neolithic period of Northern Greece. A major disadvantage of salvage excavation is the small number of publications. The results of excavations are regularly presented in short, season reports or articles on special studies and lack overall synthesis in a publication volume.

Recently, a turn towards consideration of a wider range of analytical approaches can be noted (Kotsakis 1999; Halstead 1999b; Nanoglou 2001). New evidence enabled a shift from chronological investigations, plain typological and technological descriptions of material

remains and centrality of environmental evolution, in favour of the interpretative analysis of social structures and communal coherency. Household studies and spatial organisation analyses became one of the key issues developed into the contemporary research agenda (Efstratiou 2007; Halstead 1996; 1999b; Koukouli-Chrysanthaki *et al*. 2007; Koukouli-Chrysanthaki and Treuil 2008; Nanoglou 2008; Souvatzi 2007; 2008a; 2008b; Stratouli 2007). People have been encountered as active agents; as discernible individual figures with distinctive ontology and socially embedded characteristics (Nanoglou 2004; 2009a; 2009b; Souvatzi 2008a). Regular daily activities, such as cooking and tool making are now examined as social products. Special studies in organic remains, pottery, lithic and stone tools overcame the discussion of technology and cultural evolution to investigate material remains through the lenses of daily life, individuality, sharing of social commodities and events of social coherency (Halstead 2004; Pappa *et al*. 2004; 2007; Skourtopoulou 2006; Tsoraki 2007; Urem-Kotsou 2004; Urem-Kotsou and Kotsakis 2007; Valamoti 2004). Archaeological remains are now seen as material traces of people, who had diverse, complex and eventful lives, a rich biography that in Neolithic archaeology of Macedonia and Western Thrace e have started to unfold. Archaeological remains are now seen as social products that reflect, to some extent, the routines of everyday life and community preferences. In contemporary theory and method, there is a clear tendency for producing narratives that situates the examination of material remains in their context in order to create a broader synthesis of the prehistory in the region (Halstead 1999b; Kotsakis 1999; Nanoglou 2008; Pappa *et al*. 2004; Urem-Kotsou and Kotsakis 2007; Valamoti 2004).

In the current research context, Greek Neolithic archaeology of Northern Greece has been associated with certain research traditions. The Round Table held at the University of Sheffield in 1995 was devoted to demonstrating the recent archaeological discoveries in Neolithic Greece, as well as to introducing and establishing social perspective in contemporary research agenda (Halstead 1999a). Efstratiou (2002; 2007), on the other hand, took advantage of the traditions of local ethnographic groups, and he examined the household of Pomak, introducing and directly applying, in this way, ethnoarchaeology in action in the Greek prehistoric research. Earlier theoretical attempts made by Hourmouziadis (1979; 1995a; 1995b) were made to the direction to create an interpretational tradition based on Marxist theory. None of these two latter attempts had the wide effect produced by Sheffield

meeting in mid-1990s, which formed significantly the research agenda of the contemporary Greek Neolithic research.

Significant theoretical and methodological developments can be noted throughout the years. The shift from environmental and technological analyses in favour of social approaches and the production of regional narratives is also detectible in the thematic change of Ph.D. dissertations. Examples of contemporary analytical topics have been involved with household studies (Souvatzi 2000), spatial organisation and residential elements (Pappa 2008; Tsartsidou 2009), the social perspectives of pottery (Hitsiou 2003; Urem-Kotsou 2006) and individuality (Nanoglou 2004). Neolithic archaeological agenda in Northern Greece has not been successful to stand critically and dialectically to the current methodological and theoretical debate. There is a distinct research preference for the Anglo-Saxon theoretical models, which in a way interprets the limited impact of ethnological and Marxist theoretical attempts. Greek Neolithic archaeology is now more experienced and mature to stand dialectically among different associated traditions, to form its own regional research agenda, and to overcome the shortfall of fragmented information produced by special studies and to approach archaeological remains contextually, involving all relevant data into regional stories, further creating smaller or bigger narratives.

3.4 Time framework of the Neolithic period in Greece

Chronology constitutes the base line for any archaeological research. Consequently, a study of the Greek Neolithic is inevitably engaged with setting a consistent timeframe system (Table 3.1). Despite the long-lasting involvement of a considerable number of Neolithic archaeological projects with the identification of regional or local chronological sequences (e.g. Argissa in Thessaly, Paradimi Komotinis, Theopetra Cave in Thessaly, Franchthi Cave in the Peloponnese, the Neolithic sounding of Knossos in Crete), definite time limits and interregional correlations remains to be settled in the Greek Neolithic. The periodisation of the Neolithic period in Greece was largely influenced by the Neolithic chronological system developed in the Balkans and the Near East (Gallis 1996, 30; Souvatzi 2008a, 51).The timeframe in this study was formed by bridging two principal chronological systems: relative chronology, based on the typological characteristics of material remains in stratigraphic sequences (with pottery being the predominant indicator) and absolute chronology that incorporates a currently increasing number of C^{14} radiocarbon dates. Table 3.1 brings together the results of relative and absolute chronological definition of older and contemporary excavation projects from broad chronological spectrum of Greece. Emphasis is given in the regional chronological sequences of Macedonia and Western Thrace. For the purpose of this study, I followed the broadest chronological framework and the simplest terminology. The main reasons I chose this broad chronological framework are too: firstly because it permits the systematic consideration of similarities and differences in social practices, and secondly because it allows comparisons among roughly contemporaneous settlements (Souvatzi 2008a, 51–3).

Greek Early Neolithic (EN) is a long-term period (6500-5800 cal BC) that remains inconspicuous and under-investigated. In the chronological system suggested by Demoule and Perlès it represents Phase 1 (Demoule and Perlès 1993, 368). Although, archaeological research increased during the last 30 years revealing a significant number of Neolithic sites in Greece, the EN has rarely been the subject of focused field research and therefore is not represented in the broad geographical span of the area under study (for Northern Greece check Map 7.1). Despite being its earliest stage, the EN is not regarded a ‘transitional’ or ‘formative’ phase. On the contrary, it sets the foundations of stable socioeconomic organisations throughout the Neolithic (Perlès 2001, 98). On the other hand, the Greek Middle Neolithic (MN) emerged as a much shorter period of an approximate duration of 500

years (5800-5300 cal BC). An alternative terminology of the period is Phase 2 (Demoule and Perlès 1993, 368). In comparison with the EN, the MN is a better known and geographically broadly recorded period in Greece (for Northern Greece check Map 7.3; 7.4).

The Late Neolithic (LN) is the best documented period across Greece (for Northern Greece check Map 7.7; 7.8). In contrast with the MN, the LN emerges as a period of long duration that covers nearly a millennium from 5300 to 4500 cal BC. The long duration of LN had led early researchers, such as Theocharis and Milojčic, to divide this period into sub-phases based on two model sites of Greek Neolithic prehistory, Sesklo and Dimini in Thessaly. Following pottery stylistic classification LN was initially divided into pre-Dimini phase, dated from 5300 to 4900 cal BC, and classical Dimini phase dated from 4800 to 4500 cal BC (Milojčić *et al*. 1962; Milojčić-v.Zumbush and Milojčić 1971; Theocharis 1967). This chronological classification, however, is mainly applied to Thessaly. According to the chronological system generated by Demoule and Perlès, pre-Dimini is classified as Phase 3 and classical Dimini as Phase 4 respectively (Demoule and Perlès 1993, 386-8). Aiming at the simplification and geographical generalization of the LN chronological system, Kostas Gallis in 1996 introduced LN I that corresponds to pre-Dimini or Phase 3 sub-phases and LN II that is equivalent with classical Dimini or Phase 4 (Gallis 1996). Equally controversial to the categorization of the LN period is the Final Neolithic (FN) that has only recently been distinguished from the Bronze Age and the Late Neolithic period. FN is a period of long duration that covers a broad time span that exceeds 1000 years, dated from 4500 cal BC to 3200 cal BC. Variable different terms have been attributed to this period: Chalcolithic (a term used in Thessaly, following Balkan terminology), Late Neolithic (Treuil *et al*. 1989), Late Neolithic II (Coleman 1977; Sampson 1988; Zachos 1987), Final Neolithic (Renfrew 1972), Phase 5 (Demoule and Perlès 1993). In the current study the term Final Neolithic introduced by Colin Renfrew (1972) and supported from contemporary radiocarbon data is preferred. Like EN, the FN period is not identified everywhere in Greece (for Northern Greece check Map 7.11).

3.5 Brief description of the Neolithic natural environment and subsistence strategies in Macedonia and Western Thrace

The aim of the following analysis is threefold: 1) to draw an outline to the climatic conditions during the Neolithic period in Northern Greece, 2) to provide a general introduction of the local vegetation history and 3) to briefly describe the regional overall subsistence strategies of people in the Neolithic.

Modern climatic conditions in Greece were developed during the Bronze Age period, especially after 2500 cal BC (Andreou *et al*. 1996, 562–4). Macedonia and Thrace are geographically and environmentally positioned between two distinctive and contrasting zones: the climates of the Mediterranean and continental Europe. Climatic conditions of these two zones are generally opposite, with hot, dry and rainless summers followed by rainy, mild winters in the Mediterranean, and rainfall throughout the year, with an emphasis during the summer time and very low temperatures in winter period, in both central and continental Europe (Andreou *et al*. 1996; Bottema 1974). Northern Greece is located into a transitional zone between two climates. As a result, the proximity of Macedonia to the continental landmass results in a generally cooler climate when compared to southern Greece. At the east end of North Greece, in Western Thrace, climate conditions have been characterised by cold winters, high rainfall with occasional snow, and dry summers with little rain. Additionally, coastal areas in central and eastern Macedonia and in Aegean Thrace experience a generally warmer climate characterised by greater variation in average monthly rainfall and temperature (Triantaphyllou 2001; Valamoti 2004).

The geographical position of Northern Greece at a cross-road between Mediterranean, Near East and Northern Europe contributed to the floral richness and diversity identified in the region. Reconstruction of vegetation history in Greece has been achieved by pollen diagrams and charcoal analysis. These analyses, however, are unevenly represented in different parts of Greece and in different chronological periods. It has been suggested that the role of the local prehistoric communities in the natural environment is hardly discernible through the pollen records before 4500 cal BC (Bottema 1994; Ntinou and Badal 2000; Willis 1994). Invisibility of human impact on natural vegetation has been attributed to small-scale agricultural practices by small groups with such techniques that hardly disturbed the forested landscape (Willis and Bennet 1994). In the beginning of the Holocene, the dominant vegetation in

eastern and western Macedonia was that of mixed deciduous oak woodland with lime, elm, hazel, fir and ash among the species (Bottema 1982; Hammen *et al*. 1965; Kouli 2002; Willis 1994). No pollen diagrams are available from Western Thrace but charcoal studies at Neolithic Makri in Alexandroupoli reflect the range of species preferred by prehistoric people rather than the full range of the species growing in the area. During the Neolithic habitation at the site deciduous oaks were growing together with species such as ash, terebinth/lentisc, pear/*Sorbus*, hawthorn, juniper, Cornelian cherry, maple, elm and grapevine (Ntinou and Badal 2000).

Arable agriculture was the major source of Neolithic diet in Greece (Halstead 1994, 200). Archaeological researches in Greece suggest that during the Neolithic small-scale agricultural practices (and possibly husbandry) are possible in certain settlements (Bogaard 2005; Jones 2005; Valamoti 2005). Plant food, such as seeds, nuts and fruits, support larger populations, as opposed to collecting wild plants, herding or hunting that has been widely thought as restricted and inadequate to provide staple nutrition (Demoule and Perlès 1993; Halstead 1981, 314). Cereals and pulses are the dominant crop species in Neolithic Northern Greece. Cereals include glume wheat, einkorn and emmer, and the 'new' wheat type, recently recognized among the charred glum bases (Jones *et al*. 2000). Free-threshing wheat and barley are irregularly found in regional deposits. Pulses include a wide range of species: lentil, pea, grass pea and bitter vetch. Domesticated flax has been from the 5th millennium BC and terebinth, most likely a harvestable nut from the wild (Halstead 1981; 1994; Valamoti 2004; Valamoti 2007). The archaeozoological evidence in the region indicates the predominance of sheep, although goat, cow and pig were all present from the beginning of settled village life in EN period. Halstead (1987) suggested that in Neolithic deposits in Northern Greece the high proportion of sheep, which outnumbers cattle, goats and pigs, meant that little use was made for excessive woodland. Based on this observation he further suggested that perhaps stock was largely limited to agricultural land (Halstead 1987, 81). In later Neolithic assemblages the mixture of sheep, goats, cattle and pigs is evidently more balanced. Additionally, there is no indication of intensive dairying, wool production or the use of animals for traction (Halstead 1981, 323; 1994; Demoule and Perlès 1993). During the LN period wild species, such as deer, boar, aurochs, fox, hare, beaver, birds and fish occur in the settlements but are always rare (Demoule and Perlès 1993, 361). On the whole, relatively

balanced combination of cereals and pulses along with sheep, cattle, goats and pigs indicate marked culinary diversification in the region.

3.6 The built environment

In the continuous search to interpret Neolithic material culture in Greece much emphasis has been given on architectural forms and the spatial organisation of building structures within settlements, as opposed to the examination of construction techniques and building materials used (Hourmouziadis 1979; Pappa 2008; Theocharis 1967; Tsountas 1908). Buildings in Greek Neolithic vary significantly in form and method of construction even within single settlements, indicating that house type in not only a reflection of locally available building materials, but additionally an expression of the inner structure of village communities (Halstead 1999b, 79). In Northern Greece, in particular, standardisation in architecture is generally identifiable at the site level. However, house size varies and ground plans may be square, rectangular, circular and apsidal. The architecture remains are dominated by rectangular buildings, including both free-standing structures and small clusters of adjoining dwellings. Interiors were regularly single-roomed, but double-roomed, three-roomed, or partitioned examples also exist (e.g. Dikili Tash, Makriyalos, Servia). Indications for two storeys, internal lofts, and basements are also under discussion. Building features include a variety of cooking and storage facilities, benches and platforms. Deep setting of posts are a common foundation technique (e.g. Arkadikos Dramas, Avgi Kastorias , Yiannitsa B, Dikili Tash, Makri, Makriyalos, Nea Nikomedeia, Paradimi, Polyplatanos, Promachonas-Topolnitsa, Servia, Sitagroi, Stavroupoli, Thermi B), while foundations trenches dug into the ground was also a regular practice (e.g. Yiannitsa B, Grammi, Makriyalos, Thermi B, International Fair of Thessaloniki, Lete I, Lete III, Stavroupoli). Stone-built foundations were rare in Macedonia and Thrace (e.g. Olynthos, Paliambela). Superstructure techniques include wattle-and-daub, while mud-bricks (e.g. Olynthos, Paliambela) and pisé are also mentioned in reports (e.g. Makri, Arkadikos, Kolokynthou, Megalo Nisi Galanis). Floor types vary from simple beaten earth to wooden planks and roof was either gabled type (maybe thatched) or flat.

There is no clear-cut correlation of construction techniques and house types with particular regions or temporal phases. Although we can identify certain trends, such as post-framed buildings in Northern Greece (e.g. Avgi, Dikili Tash, Makriyalos, Servia) and stone-foundations in Thessaly (e.g. Dimini, Sesklo, Koutroulou Magoula) and in Crete (e.g. Knossos, Katsambas), we can still find mixed building practices within one settlements

and/or a region; this mixed building practice may be related with available building materials in the area and with people's preference for certain techniques (e.g. in Paliambela and Olynthos we come across the building technique of stone foundations). Recent archaeological investigations in the area revealed two previously unknown building forms and techniques; these are pit-dwellings and pile-dwellings adding variability to settlement diversity. Pit-dwellings are subterranean structures, cut into the earth with part of their superstructure standing above the ground, usually post-framed (e.g. Makriyalos). Pile-dwellings were unearthed in lake environments, while the outline and size of their structures is rather ambiguous (e.g. Dispilio, Kitrini Limni). The research in Northern Greece provides little information on practices situated around buildings. The gardens and farmlands hypothesis, as described earlier in Chapter 2, has been broadly used to interpret the formation of open-air space between dwellings, mainly related with flat-extended sites (Andreou and Kotsakis 1987; 1994). Pebbled yards next to buildings were used not only to shape space for daily activities, such as food preparation and cooking, but also to seal past and out-of-use structures (e.g. Thermi, Paliambela) (Pappa 2008, 366). Cooking facilities are also found single or in clusters, while large-scale events, such as feasts, are identified archaeologically in open grounds (e.g. Makriyalos; Pappa *et al*. 2004). Perimeter ditches often encircle habitation spaces (e.g. Thermi, Makriyalos, Paliambela).

3.7 Settlement patterns and spatial analysis in Neolithic Northern Greece

The following discussion focuses particularly on settlement patterns and spatial organisation, and builds upon the relevant analysis carried out in Chapter 2.3. From the beginning of the 20th century (Tsountas 1908), through the remarkable research increase of the 1960s (Hourmouziadis 1979; Milojčič *et al.* 1962; Theocharis 1967), until the large works in late 1980s, Thessalian plain constituted the focus of research interest in the Greek Neolithic (e.g. Demoule *et al*. 1988; Gallis 1985; Halstead 1994; 1995; 1999b; Kotsakis 1981; 1983; 1994; 1999). This 'thessalocentricism' (Souvatzi 2008b, 48) created uneven archaeological knowledge, and, to some extent, produced biased generalisations on the Greek Neolithic. Only two decades ago, Neolithic settlements in Greece were synonymous with tell sites, known as *magoules* in Thessaly and *toumbes* in Macedonia and Thrace (Kotsakis 1999, 66). For nearly ninety years, Sesklo and Dimini constituted the only two large-scale excavations in the country, as opposed to small-scale projects that were involved with the description of chronological sequences and pottery styles (for a general overview see Aslanis 1992; Grammenos 1991). At that time, archaeological exploration at the visible tell sites held central place in the archaeological research agenda both in Thessaly and in Macedonia, with the latter being the least explored (Heurtley 1939; Wace and Thompson 1912). The picture of low, but visible, mound settlements of small size was well established in the literature, from the first archaeological investigations, mainly through the monumental publications of Wace and Thomson (1912). Furthermore, for a long period of time, Sesklo, Dimini and Argissa were the primary sites that formed the dominant perception of the Greek Neolithic (Hourmouziadis 1979; Milojčič *et al*. 1962; Theocharis 1967; Tsountas 1908). Both these long-lived and prominent tell sites that have been interpreted as focal places of human interaction, soon became regarded as typical of how Greek Neolithic societies were organised (Kotsakis 2005, 9).

In the research framework of 'thessalocentricism' and 'tell-hunting', every interpretational attempt to understand the archaeological material was oriented towards the production of broader narratives and was principally affected by the Thessalian model. Household studies, intra-site spatial analysis and inter-site settlement comparisons have been greatly influenced by the dominant research in Sesklo and Dimini. What fundamentally transformed the established interpretational approaches on the analysis of the Greek Neolithic societies were

the large-scale public works and the extensive surveys that followed in the 1990s. In early 1980s small-scale, salvage excavations at the site of Vasilika C brought to light parts of the first non-tell settlement in central Macedonia (Aslanis 1992, 106-7; Grammenos 1991, 30-1; Pappa 1993b, 1227). Although, Vasilika C is a flat-extended settlement of estimated 200.000m² spread, the limited excavated area prevents discussions of spatial analysis and social organization. The research carried out at Vasilika C, however, is of significant historiographical importance and introduces the new research era in Northern Greece (Kotsakis 1999, 68; Pappa 2008, 23).

Hourmouziadis was the first scholar in Greek Neolithic literature to systematically support the sociological approach of space, that overcomes building forms and construction techniques. His study of Dimini is based on the contextual and functional identification of buildings, along with intra-site spatial comparisons of built and un-built space (Hourmouziadis 1979). Thereafter, the discussion of spatial analysis and settlement patterns was redefined with the extensive survey programmes in Langadas plain, in Aliakmon river-side area and in Kitrini Limni region. Andreou and Kotsakis (1987), on the other hand, explored the causes of diverse habitation patterns in central Macedonia by analysing survey data of 99 identified sites (Andreou and Kotsakis 1994). The size, the duration and the distribution of settlements in the landscapes stand as basic components of their analysis; however, they both concluded that none of these was enough to recognize settlement networks and to interpret habitation choices. Their approach identifies the significance of large-scale excavations and goes beyond environmental interpretations to the study of organisation and use of space, which directly reflects embedded social routines (Andreou and Kotsakis 1987, 65). In order to understand diverse habitation patterns, Andreou and Kotsakis attempted to explain the different morphology and size of contemporary settlements in central Macedonia. They rejected the model that equates site size with population size in favour of Chapman's theory, which suggests that the pattern of settlements interspaced with farmlands among houses and constructions (Chapman 1989; 1990). Based on this model, the so-called 'empty spaces' among buildings were filled with gardens and yards developed next to dwellings. Furthermore, the close proximity of habitation with farmland and gardens would provide continuous output of manuring, garbage and labour. Main characteristic of this spatial pattern is the blurred separation between the living and the productive space, with the latter being restricted within settlement boundaries (Andreou and Kotsakis 1994, 20).

The model above builds upon morphological opposition that exploits size as the main criterion to interpret tells and flat-extended sites, and relies on the intra-site spatial hypothesis of farmlands entangled with dwellings. There are, however, two shortfalls at the application of this model in the Greek Neolithic material remains at the time. Although the analysis is largely influenced by contemporary excavated Balkan sites, such as Divostin and Selevac (Andreou and Kotsakis 1994, 20), Andreou and Kotsakis used survey data to support their argument. Their analysis relies on a significant number of identified prehistoric sites; however, the only excavated flat-extended settlement included in their study was Vasilika C that, as discussed earlier, provides limited spatial information. As a result, their spatial organisation model for central Macedonia was developed on dubious intra-site spatial patterns. In contrast to their initial suggestions for an intra-site spatial analysis geared towards social interpretations of past human activities, Andreou and Kotsakis limited their argument to discussing morphological oppositions between the two settlement types. What is novel in their study, however, is the development of an interpretative approach towards the creation of a broad synthesis that approaches evidence with a historical perspective. Their seminal work has been influential in following relevant spatial and settlement pattern studies in the Greek Neolithic and established this model to interpret flat-extended sites in the region.

Although Sesklo is admittedly an exceptional case in the history of Greek Neolithic research (Kotsakis 1994, 129; 1999, 68; 2006, 207), the site has been recurrently used as an example in favour of the intra-site agricultural practice model between tells and non-tell sites as described earlier in Chapter 2.3. Kotsakis adopted the argument of built/un-built space along with the emergence of the individual household to support potential social differences between the inhabitants of the *acropolis* (Sesklo A: the tell part of the settlement, where buildings are free-standing) and the *polis* (Sesklo B: the flat part of the settlement where buildings shared walls) (Kotsakis 1994; 1999). His main contribution to the regional settlement studies, however, is the introduction of theories of hierarchy and monumentality (Kotsakis 1994; 1999; 2006). In particular, he developed a hypothesis that interpreted the dual intra-site spatial patterns identified at Sesklo as the result of profound and meaningful social and economic structures that reflected a plausible hierarchy related to the intensification and control of production between the two habitation groups (Kotsakis 1994, 129). Additionally, he approaches tells as prominent monuments in generally flat landscapes that marked continuity from and symbolic relation to ancestors (Chapman 1989; 1990; 1994;

2008) and reflects ideological mechanisms to enhance social coherency as opposed to less socially-loaded flat-extended sites (Kotsakis 1999, 73; 2004, 65). His argument about diverse habitation patterns builds on the morphological antitheses (or 'asymmetry of space'; Kotsakis 1999, 74) and he concludes that the lack of monumentality of flat-extended settlements indicates the lack of mechanisms and persuasion techniques to ensure social coherency ('ideological asymmetry'; Kotsakis 1999, 74). The hypothesis of loose social mechanisms developed in flat-extended sites has greatly affected the contemporary Greek Neolithic research agenda (Halstead 1999b; Nanoglou 2001; Pappa 2008; Valamoti 2005).

A significant amount of flat-extended sites excavated during the last two decades, however, brought to light a large number of archaeological data that enhanced spatial diversity and enabled the transformation of the established settlement pattern. The lack of monumentality and indicated discontinuity with ancestral past has been often interpreted as the effects of loose collective identities characteristic of flat-extended settlements. A counter argument, on the other hand, is that social coherency can be also achieved by large-scale public works and community events that bring people together to take part at joint activities. Pronounced structures and dense material accumulations are archaeologically defined as the outcome of group activities and gatherings. The perimeter ditches, which regularly encircle flat-extended settlements (e.g. Makriyalos, Avgi, Kleitos, Paliambela), the extensive earth removals, possibly for the exploitation of soil in building constructions (e.g. Makriyalos, Toumba Kremasti Koilada, Kleitos, Thermi), and the large-scale shared events, such as feasts (e.g. Pit 212 in Makriyalos, Papa *et al*. 2004) could equally represent large community activities. Bringing people together to participate in communal performances creates common experiences, shared memories, historical narratives and overall encourages social cohesion, formulating collective identities (Nanoglou 2008; Valamoti 2005).

In an attempt to produce a synthesis from most recent material remains, Paul Halstead developed a model that brings together various characteristics of Neolithic daily life using the household as his main analytical tool (Halstead 1994; 1995; 1999b). Even though his principal aim was the creation of a general narrative involving daily living and social structures in the Greek Neolithic as a whole, the archaeological data from Thessaly dominated over the cultural remains of other geographical parts of the country. Macedonia was also introduced to the discussion, although the internal organisation of Neolithic settlements from this region was considered obscure at that time (Halstead 1994, 206). As a

result, the outcome of the suggested analytical model produced a rather regional narrative. For many decades in Greek prehistoric research tell sites outnumbered other settlement types, such as flat-extended sites and lake-side sites. Nevertheless, the recently increasing number of flat-extended settlements transformed the well-known archaeological landscape (Andreou *et al*. 1996, 577; Pappa 2008). Prominence of tell sites in this analysis limits interpretations to certain intra-site spatial and social choices. The model suggests that emphasis on reciprocity, sharing and hospitality during the EN and MN periods, was replaced by hoarding, exchange and unequal accumulation of goods in LN (Halstead 1994, 207; 1995, 19; 1999b, 81). Halstead's intra-site spatial analysis examines the location of cooking in parallel with the appearance of decorated pottery suitable for drinking, eating and displaying. At an intra-site level, he suggested that the location of many cooking facilities in the open-air spaces among houses, together with decorated pottery for food offerings, as indications of hospitality to needy neighbours and, therefore, as evidence of village solidarity. On the other hand, he interprets the shift of cooking facilities indoors or in closed yards and the general disappearance of decorated drinking and eating vessels as symptoms of progressive isolation and competition among neighbourhood households (Halstead 1994; 1995; 1999b). In this view of household as the basic unit of production and consumption in Neolithic societies (Halstead 1994, 206), Halstead's intra-site sharing/competing and inter-communal hospitality/exchange models are primarily built on economic terms to interpret household/society success or failure.

The large scale of the archaeological discoveries that came out during the last two decades resulted in the need for a 'resettling' of the Greek Neolithic (Halstead 2005, 38). The archaeological regional landscape of the Neolithic has been significantly transformed. Recent research has proved that tell sites are only one among a number of different settlement types identified in the region while flat-extended sites, caves, small and short-lived open sites suggest the presence of diverse habitation lifeways (Andreou et *al*. 1996; Halstead 1999b; 2005; Kotsakis 1999; 2005; Nanoglou 2001; Pappa 2008; Souvatzi 2008b). Results of archaeological research from Central Macedonia show that flat-extended settlements constitute the main form of habitation (Pappa 2008, 378). Despite the increasing evidence of settlement diversity, it took some time to become familiar with the fact that tells are not the inevitable outcome of habitation but an intentional habitation practice (Nanoglou 2001, 310). This recognition widened the discussion on settlement patterns into contemporary theoretical

approaches. Questions on sedentism, seasonal and periodical occupation and population mobility reopened under the light of new the data and introduced into contemporary theoretical framework (Halstead 2005; Nanoglou 2001; Whittle 1996a; 1997; Valamoti 2005). Theoretical and methodological approaches pay more attention to agents of material culture, who produced and used the material remains, and are currently involved with the organisation of daily living, the formation of social identities, embodiment and memory (Halstead 2005; Nanoglou 2008; 2009a; 2009b; Pappa 2008; Souvatzi 2008a; Tsoraki 2007; Urem-Kotsou and Kotsakis 2007). Early interpretations of non-tell sites suggested seasonal occupancy and mobility. The latest evidence, however, questioned these approaches advocating that seasonality is rather contradictory in non-tell sites and argues for year-round habitation by some of these settlement dwellers (Halstead 2005; Valamoti 2005).

In the context of the contemporary research agenda, my analysis builds on earlier approaches of settlement patterns and spatial organisation, and incorporates contemporary archaeological evidence from Macedonia and Western Thrace. The use of inner space among dwellings is not regarded as given, but on the contrary, the emergence of local inter- and intra-site diversity is interpreted as the outcome of complex human preferences and embedded social choices. Special interest has been developed in this study on the practices situated around and between buildings. Explicit intra-site spatial analysis follows in case study chapters 5 and 6, succeeded by an overall synthesis on inter-site spatial patterns in Macedonia and Western Thrace in chapter 7.

3.8 Conclusions: towards the formation of local and diverse Greek Neolithic narratives

This chapter draws the historiography of Neolithic research in Northern Greece and discusses the methodological and theoretical trends for a time-frame that exceeds one century. From the period of 'thessalocentricism' and small-scale excavations, to the time of large-scale public works, Neolithic research in Macedonia and Western Thrace has developed significantly. Especially during the last two decades, Neolithic research in Northern Greece variable habitation landscapes and has identified diverse living and social practices.

Large-scale excavations suggested that the Neolithic site Makriyalos in Pieria was a model site for Neolithic Northern Greece. The results of the excavations at Makriyalos marked a change in the archaeological understanding of the prehistory of Macedonia, transformed the research agenda and opened the discussion to acknowledge diversity, variability and complexity of daily living in local and regional Neolithic societies. More building types were identified, such as pile-dwellings (e.g. Dispilio) and pit-dwellings (e.g. Makriyalos, Thermi B, Stavroupoli). Research on settlement patterns was enhanced by the identification of more diverse site types, such as flat-extended sites, lake-side sites, small and short-lived open sites, and caves. In contrast to past approaches with emphasis in typology and classification, contemporary theoretical trends place humans as active agent, social organisation and routine practices in the centre of research interests. Key aspect of understanding the developments and transformations in the Greek Neolithic lies in the phenomena of organisational complexity and flexibility of social relationships build up between households, communal events, daily practices and the repeated interaction among different communities.

Chapter 4

Setting out the methodology for the study of thermal structures

'...in music as in social life, there is not just one rhythmic cycle,
but a complex of very many concurrent cycles' (Ingold 1993, 160).

4.1 Introduction of the methodological framework

The construction of thermal structures —hearths and ovens— is one of the principal ways in which a community tries to organise its space (Karkanas *et al*. 2004). Building hearths and ovens reflects conception, planning and actualisation (Galanidou 1997; Gamble 2009). Hearths and ovens are involved in the earliest attempt of human groups to organise their social space. Even though commonly found in archaeological contexts thermal structures constitute an understudied archaeological material. The methodology developed in this study aims at generating an analytical framework that gives prominence to the role of hearths and ovens as integral components of Neolithic everyday life. In every community cooking constitutes integral part of daily routines; therefore the interaction and socialities developed between people participating in food preparation, cooking and consumption practices partly reflects how society groups are structured and unfolds to some extent bits and pieces of community lifeways and social organisation. Thermal structures are regarded here as the main analytical tool to unravel these kinds of social bonds by examining their functional, spatial and contextual associations.

To set a nuanced methodological framework we first need to form a typological analysis that sets identification criteria of thermal structures based on morphological characteristics, construction techniques and functional properties (Karkanas *et al.* 2004; Özbaşaran 1998; Papaeuthimiou-Papanthimou *et al.* 2000; Prévost-Dermarkar 2002). This methodology examines the use of hearths and ovens as integral components of Neolithic kitchens. I support that kitchen spaces formed *loci*, where social identities of the people participating in — or those who had direct or indirect visual contact with — cooking performances were shaped

through daily food preparation, regular gatherings and recurrent interactions among the users hearths and ovens. The second step my analysis examines the intra-site spatial configuration of kitchen areas in each case study site: in the Neolithic sites of Avgi and Dispilio in Kastoria. Furthermore, this research investigates the spatial distribution of Neolithic kitchens within each settlement among different habitation environments in Northern Greece and reveals the developed diversity of social relationships developed around daily consumption routines. The third stage of my analysis is a basic quantitative analysis that examines the distributions of artefacts and tools repeatedly found in direct proximity to thermal structures and that constitute basic components of the Neolithic kitchen toolkits.

Overall, the present methodology pulls together functional, spatial and quantitative data in a complementary way and considers that many daily activities were carried out around fire installations. The results of analysis at each case study site will be incorporated in inter-site spatial analysis and will contribute to examine the various localities of Neolithic Northern Greece. Main analytical tool for the production of spatial maps used in this study is Geographical Information System (GIS). Adobe Illustrator (AI) is complementary used for the schematic production maps and plans. All GIS Maps and plans were imported and merged to AI in order to create georeference intra- site spatial plotting of finds (Katsianis and Tsipidis 2005; Wheatley and Gillings 2002). Furthermore, this study will produce and inter-spatial analysis of the distribution of kitchen spaces among 30 excavated Neolithic sites. The sample selected for inter-spatial analysis incorporates diverse settlement types (Table 7.1). This analysis will produce a synthesis that gives emphasis at the identified diversity of social coherency created and enhance around everyday consumption practices and cooking spaces.

4.2.1 Identification criteria for thermal structures in Neolithic Northern Greece

Identification of the morphology and spatial distribution of thermal structures is essential to understand the evolution of domestic and communal social life in the Greek Neolithic. Hearths and ovens, however, have not been systematically recorded and mentioned in settlement studies as a starting point for further discussions on social constructions. Morphological components and spatial configuration of thermal structures in publications and reports are only inconsistently described. Petrographic analyses to reconstruct *chaîne opératoire* of hearths and ovens are also limited (Joyner 2008; Karkanas *et al.* 2004). Microscopic examination through the analysis of thin sections can investigate petrology, the provenance of raw materials, the construction techniques applied, pyrotechnological and the functional properties of hearths and ovens. Thin section analysis thus examines the degree of expertise in building techniques, studies the technological know-how and explores the time and labour investment needed for the construction of these clay based structures. This scientific technique, however, is only explored to some extend in the study of fire installations. For this project I developed a macroscopic analysis that primarily describes the morphological characteristics (shape, size) and the building techniques (raw materials used, construction practices) of hearths and ovens. Moreover, the analysis aims to uncover the functional diversity of fire installations (boiling, baking, roasting, smoking). Alongside this typological study, spatial and contextual studies are developed to examine the position of thermal structures in relation to household equipment and the organisation of domestic daily life in diverse settlement environments in space and in time.

The usually poor preservation and regularly fragmented material remains of hearths and ovens from Neolithic contexts makes their identification difficult, but systematic criteria were developed here to support the macroscopic study of thermal structures by nuanced examination of morphology, materials used and construction practices. Two case study sites were chosen, Avgi and Dispilio (Table 5.2; Table 6.2), along with comparative analysis of other features in the same class recorded in publications and site reports (*e.g.* Servia, Nea Nikomedeia, Makriyalos, Thermi, I.F.Th., Stavroupoli).

Each one of these criteria represents 20% of the overall 100% identification system (Table 4.1). The recovery of ashes and charcoal remains in and around a feature, as well as the identification of smoke at its sidewalls are strong indications for classifying a structure as

thermal structure (adds 20% at the Reliability Column). The second criterion is the morphological attributes of the structure. When the outline of a feature is clearly preserved 20% is added at the Reliability Column. In contrast, when the outline of the feature is unclear 0% is added at the Reliability Column (Table 4.1). The third identification criterion is the raw materials (clay, pebbles) used for the construction of the structure. Their preservation adds 20% at the Reliability assessment. The fourth criterion gives emphasis at the distribution of certain tools around and in close distance to the structure. The direct association of groundstone tools with food processing and the recurrent records of querns and grinders next to hearths and ovens make them strong indicators for the identification of kitchen spaces. Groundstone tools constitute one of the principal tools that define food processing spaces in the spatio-contextual analysis. In case of heavily disarticulated and ambiguous features the presence of querns is a safe indicator for the identification of kitchen spaces. When groundstones are recorded next to a fire installation 20% is added at the final Reliability Column. Having identified a thermal structure based on morphological, technological and contextual criteria as described above its final classification as an oven (type 1a and 1b) or as a hearth (type 2a and 2b) adds 20% in Reliability Column. Only when the results in Reliability Column overcome 50% a structure is identified as thermal structure (*e.g.* Table 4.1).

My preliminary analysis on Avgi and Dispilio included all structures listed as fire installations in the excavation notebooks. Therefore, at the early stage of research all structures were listed in numerical ID order. Having set the identification criteria, the features that fall below 50% on the Reliability Colum were disqualified (Table 4.1). In Avgi only four out of 29 recorded in the field as Thermal Structures are rejected, which give us 25 identified features. In Dispilio all five features originally recorded during the excavation were qualified. As a result, the final twenty-five securely identified thermal structures in Avgi are listed in irregular ID numerical order (Table 5.3). In Dispilio, on the other hand, the total of five identified ovens are regularly listed in numerical (Table 6.3).

4.2.2 Classification of thermal structures in Neolithic Northern Greece

A rich assemblage of structurally and functionally diverse thermal structures unravels the degree of expertise and know-how on building techniques in Neolithic Northern Greece. It also indicates regional variability of cooking techniques (Özbaşran 1998; Papadopoulou and Prévost-Dermarkar 2007; Papaefthimiou-Papanthimou *et al.* 2000). For this study, thermal structures are classified in two main categories: ovens and hearths. Their classification is based on morphological attributes (shape, size), on structural characteristics (raw material used, construction techniques applied) and on functional properties (boiling, baking, roasting, smoking). Each one of these two main categories is subdivided into two subcategories based on their building techniques and their functional values. In particular, ovens are separated into type 1a and type 1b (Figures 4.3; 4.4), whereas hearths are classified into type 2a and type 2b (Table 4.1; Figures 4.5; 4.6). Structures related to fire but excluded from either of the above categories are classified as nondescript type 3 features (Table 4.1). This typological classification is generated by detailed macroscopic examination of the thermal structures excavated at two case study sites, Avgi and Dispilio in Kastoria, Northern Greece (Table 5.3; 6.3). On the other hand, limited and inconsistent references are provided from excavation reports and publications, either due to a lack of typological classification of the features or because of unclear and undeveloped classification criteria. This study is predominantly concerned with domestic thermal structures, used for small-scale cooking, rather than with substantial features for big-scale events or kilns used for firing pots. Kilns are lacking from both Avgi and Dispilio. Based on archaeological records in Avgi and Dispilio, large-scale public events are not supported by the evidence of fire installations. Macroscopically, the lack of clay vitrification suggests that the temperature developed inside the domed ovens and on hearth floors did not exceed 1000^{o}C. This maximum temperature narrows down their functional options to domestic features for household purposes (Karkanas *et al*. 2004; Maniatis and Facorellis 1998; Papaeuthimiou-Papanthimou *et al*. 2000).

Limited number of publications of Neolithic Northern Greece, preliminary reports and low interest in developing specialised studies on thermal structures led to the homogenous documentation of hearths and ovens published so far. As a result, structural and functional differences between hearths and ovens have not been consistently appreciated and recorded. Therefore, the association between structural characteristics and their functional properties remains unexamined.

Ovens: type 1a and type 1b

An oven is classified by two main identification criteria, a roofed construction and a front-loaded entrance for fuels and food. A type 1a oven is defined by an uninterrupted, solid roofed compartment and a front-loaded entrance (Table 4.2; Figure 4.4). A type 1b thermal structure is differentiated from a type 1a oven by the identification of perforated circular hole constructed on top of their vault (Table 4.2; Figure 4.3). In both type 1a and type 1b ovens, the domed structure is poorly preserved, however, some well preserved examples of the type 1b oven have been identified (*e.g.* Stavroupoli; Avgi TS 2, TS 8, TS 16; Table 5.3; 7.1). The regular shape of the ovens is circular, semicircular and ellipsoid (Table 4.2; Table 5.3; Table 6.3). These features either found in subterranean or above the ground (Papadopoulou and Prévost-Dermarkar 2007; Papaeuthymiou *et al*. 2007; Prévost-Dermarkar 2002). Most common raw materials used for the construction of oven settings were pebbles and roughly tempered clay with powdered gravel and organic mixtures, like straw and splint (*e.g.* Servia, Nea Nikomedeia, Thermi). Less common is the use of building waste, such as daub fragments and earlier ovens/hearths floor fragments incorporated in the floor setting (*e.g.* Dispilio; Figure 4.1). Above the ground, oven floor sub-bases were regularly constructed of pebbled surfaces and successive tempered clay layers (*e.g.* Servia, Nea Nikomedeia; Table 7.1). Subterranean ovens were regularly constituted by semicircular shallow pits and flattened packed clay levels for floor surfaces. The sidewalls of subterranean features were coated with finer clay and then the dome was constructed by successive coil clay layers conjoined to the formation of the vault (Tables 4.2; 5.3). The sizes of the ovens vary. Based on the two case study sites and on limited records in publications and reports, the range of oven lengths varied between a minimum length of about 0.50 m (*e.g.* Avgi TS 9; Table 5.3) to an approximate maximum of 1.20 m (*e.g.* Dispilio TS 5; Table 6.3). When preserved, the height of the oven does not exceed the width of the floor surface due to technical building restrictions (Papaefthimiou-Papanthimou *et al*. 2000). Episodes of reconstruction are also recorded in floor surfaces (*e.g.* TS 1 and TS 5 in Dispilio; Table 6.3). Rarely, reconstruction works are also identified on the top layers of domes (*e.g.* TS 2 and TS 16 in Avgi; Table 5.3). Repairs indicate conscious attempts for long-term preservation of these features.

Baking and roasting of food in small pots is also likely inside the type 1a ovens, and grilling (direct heat) would have also been possible. Indirect boiling in baskets or skins is one more cooking option. On the contrary, baking and roasting is unlikely in type 1b ovens as the

perforated vault prevents the temperature rising to required heating level. Type 1b ovens, on the other hand, provides better fire control techniques as the flame focuses below the perforated dome, enabling accurate and complex cooking. The morphological attributes of type 1b ovens improves boiling of food by placing pots directly on top of the perforated dome. Parching of grains and pulses in both oven categories is generally expected. Smoking meat or fish is one pore possible cooking practice that enables the preservation of provisions in long-term storage (Atalay and Hastorf 2005; 2006).

Hearths: type 2a and type 2b

A hearth is defined by two main classification criteria, an unroofed structure and a discrete area of clay floor blackened with ash and charcoal. It is also negatively defined by not meeting the criteria of an oven (i.e. the lack of a dome; Ridley *et al.* 2000, 92). The morphological uniformity of hearths unearthed in Neolithic archaeological contexts in Northern Greece suggests a significant degree of building expertise and technological know-how. Hearths are classified into two subcategories based on raw materials used and to some extent building techniques applied for their construction. Type 2a hearths are identified by finely sieved clay hearth floors with powdered inclusions and pebbled settings (Table 4.3; Figure 4.6). Pebble settings are frequently placed in clay bases (*e.g.* Servia; Figure 4.2).A clay layer covers the pebbled sub-base, lacks organic inclusions while the upper heating floor surface is smooth and polished (Tables 4.3). Type 2b hearths are identified by the construction of clay floors directly on the ground surface (Table 4.3; Table 4.6). Macroscopic observation shows that type 2b hearth floor clay layers are tempered with rich organic inclusions of straws and splints. Heating floor surfaces are roughly sieved and unpolished, as opposed to the smooth upper floor surface that is identified in type 2a features.

Overall, hearths are subterranean structures, circular or irregular in shape and their size varies from an average diameter of 0.50 m to 1.90 m (*e.g.* Avgi TS 5, TS 10, TS 12; Table 5.3) (Karkanas *et al.* 2004; Özbaşaran 1998; Prévost-Dermarkar 2002; Papadopoulou and Prévost-Dermarkar 2007; Papaeuthymiou *et al*. 2007). Reconstruction works are also recorded in both hearth types (*e.g.* Avgi, TS 17; Table 4.3; 5.3). Cooking on hearths creates open-air heating conditions. Direct and indirect boiling either by placing pots on top of the fire or by positioning baskets or skins close to the flame are also expected. Grilling in direct heat and smoking meat and fish is possible. Parching of grains and pulses is anticipated (Atalay 2005;

Atalay and Hastorf 2005; 2006; Karkanas *et al*. 2004). In addition, hearths are in use either when the fuel became embers, or after removal of the fuel from the heating that becomes as heating source itself (Özbaşaran 1998, 558).

Nondescript: type 3

A nondescript type 3 thermal structure is initially identified by a layer of ash and charcoal remains, which suggests direct association with recurrent firing that was possibly accompanied with cooking. Any structure directly related to fire but not morphologically resembling either of the above main categories (hearths or ovens) is classified as a nondescript type 3 thermal structure (e.g. Avgi TS 26; Table 5.3).

4.2.3 Setting the methodology for intra-site spatial analysis: using GIS and AI applications

As described earlier in Chapter 2, the archaeological perception of space has been approached and examined in various diverse ways and has changed significantly over the decades. In the framework of processual archaeology, D.L. Clarke endorsed a view that saw spatial structures as direct records of how societies organised themselves and argued that through the use of the many kinds of information contained in space a better understanding of social structures could be recovered (Clarke 1977, 15). Shanks and Tilley, on the other hand, argued that the identification of spatial patterns in material culture does not conceive an immediate expression of social process (Shanks and Tilley 1987, 41). Ever since Clark's (1977) approaches, theoretical developments of spatial and settlement studies evolved significantly, passing from the Binfordian suggestions of spatial uniformity to views of space as active agent of social change.

Methodology

This study develops a methodology that focuses on intra- and inter-site spatial analysis of thermal structures within settlement units. In particular, this study identifies cooking and domestic performances around hearths and ovens as integral part of daily routines. The spaces of these daily routine consumption practices are performed are here defined as 'kitchen spaces'. The identification of kitchen spaces can be recorded with some confidence principally by the identification of thermal structures as the indicative feature. Various meanings are attributed to kitchen spaces based on their spatial location (inside and/or outside buildings) and contextual distribution of tools and artefacts close to the features. Here, kitchen spaces have been regarded as areas of recurrent domestic activities, symbolic practices and repeated gatherings (Parker Pearson and Richards 1994; Rapoport 1990). The methodology generated aims at analysing each feature as a single unit, then as part of a cluster and ultimately as part of a broader spatial arrangement shaped by private, communal and social choices and traditions (Clarke 1977; Galanidou 1997; Kent 1990; Kotsakis 1994; Lefebvre 1974; Moore 1996; Parker 2011; Shanks and Tilley 1987; Souvatzi 2008b; Sørensen 2000; Tilley 1982). This approach identifies specialised cooking areas and explores social reasoning behind certain spatial choices related to cooking. Therefore, it links micro level information from the study of a single thermal structure to the semi-macro level analysis

within each site and eventually it compares the spatial results produced between sites in a macro level analysis (Clarke 1977; Galanidou 1997).

One of the main problems at the interpretation of spatial patterns is to identify spatial units to be subjected to analysis (Vaquero and Pastó 2001). Yellen (1977) argued that there are no clear cut differences between ranges of activities carried out in different domestic areas. In contrast to this argument, I support that the identification of thermal structures safely defines specific kitchen spaces. Therefore, hearths and ovens are direct indicators of cooking performances and as such they define areas of explicit domestic activities. In this study, kitchen spaces are primarily examined as units of daily domestic routines. The main interest here lies in the spatial positioning of the structures and their functional properties (cooking practices). The contextual examination of other domestic activities recurrently carried out in the spaces around hearths and ovens is further examined. In this study I am not dealing with unique cases of domestic events, but with spatial patterns resulting from repeated use of space and connected with the overall spatial planning of the settlements, such as with buildings, yards, pits, open-air spaces and platforms. Each kitchen space, as an active agent, is part of a whole (settlement), and at the same time a whole is constituted by a range of parts, including cooking areas. Association of kitchen spaces with other private and communal units does not aiming at segmenting space into separate components, but on the contrary it aims at demonstrating spatial diversity of the domestic space in the same and in different settlement types. My analysis is generated in terms of the relationships between structures and finds, seeing them all as elements of a system (Galanidou 1997, 20).

In the case of kitchen spaces in Avgi and Dispilio Neolithic settlements intra-site analysis examines five main spatial characteristics. The first one is the spatial configuration of thermal structures. Diverse locations of fire installations are identified as private contexts (inside building) or in communal contexts (outside in yards and at the open-air spaces) and are examined first. The size of the area analysed is measured in m² in order to quantify the analysis of spatial distribution of fire installations in site under study (*e.g.* Dispilio; Plans 6.3; 6.5). The second characteristic is the association of hearths and ovens, either direct or indirect, with other structures, such as buildings, paved external spaces, pits, clay boxes and platforms (*e.g.* Avgi, Plans 5.16, 5.29; Dispilio, Plans 6.3–6.5). The area of the associated structures is also measured in m². In the occasion when measurements of finds are missing from notebooks and reports in Avgi and Dispilio these measurements can be restored by the

use of ArchGIS Measure Tools. It should be noted that daub spread created from buildings architectural remains is the starting point to estimate house sizes, given that buildings are nor fully excavated (Table 5.6; Table 6.5). The third spatial characteristic is the orientation of the features. This is only feasible in case of ovens by examining the direction of their front-loaded entrance. The orientation of the features is indicative of the use of space around each structure. This factor is particularly important in defining spatial organization of thermal structure clusters, where a degree of high preplanning is required. This quality is also directly associated with the fourth feature that is visibility between structures. Distance among features is also considered important. Although, it is easy to make or prevent visual contact between features, it is impossible to estimate in a two-dimension spatial analysis. The final quality is produced by the information provided from the above four-step analysis as it suggests movements and pathways between structures (Hodder and Cessford 2004; Mills 2006). The proposed movements and pathways are mainly suggested by the spatial organisation of thermal structures, the distance between them, their orientation and the degree of visibility among the features. Suggested pathways are in accordance with free movements difficult to identify archaeologically. The results of the above five-steps spatial analysis suggested for the two case study sites will be considered in the context of the broader geographical region of Northern Greece.

Tools for spatial analysis: GIS and AI

ArchGIS 9.3.1 software is the main analytical tool used for spatial and contextual analysis in this study. GIS is a computer system whose main purpose is to store, manipulate, analyse and present information about geographic space. It has also been considered as a useful 'spatial toolbox' and the only technique that offers such rigorous interrogation of spatial data (Katsianis and Tsipidis 2005; Wheatley and Gillings 2002, 9). GIS relies on the concept of thematic mapping. Here, I generated intra-site distribution maps for each habitation phase separately, where all features (buildings, structures) and portable items (tools, artefacts) were plotted accordingly. To build a database that incorporates thematic-habitation layers based on JPEG pictures, a raster-GIS system is considered the most applicable choice, as opposed to the vector-GIS that constitutes sets of georeference points. Raster-GIS is applied to broad areas of space because it offers visualised results. In raster-GIS analysis the area of interest is covered by a fine mesh of grid cells and each cell is coded on the basis of whether it falls upon a feature or not (Wheatley and Gillings 2002, 50).

A unique GIS project is set for intra-site spatial analysis at each case study site, Avgi and Dispilio in respect. For setting these two databases first step is to insert the topographic AUTOCAD grid files into the GIS and then to georeference the photogrammetries. In Avgi Neolithic settlement a georeferenced picture is inserted for each excavated 4.00x4.00 m trench for each habitation phase respectively. Three overall habitation phases (Avgi I, II and III) were stored in stratigraphic sequence (Figure 4.7). In contrast, only one habitation phase in Dispilio (Dispilio Phase A) is covered by a single large-scale photogrametry (Figure 4.8). This way successive horizontal layers in every habitation phase were created, enabling horizontal and vertical plotting of finds in distribution maps for both case study sites. Adding the photogrammetries at each grid produced a fully georeferenced depiction of the two sites and established the foundations for the spatio-temporal and contextual discussion on the activities carried out at the examined Neolithic kitchen spaces.

Next step for building a GIS data base was to insert portable finds into excel spreadsheets in order to create intra-site distribution maps and to produce statistical results on the concentration of finds in houses, at open-air spaces and at kitchen spaces in particular (Figures 4.9; 4.10). For the need of this research I will use the term ‘portable finds’ for all movable material remains (artefacts) found in two case study sites. For Avgi I all portable finds are exported (chipped stone industry, groundstone tools, bone tools, miscellaneous finds; Table 4.4) of the excavation seasons 2006 to 2008 from each trench’s file from the digital daily notebooks (for more details see Chapter 5.15). The same process was followed for Dispilio, Western Sector, Phase A for the excavation seasons 1999 to 2008 (for more see Chapter 6.1.5). The catalogue of portable finds were then cleared off unstratified and surface finds, as these are useless for spatial analysis (chipped stone industry, groundstone industry, bone tools, miscellaneous finds and pottery; Table 4.5). Portable finds were then renamed from Greek to English and classified in five broad categories: chipped stone industry, groundstone tools, bone tools, miscellaneous finds and pottery. The distribution of finds were then displayed in maps and quantified as one of three major performance spaces: buildings, open-air spaces and kitchen spaces. GIS projects were then transferred to Adobe Illustrator (AI), which is used as a supplementary tool. The AI project was then created for each site. GIS photogrammetry grid was used as a template to draw buildings and structures in Adobe Illustrator. All portable finds were then transferred to AI in layers based on habitation phases and finds category. Merging GIS and AI enables plotting of finds in georeferenced layered

drawings according to habitation phases and categories of finds. AI drawing project used all GIS facilities as a template for drawing buildings and features, and it also enables the depiction of the distributions of portable finds in a more sophisticated but accurate method in horizontal and vertical sequence.

Finally, a third GIS database for inter-site, macro-scale analysis was used to compare spatial and functional distribution of cooking preferences among sites in Neolithic Northern Greece. This GIS project contains archaeological data from publications and excavation reports. Based on the methodology of intra-site spatial analysis developed in two case study sites, Avgi and Dispilio in Kastoria, the inter-site database was then thematically layered. Inter-site distribution maps were displayed and analysed in chronological order: Early, Middle, Late and Final Neolithic (Papathanassopoulos 1996). The project was then classified by settlement type: tells, flat-extended site, lake-side sites. The production of multi-layered database enables the simultaneous examination of spatial and functional analysis of kitchen spaces in a broader geographical and chronological context among diverse social milieus. The results of this analysis are presented in details in Chapter 7.

4.2.4 Contextual analysis of spatial patterns: areas of activities around thermal structures

Archaeologists deal with chronological context (Fabian 1983; Trigger 1989), with context as a depositional process (Binford 1964; 1965; 1978; 1983; Schiffer 1983; 1987), and with context as a culturally specific meaning (Barrett 1987; Shanks and Tilley 1987). In 1972 Michael Schiffer (1972) defined archaeological contexts as the accumulation of all material remains and forms found in a site (Schiffer 1972, 156). His attempt was to retrieve the relationship between human behaviour and material culture. He argued that 'perhaps the most important assumption made by many archaeologists is that spatial patterning of archaeological remains reflects the spatial patterning of past activities' (Schiffer 1972, 156). On the other hand, Lewis Binford argued that our archaeological reference represents a massive palimpsest of derivatives from many separate episodes and that our inference about the past may be wrong and unjustified not because of the archaeological records, but mainly due to our inability to understand the relationships between objects and contexts (Binford 1978; 1983). He therefore regarded context as an intangible analytical tool. Alternatively, post-processual archaeologists approached context as a text of meanings that can be 'read' to reveal past histories and social structures (Hodder 1987). Barrett, on the other hand, suggested that many consequences of humans' actions may be unintended and that complexity of human nature cannot always be captured in spatial patterns. Additionally, he proposed that social system cannot be regarded as static but seeing as constantly reproduced (Barrett 1987, 469).

Recent approaches to contextual analysis aims to deal with the ambiguity resulting from the practice of action in archaeological interpretations. There is an attempt to deconstruct context by addressing fragmentation and misconceptions that have been developed around the concept of context in archaeological practice, and to highlight common threads that link together contextual perspectives (Papaconstantinou 2006a). Context can become a unifying process in archaeology, offering unity not so much in terms of rules and practices but, most importantly, in terms of shared values and objects (Papaconstantinou 2006b, 16). Context has emerged as an alternative vocabulary that transforms praxis into meaning that would otherwise be ambiguous. The development of archaeological scientific techniques showed that we are currently in the position to reconstruct full sequences of events and large-scale

episodes with the use of radiocarbon dates and Bayesian statistics (Whittle *et al*. 2011). Therefore, it is important to show the influence of small-scale decisions, as it is in these decisions that we find strategies implying a greater time-space scale thus allowing the observation of some connection to large-scale institutionalization process (Skourtopoulou 2006, 51). All our knowledge, all our understanding of our place in the world, is contextual (Barrett 2006). Archaeologists' interpretative efforts should be directed at linking the context of contemporary archive with the second context of post activities, processes and histories. Barrett argues that building this link is the real work of archaeology (Barrett 2006, 194).

The debate between Schiffer and Binford on the nature of the archaeological record and what it represents was the first explicit analysis of the nature of depositional process in archaeology. Its effect on the role of archaeology and in archaeological inquiry has been significant. Recent approaches on site formation processes argue that complexity and variability of human actions is impossible to capture in its totality (Barrett 2006; Goldberg *et al*. 1993; Karkanas 2001). It is fruitless to account for all the various processes, and combination of processes, that account for archaeological patterning. Diversity and variability of preservation conditions, behavioural connotations and social processes has been gradually acknowledged in archaeological records (Goldberg *et al*. 1993). Contemporary theory and method in archaeology is now most interested to examine the causes of social changes rather than to produce mere description of cultural episodes. The deposition of artefacts is the result of a series of episodes and not a random process that produced accumulation of objects and formation of archaeological strata. These episodes may be related to either small scale localised events or to residues of large scale activities with variable time-scales (Wheatley and Gillings 2002). Recurrent spatial activities, movements and routines produced spatial patterns within household units, in yards and in open-air spaces. It is the non-randomness that provides information about distribution and spatial patterning (Hodder and Orton 1976, 58).

It is a common place now that archaeological records are self-evident (Murray 1999, 17). Statistical and quantification analysis can be a great help in reading spatial maps. Any spatial map is in a sense, an attempt at quantification but can be totally misleading due to the uneven way archaeological information survives and is collected (Hodder and Orton 1976). Measurement and observation errors occur in every spatial archaeological data bases including plans, sections, fieldworking, geophysical survey, GPS positions and traditional survey data. We cannot rely entirely on our eyes and brains to produce unbiased

interpretation of things that exhibit spatial patterning (Wheatley and Gillings 2002, 125). It is in the spatial analysis that quantification can be a significant tool to interpret patterns.

My analysis for the Neolithic settlement of Avgi and Dispilio in Kastoria follows contemporary theoretical framework in spatial and contextual studies, and applies quantification methods in thematic maps. To identify contextual units, this project is based on the stratigraphy of each site and the results of radiocarbon dating (Tables 5.1; 6.1; Figure 6.5). The contemporaneity of buildings, thermal structures, open-air spaces and portable finds are classified based on habitation phases (Tables 5.6; 6.5). My focus is on fixed spatial features related with cooking, hearths and ovens, as active spaces of *in situ* activities and discard. Traditionally spatial analysis has restricted its investigation to a few classes of finds, mainly tool types, which can be associated with activity areas. In this project all categories of finds inscribed in fieldwork daily notebooks are introduced in spatio-contextual maps to provide a rich span of data and to enhance interpretations around thermal structures in the kitchen spaces. In this study, first step of spatio-contextual analysis is to quantify the portable finds unearthed inside building structures and in open-air spaces. Data are analysed in stratigraphic and chronological sequence and spatial maps are generated for each habitation phase separately. Next stage was to record spatial and quantitative variations on specific tool types. For Avgi the finds are distributed based on habitation horizons, Avgi I and II. Four main categories describe spatial and contextual variations. These are chipped stone tools, groundstone tools, bone tools and miscellaneous objects (Table 4.4). Five main categories of portable objects and tools are classified for Dispilio Phase A. These are chipped stone tools, the groundstone tools, bone tools, miscellaneous objects and pottery (Table 4.5). Each one of these main categories includes subcategories of tools (Table 4.4; 4.5). As a contemporaneity indicator for the western sector of Dispilio Phase A, I followed the stratigraphic sequence developed in the eastern sector of the lake-side site (Figure 6.5). The unevenly excavated area of western sector produced problems of spatial synchronisation issues for the distribution of portable finds. For example Trench 69α is deeper than any other area at this sector reaching maximum depth 1.18 m (Dispilio Records, Trench 69a, 08/10/2008). To deal with these problems I removed all portable finds unearthed bellow 1.00 m depth. This convention secures minimum contemporaneity of finds that belong in the same habitation horizon. Final stage of my analysis is to identify small-scale distribution of finds around hearths and ovens and quantifies tools and objects unearthed at these kitchen spaces.

Organic remains are lacking from this study given that their analysis is in progress at both case study sites. Pottery is also missing from Avgi I and II spatial analysis because the examination of the material is at the early stages of research. The terminology of tools has followed the broad categories provided in excavation daily notebooks and reports. In both case study sites analysis of each category of material culture is process by specialists. In this study, prominence is been given at the direct or indirect association of querns with hearths and ovens. Small-scale analysis of kitchen spaces gives emphasis in the link between the tool (querns) and the means (thermal structure) that directly unfolds *chaîne opératoire* of cooking and consumption practices and demonstrated the process of consumption from raw to eatable food (Chapter 5.4.3; 5.4.5; 6.4.1).

4.3. Conclusions

Space constitutes a palimpsest of cultural activities (Wheatley and Gillings 2002, 6). Prevailing routine activities, special events, behavioural trends and more are preserved and left their marks on space but individual or irregular practices, on the other hand, are lost from historical memory leaving no traces. The methodology described above aims at developing a synthesis, which incorporates data that produce diverse information of cooking routines. Classification of thermal structures, their functional properties, spatial order and contextual analysis of finds are all merged to produce a synthesis that unfolds some of the predominantly preserved and recurrent daily cooking routines in Neolithic Northern Greece. The methodology developed here encourages variable readings and interpretations of different spatial patterns. It gives emphasis in diversity and variability of habitation lifeways and social choices in the broader geographical region of Macedonia and Western Thrace. As Barrett rightly points out 'the past is larger and richer than our imaginations will ever be able to encompass' (Barrett 2006, 202).

Chapter 5

Avgi Neolithic settlement: forming cooking socialities in broad space

5.1.1 Introduction: history of research

The Neolithic site of Avgi (Stratouli 2004; 2005; Stratouli *et al*. 2010) is located in a hilly terrain approximately 700 m above sea level, 10 km southwest of Orestida Lake in Kastoria Prefecture in north-western Greece (Map 3.1). The site is a flat–extended settlement with shallow deposits of average 1.00 m depth, a wide spread of archaeological remains and loose spatial configuration of distinctive open–air spaces among building residues (Stratouli 2007). A short survey and a series of trial trenches in 2002 was followed by systematic excavation carried out by the auspices of the 17th Ephorate of Prehistoric and Classical Antiquities of the Hellenic Ministry of Culture and Tourism under the direction of Dr. G. Stratouli and the collaboration of an interdisciplinary team of researchers (Stratouli 2004). A non-destructive geophysical investigation at the site in 2004 examined a total 23600 m² area (Tsokas *et al.* 2005; Figure 5.2). Based on the results of geophysical research, the surface scatters of archaeological remains and a series of trial trenches the estimated size of the Neolithic settlement is about 5ha of which nearly 2000 m² were excavated (Stratouli *et al*. 2010). The excavated area constitutes the centre of the Neolithic settlement (Stratouli 2005, 601).

The archaeological site is divided in four sectors: the Western (865m²), the Central (485m²), the Eastern sector (240m²) and Area 8 (205m²) (Figure 5.3*)*. Excavation seasons lasted from two to five months annually between 2003 and 2008, and additional short study seasons were set in 2009 and 2011. Due to limited time in the field, however, priority was given to western sector of the site, which also comprised the pilot area for application and assessment of micro-grid excavation practice on site. Western sector comprised the primary area for the study of archaeological remains during two study seasons. The study of material culture

remains at Avgi Neolithic settlement is in process (architectural material, pottery, chipped stone industry, organic remains, etc).

5.1.2 Landscape and geology

Landscape is shaped by low mountains, plains and two streams that demarcate the northern and southern edges of the Neolithic site (Figure 5.4). During the late Quaternary, these two streams deposited alluvial sediments that today form three discrete river terraces. The oldest terrace forms a wide, gently undulating surface, where the Neolithic site was founded. This oldest geomorphic surface is transformed by continuous erosions and it appears that Neolithic settlers of Avgi inhabited an already eroded landscape (Krahtopoulou 2008). Based on preliminary results of charcoal studies nineteen identified wild species of vegetation demonstrate that Neolithic landscape in the region was wooded. Forests of oak and black pine along with hydrophilous flora, willow and elm, were dominant in the landscape. Preliminary geological and charcoal studies showed that environment was ideal for agro-pastoral activities and also that raw materials for building and tool making were easily accessible (Ntinou 2008).

5.1.3 Stratigraphy: setting the timeframe, relative and absolute chronology

Three main occupation horizons are currently recognized at the Neolithic site of Avgi. Each one exhibits distinct habitation practices, in building technology, and in the expression of material culture. Avgi I represents the earliest habitation of the site Avgi II is the successive occupation horizon and Avgi III reflects the last habitation period until the final abandonment of Neolithic occupation. The classification of these three phases is based on stratigraphic sequences, building construction techniques and pottery traditions in relation with the results of radiocarbon data.

Twelve radiocarbon (^{14}C) samples collected between 2002 and 2006 were selected for radiocarbon analyses and calibration. The results of these samples set the timeframe of Neolithic habitation in the settlement (Table 5.1). All samples were processed in the Centrum voor Isotopen Onderzoek, Groningen, Holland (Stratouli 2005). Most of them originated from secure archaeological contexts of *in situ* building timber frames. Based on radiocarbon dating Avgi Neolithic settlement dates from Middle Neolithic period (*c*. 5700 − 5300 cal BC) to Late Neolithic I (*c*. 5300 – 4800 cal BC) and Late Neolithic II (*c*. 4800 – 4500 cal BC) (Table 5.1). The earliest use of the site dates to *c*.5650 cal BC. Since the study of organic materials is in progress, however, we are now in the position confirm continuous, year–round habitation in the site. Therefore, the case of seasonal or periodical use remains unanswered. Nine out of twelve samples were selected from western sector, two from eastern sector and one (LIH-623) was sampled from a trial trench in 2002 and now lacks a definitive spatial context. Sample GrN-28446 was also selected from unstratified context. Both of these two samples have been disregarded from this analysis. Most of radiocarbon samples were selected from the earliest Avgi I horizon, two samples (GrA-30214, GrN-30683) date Avgi III phase, whereas there is no sample dating Avgi II habitation phase.

The architectural characteristics of Avgi I are mainly described by the expanded concentrations of daub building remains (Plan 5.2). These daub remains are repeatedly identified in Neolithic Northern Greece during the Neolithic period and in many other contemporary sites in the Balkans (see also Chapter 7; e.g. Opovo: Tringham *et al* 1985; Selevac: Tringham and Krstić, 1990; Makriyalos: Papa and Bessios 1999a; 1999b), and have been interpreted as the remains of building materials. This representative layer features a geographically wide cultural phase named the ‘Burned House Horizon’ (Tringham 2000, 115;

2005). In Avgi this is a distinctive and rich archaeological layer which developed directly on top of sterile natural soil of the site. Based on radiocarbon results and stylistic characteristics of pottery found in the site, Avgi I dates from late Middle Neolithic to early Late Neolithic I period (Table 5.1). The successive Avgi II layer is significantly less extensive (Plan 5.3), as it is mainly documented in western sector of the excavation and bears no signs of building remains. Lack of building remains and radiocarbon results, as well as the abundance of anthropogenic disturbances of the occupation layer Avgi II constitute this phase difficult to its stratigraphic identification. Avgi III is recorded at a heavily eroded layer (as a result of extensive levelling works and cultivation in the 2000s), where no contextual information is possible (Plan 5.4). This final layer consists of a unified spread of archaeological material that covers the total excavated area of the site. Remains of building structures are also identified in this cultural phase by imprints of foundation trenches of rectangular buildings. Rich waste pits constitute common features of Avgi III known in Balkan Neolithic as the 'Pits and Ditches horizon' (Tringham and Krstic, 1990). Two radiocarbon results from this stratum set the chronological framework in Late Neolithic II period.

5.1.4 The site: houses, 'yards', pits, perimeter ditches

The Neolithic settlement of Avgi is falls into a common cultural tradition that flourished in the region of north-western Greece in the late Middle to the Late II Neolithic period. The sharing of common traditions in lithic technology (chipped stones industry, groundstones), in pottery shapes and decoration patterns and in building practices (timber-framed structures and foundation trenches) displays networks of communication with other groups in north-western Greece (*e.g.* Dispilio: Hourmouziadis 2002; Kolokynthou: Tsouggaris *et al*. 2002; Kleitos, Ziota 1995). The results of geophysical scanning in 2004 indicate that Avgi had been demarcated by two series of parallel ditches that set the boundaries of the settlement (Figure 5.5). Based on the pottery unearthed from their deposits these two ditches are dated in Avgi I.

Repeated and long-term habitation in Avgi I is suggested by building material remains, the extent of occupation area of the thickness of deposits. Six free-standing rectangular buildings of average size 60 to 70 m² are distributed loosely over an excavated area of approximately 2000 m², where remains of thermal structures, pits and open-air activity areas are unearthed. These are Buildings 1a, 1b, 2a, 3, 5 and 7 (Plan 5.2). At the eastern sector of the excavation, based on the extent of architectural remains and micro-stratigraphy of Building 1, it is suggested that this architectural structure incorporates the remains of two overlapping buildings —Building 1a and Building 1b— that are both dated in Avgi I. At the western sector the architectural remains of a building, Building 6a, needs further examination (Plan 5.2). Intra site spatial analysis suggests that buildings were empty of hearths and ovens. The study of architectural remains, however, indicates that platforms constituted part of buildings' domestic equipment or a bench in at least one building structure. Evidence from Building 5 confirmed this hypothesis. In Avgi Neolithic settlement every building has been interpreted as dwelling. In addition, three building are identified in Avgi III. These are Buildings 2b, 4 and 6b, and some suggestions have been made of more buildings on the top of the ruins of Buildings 1, 3 and 5, while the remains of more building structures are suggested on top of burned rubbles architectural remains in Avgi I (Plan 5.4). The outline of buildings in III is rectangular with average size between 70 to 80m². A change in building construction techniques is marked in Avgi III, reflected at the imprints of foundation trenches. This building practice is lacking from Avgi I. Buildings in the Neolithic settlement of Avgi are oriented with direction North to South. Open-air spaces between buildings are not

demarcated by cobbled yards or paved structures but from architectural features, such as thermal structures, platforms, pits and demarcated walls. Much of daily domestic activities were taking place there: cooking, food processing, storing and tool making. Twelve buildings are identified to date from Avgi I and III during the period of approximately five centuries (Plan 5.2: 5.4). The number of buildings raises further questions on the nature of habitation in the settlement (seasonal, periodical, permanent), the time span of a possible abandonment of the site and its position to the broader social network developed in north-western Greece.

5.1.5 Setting the research framework and discussing constraints at Avgi site

My analysis is based on the excavation results of the years 2005 to 2008. Up to 2005 a series of trial trenches was conducted in order to identify the boundaries of the Neolithic settlement. The first three years of research, from 2002 to 2004, excavation in Avgi removed extended surfaces of earth (surface layer) in order to reveal broad areas of cultural horizons. All finds coming from the reveal of surface layer were lacking georeference and were, therefore, not in use in spatial analysis. It was in 2005 when undisturbed archaeological layers were excavated.

This study examines data from the three main sectors of the excavation: the western, the central and the eastern (Figure 5.3). It excludes Area 8, since it was only partially researched during the last excavation season of 2008; therefore, there are many reservations about its chronology, its association with the main habitation area of the site and its overall interpretation. A significant disadvantage of a spatio-temporal study at the Neolithic site of Avgi is the lack of sufficient radiocarbon results, the incomplete excavation and special analysis of tools and pottery. I have attempted to overcome the restrains of an ongoing project by primarily focused on an analysis that identifies and examines the spatial distribution of *in situ* architectural remains such as the ones of thermal structures. Furthermore, I produced a broad categorization of artefacts as described in the excavation notebooks and reports. The application of Total Station Georeferencing System and the use of an accessible electronic data base on Avgi Neolithic site bounded my data in stratigraphic and spatial order.

5.2.1 Classification of thermal structures in Avgi: raw materials, construction techniques and functional properties

A rich assemblage of structurally and functionally diverse thermal structures is recorded in the Neolithic settlement of Avgi. This structural diversity variety of cooking practices and constitutes the starting point for a local intra-site study on the formation of social identities and the creation of social coherency in the settlement. Twenty-five *in situ* architectural features are classified as thermal structures in the excavated area of the site (Table 5.2). These structures are grouped in two main categories: ovens and hearths. The classification is based on morphological (shape, size), structural (raw material used, construction techniques applied) and functional characteristics (roasting, baking, boiling, smoking). Each one of these two categories is subdivided into two further subcategories following specific differences in their construction and consequently their function. Ovens, in particular, are classified into type 1a and type 1b, whereas hearths are divided into type 2a and type 2b. Those structures related to fire activities but are not included in either of the above categories are classified as nondescript type 3 features. In Table 5.3 are listed all twenty-five thermal structures found in the settlement to date. More specifically, in the overall chronological span of the site eleven features are identified as ovens, from which eight are classified as ovens type 1a, and only three come under the subcategory ovens type 1b. Furthermore, 13 structures are acknowledged as hearths, from which eight are identified as hearths type 2a and five as hearths type 2b. In addition, one structure involved with fire activities but in not identified either neither as an oven nor as a hearth is classified as nondescript type 3 structure (Table 5.3; Figure. 5.6). Macroscopic examination of these twenty-five features suggests that the temperature developed within the ovens or the hearths did not exceed 1000^{o}C, given that clay vitrification is not documented. As a result, the use of these structures as kilns is not possible (Maniatis and Facorellis 1998; Papaefthimiou– Papanthimou *et al*. 2000).

5.2.2 Ovens: type 1a and type 1b

Type 1a ovens are classified as structures with an uninterrupted, solid roofed compartment and front-loaded entrance (e.g. TS 3 and TS 7 in Table 5.3; Figure 4.4). These are circular and semicircular above ground and subterranean features of average of 0.70 m length and 0.50 m width (Table 5.4). Building materials used is clay tempered with roughly powdered gravel and weak organic mixtures, like straw. Pebbles were also used as part of oven floor settings marking the production of elaborate and carefully constructed features (*e.g.* Servia: Ridley *et al.* 2000; Nea Nikomedeia: Wardle 1996). Building techniques demonstrate technological know-how. Subterranean type 1a ovens were constructed by cutting a semicircular shallow pit on the ground and creating flattened floor surface of packed clay. Side walls of these pits were coated with finer clay, while the construction of the dome was made by successive coil clay layers (e.g. TS 3; Figure 5.1, picture b). Due to the lack of preserved complete dome in Avgi we are not in a position to discuss the average height of these structures. Judging from their small size, however, and taking into account structural restrains it is suggested that the height of the average height of the vault did not exceed the width of the oven's setting (Papaefthimiou– Papanthimou *et al*. 2000). In the case of above ground structures floor was made by flattening packed clay and side walls were built by successive clay coils finally shaped the vault of the feature. Reconstruction or repair works are not identified to date in any case of type 1a ovens under study in the Neolithic settlement of Avgi. Baking and roasting of food in small pots inside the ovens is likely, whereas grilling (direct heat) is also possible. Due to the small size of these structures boiling can only occur indirectly in baskets or skins. Parching is also common in Neolithic cooking practices and it is possible in case of Avgi Neolithic settlement (Atalay and Hastorf 2005; 2006).

Type 1b ovens share common morphological characteristics with type 1a features, such as the roofed compartment and the front-loaded entrance (these are TS 2 and TS 17 in Table 5.3; Figure 4.4). Major difference of type 1b ovens, however, is their perforated vault. The inner diameter of the hole in the top of the dome is about 0.3 0m. These are circular and semicircular subterranean structures on average 0.60 m length and 0.50 m width. Construction materials used are in this case roughly tempered with gravel and clay with weak organic mixtures (Table 5.4). All of three structures are subterranean, constructed by cutting a shallow pit on the ground, flattened the clay floor cover side walls with clay layers and finally building the vault. In two of these features (TS 2 and TS 16) successive re-plastering

of the dome is also obvious. Reconstruct works identifies in some ovens demonstrate clear intention to repair construction problems and to preserve the feature in longer period. In addition, TS 8, is similar in size and shape to a type 1a oven but it included its collapsed perforated vault that was found in twenty-three pieces inside the compartment (e.g. TS 8 and 2; Figure 5.1, pictures a and c). Parching of grains and pulses inside the oven chamber is possible, whereas baking and roasting seem unlikely as the hole in the dome would prevent the heat rising to sufficient temperature. On the other hand, the perforation of the vault makes fire control precise and centres the flame. This morphological initiative enables boiling by placing the pot directly on top of the perforated dome. Smoking of meat or fish is one more possible cooking practice, which also enables the preservation of provisions in long-term storage (Atalay and Hastorf 2005; 2006).

5.2.3 Hearths: type 2a and type 2b

In Avgi all hearths are above-the-ground features with varied preservation. The shape, size and functional properties of both type 2a and type 2b hearths indicate constructive and functional commonalities and their classification into subcategories is based on raw materials used and the construction techniques applied (Table 5.5). More specifically, type 2a hearths are classified as those from circular or mainly irregular shape and an average diameter of 1.00 m (e.g. TS 6 and TS 22 in Table 5.3; Figure 4.6). Raw materials used for their construction is finely sieved with powdered temper inclusions, and thick, heavy clay that lacks organic mixtures. Every type 2a ovens have a river pebble setting covered by a fired layer of clay with smoothed surface. A least two hearths (TS 22 and TS 24) used round river pebbles as material for the construction of their setting. Both of these features are small sized, 0.70 m and 0.80 m diameter respectively. Due to generally poor preservation we cannot be certain whether pebble setting in the remaining three features were placed into a clay base, in a shallow cutting or directly on top of the ground. Heavily disarticulated remains of hearths type 2a prevent the identification of possible reconstruction works in the most of these features. Based on chronologically parallel examples, however, it is highly possible that people wanted to preserve these structures by carrying out repair works (*e.g.* Dispilio, chapter 6).

Type 2b hearths are bigger in size than type 2a ones with an average diameter of 1.40 m (e.g. TS 12 and TS 17 in Table 5.3; Figure 4.5). In contrast to hearths examined above, this subcategory is tempered by rich organic mixtures with straw. Macroscopic examination of materials the construction records of mat surfaces of roughly sieved clay without smoothing floor surface. These features only have clay floors built directly on top of the ground with no additional preparation (clay basins or pebble setting). A trial section of 1.00 m length and 0.50 m width in TS 17, which constitute the best preserved feature of the type 2b subcategory, showed a minimum of two overlapping type 2b hearth floors constructed successively on the same place (e.g. TS 8 and 2; Figure 5.1, picture d). The seven type 2b hearths are heavily fragmented leaving no traces of further reconstruction works. Cooking practices differ in the open-air fire conditions of hearths (type 2a and type 2b). Parching of grains and pulses is a cooking practice expected to have taken place. Indirect boiling in baskets or skins and direct boiling using pots placed on top of fire is also likely. Grilling in

direct heat and smoking of meat or fish is also possible. Cooking on a hearth, however, requires more of the users attention in order to preserve fire and heat (Atalay 2005; 2006).

5.2.4 Nondescript: type 3

The identification criteria given in table 5.2 demonstrate that even though TS 26 is recorded as thermal structure, it is not classified in either of the main two type categories as oven or hearth. TS 26 is classified as a nondescript type 3 feature, initially identified by a thick and extensive layer of ash remains. It constitutes two closely associated circular, shallow and of uneven sized pits, covered by a thick and roughly tempered clay layer. Reconstruction works are not documented and its functional properties are not identified either. The size of this structure indicates recurrent, large-scale cooking. In Avgi Neolithic settlement TS 26 constitute the only thermal structure to date, where large-scale cooking could have been suggested (Halstead 2004; Pappa *et al*. 2004). The marginal spatial configuration of TS 26 may be related with the discomfort produced by large-scale fire and smoke that is not expected close to dwelling spaces.

5.3.1 Thermal structures among buildings, yards and pits: discussing spatial order

Two out of three habitation horizons preserve evidence of thermal structures in the Neolithic settlement of Avgi provide the basis for spatial analysis of kitchen areas. Overall, twenty-five fire installations have been recorded on the site. Fourteen are recorded and spatially distributed in Avgi I distributed in 1720 m² excavated area. Eleven thermal structures were found in Avgi II in two areas of the excavated site of approximately 580 m². The differences between these two cultural layers are significant and possibly mark two separated lifeways in the history of the site. There has been an attempt to combine spatial arrangement and functional properties of hearths and ovens in each cultural horizon, Avgi I and Avgi II, separately. The micro- and semi-macro scale spatial approach chosen identifies specialised cooking areas, but it also aims at unfolding the social reasoning behind certain spatial choices and traditions related to food preparation. The discussion on potential associations of thermal structures with buildings aims at demonstrating the various spaces that constitute and form a settlement the outcome of diverse and complicated social processes.

5.3.2 Spatial arrangements of thermal structures in Avgi I

Fourteen thermal structures are chronologically associated with five securely identified timber-framed buildings in Avgi I. Ten of these features were found at the western sector of the excavation, while only four were excavated in the eastern area of the settlement (Plan 5.2). Given that only two buildings were found at the western sector of the settlement the large number of thermal structure found ther sector is remarkable. In contrast, even though three buildings are securely identified at the eastern sector of the settlement thermal structures are less. According to available data no traces of *in situ* fire installation in the inner area of buildngs have been revealed. On the contrary, all hearths and ovens were built in open-air spaces developping direct or indirect association with buildings. Table 5.6 demonstrates the suggested spatio-temporal associations among buildings and thermal structures in Avgi I. The suggested associations are based on stratigraphical observations and calibrated radiocarbon results. The smaller number of calibrated radiocarbon data, however, discourages a detailed discussion on short-term associations between buildings and cooking facilities and supports long-term spatio-temporal analyses that follow broad cultural classification in Avgi I and Avgi II.

Six ovens and seven hearths are recorded in Avgi I. From this assemblage 5 features are classified astype 1a ovens, 1 as type 1b oven, 3 as type 2a hearths and 4 as type 2b hearths (Table 5.3). In addition, one nondescript type 3 structure is identified in Avgi I (Figure 5.7). The spatial analysis below shows the configuration of structures within the settlement. It also examines the distance among each feature or cluster of features from buildings and suggests possible movements and paths created intra-site networks of daily practices between cooking areas and dwellings.

Thermal structures 8, 9 and 10

Starting from the west sector TS 8, TS 9 and TS 10 compose a structurally and functionally diverse kitchen area. TS 8 holds the central place within this cluster, at 0.83 m distance from TS 9 to the west and 1.30 m distance from TS 10 to the east (Plans 5.2; 5.4; 5.5). The short distance between these thermal structures created a network of free movements within the cluster and facilitates their contemporaneous use. The orientation of each of these three structures is a clear indication of spatial order and preplanning. The front-loaded entrance of

TS 8 is positioned facing northwards that means that the person that used this thermal structure had clear view of the activities taking place in TS 9 and TS 10. The front-loaded entrance of TS 9 created good visibility to the rest of the features in this cluster. Its front-loaded entrance faces eastwards creating a clear view of the activities taking place in the other two structures within this kitchen space. In addition, the unroofed TS 10 hearth facilitates free movements and an unrestricted visual range (Plan 5.6). No other structures, like pits or platforms, have been unearthed in association with this cluster of fire installations. The next nearest structure is Building 5 located 7.05 m to the south and TS 27 located 9.90m distance to the west. The location of these three thermal structures implies association with Building 5. This distant kitchen space, however, evokes questions involving about the association of fire installations with buildings in Avgi I. The typological diversity identified in this cluster indicates diversity in cooking practices and culinary preferences. TS 8 is a type 1b oven predominantly made for boiling food, whereas TS 9 is a small-sized type 1a oven mainly for baking (Table 5.4). The presence of the type 2b hearth in this kitchen area implies more cooking choices, like grilling, parching and smoking of food (Table 5.5; Atalay 2005; 2006; Cavanagh 2007).

Thermal structures 11, 25, 26 and 27: the north-western complex

The close proximity of these four features, their unusually large size, and their spatial arrangement resulted at the characterization of this kitchen complex as TS kitchen cluster. TS 11, TS 25, TS 26 and TS 27 constitute a cluster of four fire installations with close spatial configuration of approximately 9.40 m north-east of Building 5 and 9.70 m west of Building 2 (Plans 5.2; 5.4; 5.5). Their spatial arrangement covers an area of approximately 71.00 m². The distance between TS 25 and TS 26 is 3.20 m, whereas between TS 11 and TS 27 it is 2.50 m (Plan 5.6). This spatial arrangement and their significantly large size formed a cooking space of reciprocal large-scale daily activities and sharing of cooking experiences. In particular recovery of nondescript type 3 TS 26 indicates extensive cooking and food consumption practices possibly for larger groups of people, communal gathering and collective cooking and consuming. A platform is directly associated to TS 11, creating an opening on the south–west side of the fire installation. This large platform created a food preparation zone around the hearth for parallel multiple uses. Moreover, the large size of this thermal structure supports simultaneous cooking. Another platform unearthed within this complex area is associated with TS 27. This is another large platform, positioned on the west

of the hearth that supports parallel cooking preparation activities. The replacement of TS 27 hearth with the oven TS 25, however, constructed on top of the hearth structure, indicates that cooking preferences and recipes changed over time but the spatial arrangement was preserved in time.

Thermal structures 14 and 15

TS 14 and TS 15 are two type 1a ovens located close to Building 2a (Plans 5.2; 5.4; 5.5). More specifically, TS 14 is 2.65m to the north of Building 2a, while TS 15 is recorded 2.25 m south of the building. Building 2a is lacking interior fire installations and is placed close to the two thermal structures. I suggest that these two ovens formed two kitchen spaces constructed at the open-air space directly associated with the building as part of its household equipment. Unrestricted visibility was developed between ovens and dwelling, whereas the placement of front-loaded entrance of TS 15 on the west allows direct visibility with TS 7 that is placed 9.70 m to the south, and also with the north-western complex (Plan 5.6). The distance between TS 15 and TS 11, which is the nearest feature of the north-western complex is 15.10 m. TS 14, on the other hand creates had direct visibility with the north-western complex, at a distance of 12.6 0m from the nearest feature TS 26 (Plan 5.5).

Thermal structure 7

TS 7 is a type 1a oven located 8.90 m east of Building 5, and 11.00 m south-west of Building 2a (Plans 5.2; 5.5). The position of the TS 7 is marginal in comparison to the centre of daily cooking activities that were carried out in open-air spaces between Building 5 and Building 2 (TS 11, TS 25, TS 26, TS 27). It is also relatively distant from any building structure. TS 11 and TS 15 are the two close to TS 7 in 9.30 m and 9.70 m distance north-west and north-east respectively. The orientation of its front-loaded entrance is south-westwards, allowing direct visibility mainly with Building 2 and the north-western complex area (Plan 5.6). Due to its marginal location it is difficult to connect directly to TS 7 with building area. My hypothesis regarding the location of TS 7 is that it might be related with a possible decision making to create more kitchen spaces in this active habitation area, in order to release the pressure from other busy cooking clusters or even to support cooking of certain recipes. High concentration of chipped stone tools and the presence of 6 querns suggest a kitchen space that potentially reflect specific cooking practices and culinary preferences (Chapter 5.4.3; Plan 5.18)

Thermal structures 17, 22, 23 and 24

Only four fire installations have been unearthed at the eastern sector of the site in Avgi I. These are TS 17, TS 22, TS 23 and TS 24 (Plans 5.2; 5.4). Three of these features TS 22, TS 23 and TS 24 are classified as hearths type 2a, whereas TS 17 is recorded as a type 2b hearth (Tables 5.2; 5.3). Remains on an oven were not unearthed to date. The best preserved fire-installation of this concentration is TS 17 that based on a 1.00 m x 0.40 m vertical section (cut by the micro-morphologist Stella Kyrillidou during the excavation season in 2005) demonstrates a minimum of three successive hearth floors constructed at the same place. This use of space suggests continuous practice in a long-term domestic taskscape (Ingold 1993; 2000). TS 22, TS 23 and TS24, on the other hand, are poorly preserved leaving no traces of reconstruction works to support long-term spatial preferences.

At the eastern sector of the site the remains of three daub spreads represent a minimum of three building structures. These are Buildings 3, 7 and 1. In comparison with the western sector, spatial organisation of buildings at the eastern sector demonstrates a different, rather dense configuration (Plan 5.6). Buildings in eastern sector were constructed in close proximity. Daily cooking activities, however, occurred distant from buildings. In particular, a loose cluster of three thermal structures (TS 17, TS 22 and TS 23) is located in the open-air space south of Building 1. The distance of TS 17 from Buildings 1 and 7 is 1.2 0 m and 5.70 m respectively. The material remains of TS 22 were found at 2.80 m distance southwards of TS 17. TS 23 is locates at 6.65 m distance from TS 17, while TS 24 was constructed at 7.80 m distance respectively. The concentration of these features formed and structurally and functionally diverse cooking space. TS 23 is recorded 4.20 m north of Building 1. The central position of TS 17 within this cluster and the three identified successive hearth floors layers demonstrate clear attempt for long-term preservation and preference of this cooking space. Due to the large size of TS 7 and its proximity to Building 1 and Building 7 it is suggested that this hearth might constitute a collective kitchen space used by the residents of both buildings. With a distance of 10.00 m Building 3 is the closest structure to hearth TSS 22.

5.3.3 Spatial arrangements of thermal structures in Avgi II

Eleven thermal structures were found in the cultural horizon of Avgi II (Table 5.3). Due to the lack of building structures, questions on the nature of this habitation phase have been raised. Nine features were unearthed in western sector. These features created a network of recurrent activities and interactions. In addition, two structures have been identified in the eastern area of the settlement in Avgi II (Plan 5.3). These free-standing hearths and ovens were clustered in two open-air spaces forming multiple kitchen spaces allowing recurrent domestic performances and interaction. In particular, five ovens have been identified in this horizon, from which three are classified as type 1a and two as type 1b features. In addition, six hearths were also unearthed here; two are classified as type 2a and 4 as type 2b features (Figure 5.8). The analysis below demonstrates in detail the spatial allocation of thermal structures in Avgi II and suggests people's possible movements and paths created from the repeatedly using the space.

The main complex area: thermal structures 12, 5, 6, 13, 16 and 28

A concentration of nine thermal structures occupies an area of approximately 520 m² at the western sector of the settlement in Avgi II (Plan 5.3; 5.7). Six out of nine thermal structures excavated there form a loose and broad cluster of cooking activities. TS 12, TS 5, TS 6, TS 13, TS 16 and TS 28 outline a polygon-shape large area of approximately 380 m² (Plan 5.8). The central spatial arrangement and the substantial size of type 2b TS 12 hearth indicate its significance in the activities taking place in this broad cooking complex (Table 5.3). Moreover, TS 12 was constructed at the same place that TS 11 in Avgi I was located, demonstrating spatial preference and preservation. With regard of the size and the marginal allocation of TS 5, TS 6, TS 13, TS 16 and TS 28, it is suggested that their contribution was supplementary to the central kitchen area formed by TS 12. The distance of hearth TS 12 from the TS 13 type 1a oven is 14.00m, while there is 11.60m between TS 12 and TS 16 type 1b oven. Moreover, TS 12 is 5.90m from TS 28 type 2b hearth to the north-west and 7.60 m from TS 6 type 2a hearth to the south-east. More specifically, TS 16 is the only feature in this complex area that is constructed on top of the remains of Building 2a. TS 5 is a substantial type 2a hearth located 3.10 m southwards of TS 12. Differences in size and form indicate possible diversity and variability in cooking practices and recipes. Baking, boiling, roasting, grilling, parching and smoking of food constitute the cooking practices within the complex.

The central place of the hearth TS 12 and its close distance to three more hearths (TS 5, 6 and 28) suggest that certain cooking recipes that involved grilling and boiling was taking place there (Tables 5.4; 5.5).

A careful observation on Plan 5.8 shows that hearths (TS 6, 6 and 28) are spatially ordered at the centre of polygon shape cooking area, as opposed to five ovens (TS 1, 2, 3, 13 and 16) that were built at the margins of the complex. In particular, the front-loaded entrance of TS 16 is oriented north-east creating direct visibility to TS 16 to the south-east from which it is 12.15 m distance, as well as with TS 13 to the north-east at a distance of 7.00 m (Plan 5.8). Hearth TS 6 was found at 8.90 m distance from TS 5. Even though TS 28 is located close to TS 12, it is placed 10.75m from TS 13 and 8.75 m away from TS 5, creating a rather supplementary cooking space on the periphery of the complex. On the other hand, the front-loaded entrance of TS 13 is orientated southwards, making the kneeling person that used this facility to turn his/her back, preventing direct visibility with the main arena of activities at TS 12. TS 13 is located 14.00 m to the north of TS 12, developing at a considerable distance from the centre of activities.

Thermal structure 5

TS 5 is the largest type 2a hearth identified within the main complex area (Table 5.3; Plan 5.3; 5.7; 5.8) and at the same time the nearest feature to the central hearth TS 12, with only 3.10m distance south-westwards. The close distance between TS 5 and TS 12 suggest formation of a large kitchen space. Their free-standing construction and their substantial size create a communal cooking arena where a significant number of participants could gather, act and interact. Furthermore, TS 5 can be interpreted as the connecting feature between the main cooking complex area in Avgi II and a subsequent marginal cooking triangle area formed between TS 1, TS 2 and TS 3. Grilling, boiling, parching of grains and smoking of meat and fish were some of the suggested cooking activities that might happen in this cooking complex (Table 5.5).

The triangular cluster: thermal structures 1, 2 and 3

In the south-western area of the main cooking complex, a smaller cluster of one type 1b and two type 1a ovens set the western boundaries of Avgi II layer (Plan 5.3; 5.7; 5.8). This is a cluster of ovens placed in proximity to each other. The distance from TS 1 to TS 3 is 1.30 m,

while TS 1 was found 3.80 m southwards of TS 2. In addition, TS 2 is 2.80 m away from TS 3. The contiguous cooking spaces created interconnections and interactions between the people due to direct visibility and sharing of common smells, ingredients and food preparation practices. Furthermore, the distance from TS 5 (which is the closest feature of the complex area to the triangle cluster) is 7.30 m, suggesting indirect visibility and association with the main cooking area. TS 1, TS 2 and TS 3 reflect a structurally and functionally diverse kitchen space. The short distance between these features creates a network of free movements. Furthermore, their randomly orientated front-loaded entrances suggest minimum preplanning. Finally, TS 2 is a type 1b oven mainly constructed for boiling and stewing, whereas TS 1 and TS 3 are two small-sized type 1a ovens principally made for baking food (Table 5.4). I suggest that the choice of constructing of three ovens at the side of the main complex space indicates a need for the development of a specialised cooking area, where baking and boiling could also occur. This triangular group of thermal structures resembles with the spatial configuration of the earlier TS 8, 9 and 10 cluster found in Avgi I (Plan 5.2; 5.15). Similarities in spatial order among the two occupation phases of the Neolithic settlement suggest possible attempts to preserve the functional properties of this cooking space in the long-term.

Thermal structures 18 and 19

TS 18 and TS 19 are two free-standing, heavily disarticulated type 2b hearths, which constitute the only Avgi II structures found in the eastern area of the Neolithic settlement (Plan 5.3; 5.7; 5.8). TS 18 was partly constructed on top of the architectural remains of building 7, while TS 19 is located in an open-air space 6.00 m north-west of TS 18. The distance from the dominant arena of cooking practices in the western area of the settlement is approximately 67.00m, which signifies limited visibility and interaction of the activities that were carried out within these two separate cooking spaces. The distance of TS 18 and 19 from the centre of cooking activities in the west area of the settlement created one more centre of cooking activities in the east part of the site. These type 2b hearths were mainly designed for grilling, boiling, parching of grains and smoking of meat and fish (Table 5.5; Atalay 2005; Atalay and Hastorf 2005; 2006; Cavanagh 2007).

5.4.1 Daily activities around fire: intra-site quantitative and spatial analysis of material culture in context

The total aggregation of finds unearthed in Avgi Neolithic site, during the excavation seasons 2004 to 2008, is 10056 portable items. From these only 4758 finds (47%) were selected as applicable for GIS project. The selection criteria for plotting the items on distribution maps were dictated by the excavated areas were included in present analysis and the securely identified georeferenced finds for the production of contextual information. As noted, I excluded Area 8 at the eastern side of the excavated area in Avgi. That means that 672 items (220 georeferenced and 452 without georeferences) have been disqualified for spatial or quantitative examination in my analysis. 3465 (34%) finds dated in Avgi III and unearthed form surface layers in both western and eastern sectors of the excavation are out of the present spatial analysis. Finally, 1161 finds (12%) that lacks coordinate references due to excavation shortfalls over the years are also not considered in this analysis. Therefore, overall 5298 (53%) finds are not included in quantitative and the present spatial analysis (Figure 5.9).

The research focus of this study is the 4758 georeferenced finds (47%) that will provide contextual information on the use of space and will give evidence of daily practices around thermal structures on each site. In particular, my analysis is based on the identification of three main habitation phases. To sum up, 3006 finds (63%) are classified in Avgi I, 1010 finds (21%) in Avgi II, whereas only 742 (16%) have been unearthed since now in Avgi III (Figure 5.10; Plans 5.9; 5.10). Portable items are divided in four main categories. These are groundstone tools (groundstones, querns, grinders, groundstone fragments, polishers, axes and axe fragments), chipped stone tools (chipped stone tools, blades, flint cores, projectile points, quartz tools), bone tools (bone tools, awls) and miscellaneous objects (loom-weights, figurines, models, miniatures, seals, ornaments). As noted earlier, due to unfinished examination of data, pottery and distribution of organic remains (bones and seeds) are not plotted in this spatial study attempted here. Detailed quantitative and spatial discussion is followed for each cultural horizon separately. The discussion is developed by quantitative and spatial analysis of each category of portable finds around thermal structures at the identified kitchen spaces at open-air areas, buildings and activity spaces.

5.4.2 Quantitative and spatial distribution of portable finds at open-air areas and inner spaces in Avgi I

The great number and variability of finds unearthed in Avgi I make this habitation phase the main analytical sample of this case study site. Avgi I is the most extensively excavated cultural phase of the Neolithic settlement. Georeferenced finds occupy 63% (3006 finds) of the overall finds under discussion. Five securely identified building structures support a meticulous spatial and contextual analysis of activity areas developed around thermal structures both in open-air spaces and buildings.

All four categories of groundstone, chipped stone, bone tools and miscellaneous objects are recorded in Avgi I (Table 5.7; 5.8). Table 5.8 demonstrates in detail the quantitative and spatial references of each category. A careful examination of Table 5.8, along with a closer look at Figure 5.11, shows chipped stone tools with 39% (1188 items) and groundstone tools with 37% (1101 items) constitute the two principal categories under discussion. Bone tools hold 3% (116 items) of the overall percentage and miscellaneous objects, such as ornaments, figurines, loom-weights and seals take up 5% (115 items) of finds in Avgi I.

In particular, 206 blades (7%), 942 chipped stone tools (31%), seven cores (0%), six projectile points (0%) and 27 quartz tools (1%) are recorded in Avgi I (Plan 5.11). One of the main observations from Table 5.8 and Figure 5.11 is the great number of blades. This type of tool is considered salient in the following analysis, as it can be associated with food processing practices, such as cutting vegetables and chopping meat (Moudrea-Agrafioti 1996; Perlès 2001; Stratouli 2002). Flint cores, projectile points and quartz tools, on the other hand, are not common in the Avgi I cultural deposits. Groundstone tools is the second major with 88 axes and axe fragments (3%), 187 (6%) groundstone fragments, 721 (24%) groundstones, 27 grinders (1%), 57 (2%) querns, 3 maceheads (0%) and 18 polishers (1%) (Tables 5.7; 5.8; Figure 5.11; Plan 5.12).

Querns are the principal tool category in the development of this current spatial analysis due to direct association with food processing (Perlès 2001, 342–6; Tsoraki 2007). Querns and grinders, in particular, constitute one of the main identification criteria for the classification of food preparation spaces close to thermal structures under study. Next significant categories of finds are bone tools with 39 awls (1%), 75 bone tools (2%) and 2 antler tines (0%) (Plans

5.13). Miscellaneous objects hold 5% of the overall georeferenced finds classified in Avgi I. These are 41 ornaments (2%), one chisel (0%), 18 clay objects (1%), 17 figurines (1%), four loom-weights (0%), 20 miniature vessels (1%), nine round sherds (0%), one seal (0%), three stone vessel fragments (0%) and one whistle (0%). Their spatial reference to domestic practices is loose and these are mainly considered as expressions of symbolic or ideological representations (Marangou 1996; Perlès 1996). Loom-weights are considered part of domestic toolkit (Perlès 1996, 248–52).

Building deposits

As noted earlier in this chapter, the securely identified and classified building structures in Avgi I are Building 5, Building 2a, Building 3, Building 7 and Building 1 (Plan 5.2). Only 5% (154 portable finds) of the overall finds were unearthed inside buildings (Figure 5.12). Twenty portable finds were found inside Building 5, 8 finds were unearthed in Building 2a, 25 in Building 3, 33 in Building 7 and 66 finds are recorded inside Building 1 respectively (Table 5.8; Figure 5.13).

It is noted that a number of categories of finds are missing from the buildings' deposits (Table 5.8; Figure 5.13). Flint cores, figurines, seals, loom-weights, mace-heads, projectile points and stone fragments have been only unearthed in open-air areas. Fifty-two chipped stone tools comprise the predominant category identified inside buildings. The second major category unearthed at inner spaces is 33 groundstone fragments. Third category is seven blades, whereas five querns have been identified in the building deposits: two in Building 1, two in Building 5 and one in Building 7. Four grinders were found in building deposits: three in Building 5 and one in Building 2a. Four axes are recorded in Building 1 and two awls are recorded in Building 1 and Building 3 respectively. Bone tools are distributed in most buildings. More specifically, one bone tools was unearthed in Building 1, one in Building 5, two in Building 7 and one in Building 2a (Plans 5.10; 5.11; 5.12; 5.13). One polisher is recorded in Building 7, two ornaments are recorded in Building 5 and Building 1 respectively, one miniature vessel and one round sherd were also unearthed in Building 7 deposits. Pebbles are also recorded in all building deposits. Their presence of pebbles in building deposits is either associated with domestic and cooking practices, such as heating pebbles for cooking or keeping food warm (Atalay 2005), or as structural components in buildings' upper structure (Ridley *et al*. 2000, 92–95).

Deposits in open-air areas

In Avgi I 95% of the material culture unearthed in Avgi I is recorded in open-air areas (Figure 5.12; 5.14; Plan 5.9). Again, the main category of portable finds is chipped stone tools that concentrate up to 31% (890 finds) of the overall percentage. Groundstone fragments and groundstone tools hold 30% of the overall proportion, with 25% (716 objects) and 5% (154 objects) respectively in each category. Blades take up 7% (199 tools) of the finds under discussion (Table 5.8; Figure 5.14). In addition, querns occupy 2% (52 tools), grinders 1% (24 tools), bone tools 2% (70 tools) and awls 1% (37 tools). Axes, 1% (19 tools), and axe fragments, 2% (60 tools) are also recorded in open-air areas. In contrast of being short of building deposits, all six projectile points (0%), 27 quartz tools (1%) and four loom-weights (0%) were unearthed in open-air spaces. Furthermore, 1% figurines (17 objects) were unearthed, as well as 1% miniature vessels (19 objects), 1% ornaments (39 objects), one seal (0%), 3 stone vessel fragments (0%), one whistle (0%) and two antler tines (0%) were also found in open-air spaces. Finally, pebbles hold 16% (455 finds) of the finds unearthed in open-air spaces that suggests their extensive and varied use in daily practices in the Neolithic settlement.

5.4.3. Thermal structures' *places*: domestic activities, food preparation areas and kitchen spaces in Avgi I

Seven cooking areas were selected for spatial analysis in Avgi I. These areas of recurrent domestic activities are subjected to quantitative and contextual analysis that connects thermal structures with the remains of material culture unearthed in kitchen spaces. The selected areas are presented in small-scale plans that demonstrate spatial configuration of thermal structures together with portable finds plotted. These plans will trigger/introduce/open the/will be the vantage point for discussions on routine domestic activities carried out and socialities developed in kitchen spaces. One of the units to be presented in this analysis is the cluster of TS 8, 9 and 10. Another unit is the north-western complex that includes TS 11, TS 25, TS 26 and 27. Thermal Structure 15 is a single kitchen space. Thermal Structure 7 and Thermal structures 17, 23 and 24 constitute two different kitchen spaces. Limited excavation at the space of TS 22 restrains analysis and interpretation for the activities carried out in this kitchen space. The activity area of the kitchen space formed around Thermal Structure 14 will not be examined in this study due to excavation shortcomings that restricted data collection (Plans 5.9; 5.14). This creates a synthesis of cooking socialities developed around consumption practices by routine cooking and food preparation (Bourdieu 1977; Hodder and Cessford 2004; Lefebvre 1974; Overing 2003).

Thermal structures 8, 9 and 10

The cluster of Thermal Structure 8, 9 and 10 constitute a functionally diverse space that groups different type of fire installations: one type 1b oven, one type 1a oven and one type 2b hearth respectively. Variability of finds is recorded in association with these three features. Chipped stone tools and groundstone fragments are the principal find category (Table 5.9; Plans 5.14; 5.15). Dense concentration of material culture suggests recurrent use of space and durability of food preparation practices in this selected space (Clarke 1977; Hodder and Orton 1976). Low concentration of finds is recorded in the space among the three thermal structures, which possibly marks an area for of free movements among the features (Plan 5.15). Only a small number of finds were unearthed in close association to the structures, such as flakes, groundstone fragments and a polisher. This loose distribution of finds is possibly dictated by the close spatial proximity of these three features and also suggests that food processing did not take place directly next to thermal structures but in short distance close to them. A concentration of seven blades, along with grinders, chipped stone tools and groundstone fragments to the north of the fire installation cluster indicates the development of a food processing space. South-eastwards to this cluster, another area of a dense concentration of finds is identified as food processing space. Three querns were found together with blades, chipped stone tools and bone tools. This concentration of finds supports the hypothesis of the formation of a food processing close to TS 8, 9 and 10 space in proximity to the thermal structures. The distance between querns is 3.15 m and 4.00 m respectively, indicating that people had been processing and cooking food in spaces directly visible to thermal structures. The concentration of ground fragments recorded in this cooking space is being considered as wastes directly in the area these were used, close to thermal structures. Open-air spaces in Avgi I are considered spaces of various and diverse activities (Koetje 1993).

Table 5. 1 Quantitative analysis of the finds unearthed in the TS 8, TS 9 and TS 19 complex.

Finds	Axe fragm.	Awls	Blades	Bone tools	Chipped stone tools	Groundstones	Groundstone fragm.	Grinders	Miniatures, Models, Seals	Polishers
Sum	5	1	19	5	55	12	56	2	2	1
Finds	Projectile points	Quartz tools	Querns							
Sum	1	1	3							

Thermal structures 11, 25, 26 and 27: north-western complex

The typologically diverse and outsized thermal structures recorded at the North-western complex constitute a unique cooking space in Avgi I (Table 5.10; Plan 5.14; 5.16). The area developed west of TS 26 has not yet been systematically excavated, and as a result explicit information on the activities carried out there cannot be presented here. The surrounding space east and north of TS 26 is not fully excavated; therefore, it is considered deficient for quantitative and spatial analysis. At the southern end of the complex the loose distribution of portable finds recorded adjacent to TS 11 limits the discussion on food preparation activities carried out in this cooking space. Two querns, however, were unearthed in close proximity at the western and the eastern side of TS 11 that indicate the development of two distinctive food preparation spaces. Loose distribution of blades, bone tools, chipped stone tools and groundstone fragments constitute a mosaic of discarded tools that were used and discarded directly there.

The cooking area formed by TS 25 and TS 27, on the other hand, at the centre of this complex area demonstrates dense concentration of finds. Two main working hypothesis models arise. The first suggests that the space of TS 25 and 27 constitutes a food preparation space formed by these two features. Chipped stone tools, bone tools, groundstones, groundstone fragments are the main categories of material culture in this context. On the other hand, the small concentration of querns and blades within a 25 m^2 area and the distinctive concentration of broken objects (110 groundstone fragments) support the hypothesis of waste space. High concentration of finds unearthed in such a limited space, however, demonstrates long-term spatial preference and continuous use space.

Table 5. 2 Quantitative analysis of the finds unearthed in the TS 11, TS 25, TS 26 and TS 27 north–western complex area.

Finds	Axes	Axe fragm.	Awls	Blades	Bone tools	Chipped stone tools	Groundstones	Groundstone fragm.	Miniatures, Models, Seals	Quartz tools	Querns
Sum	1	19	3	18	17	99	54	110	3	4	2

Thermal structures 15

The kitchen space created around TS 15 demonstrates minimum variability of portable items (Table 5.11; Plans 5.14; 5.17). The distribution of finds here is also considerably low. A small concentration of tools was developed in the south-western and western spread of the feature; whereas the space east of TS 15 demonstrates low recovery of objects. Once more the main categories of tools are chipped stone tools and groundstone fragments. Axes, blades and bone tools are also recorded. One quern found at 1.60m from TS 15 suggests food processing space. Directly associated with the quern was a small concentration of tools, such as one blade, one axe fragment, one bone tool, three chipped stone tools and three groundstone fragments. Because of the the short distance and the direct visibility between the fire installation and this tools agglomeration, my suggestion is that it comprises a food preparation space associated with TS 15. In addition, north-west and south-west of TS 15, 2 tool concentrations constitute potential food processing areas. However, it is not yet possible to identify whether these represent two food preparation spaces, or whether they were simply the result of waste products.

Table 5. 3 Quantitative analysis of the finds unearthed in the TS 15 kitchen area.

Finds	Axes	Axe fragm.	Blades	Bone tools	Chipped stone tools	Groundstones	Groundstone fragm.	Quartz tools	Querns
Sum	2	2	6	1	14	3	13	1	1

Thermal structure 7

Thermal Structure 7 is a type 1a oven that constitutes a single cooking unit. The dense distribution of finds suggests a busy cooking space, where chipped stone tools and groundstone fragments comprise the main equipment in this toolkit (Table 5.12; Plans 5.14; 5.18). In this area a great number of blades, grinders, querns, axes, axe fragments and bone tools is recorded. The distance between querns and TS 7 ranges between 3.30 m to 6.70 m, creating a dense synthesis of movements, social interactions and exchange. Five out of 6 querns were placed at the area between the north-west to south-west of the oven, whereas only one quern was found was located north-east of the feature. Distribution of tools within these food preparation spaces is similar, which potentially suggests regular standardized preparation of food and similar cooking preferences (Moundrea-Agrafioti 1996; Perlès 2001; Tsoraki 2007). For example, the quern placed at the north-eastern area at the back of TS 7 is directly associated with 3 grinders, 3 blade, 3 chipped stone tool and 3 bone tool. Approximately 5.00 m away to the west of the oven TS 7 a rather dense distribution of finds blurs boundaries among the two food preparation spaces and demonstrates considerable concentration of blades. It is clear that food processing was carried out at a short distance from the structure. The distant location of TS 7 from the main cluster of cooking facilities in this part of the settlement and the regular systematization of standard categories of finds unearthed suggests that TS 7 was used by more than one person or group of people (families?) in the settlement. The distribution of six querns that formed a food processing spaces in close distance from TS 7 suggests that at least six people could prepare food around the oven at the same time. As in the case of TS 8, 9 and 10 cluster people chose to leave the area directly next to the structure free of finds in order to facilitate repeated movements and habitual sitting (Hodder 2006). The distribution of groundstone fragments south-west of the feature marks a discard space. A substantial oblong limestone was placed next to the oven's entrance (Plan 5.18). The lack of grinding marks prevents the classification of this limestone as a grinding tool. A working hypothesis is the use of this stone as a way to block the front-loaded opening of the oven in order to increase the temperature inside the vault. Alternatively, the stone could intentionally have been placed as a symbolical indicator that marks the functional death of the feature. When oven TS 7 got out of use the blocking of its entrance was decided (*e.g.* in Çatalhöyük people filled the ovens with earth to mark the symbolic death of the structure; Cessford and Near 2005).

Table 5. 4 Quantitative analysis of the finds unearthed in the TS 7 kitchen area.

Finds	Axes	Axe fragm.	Awls	Blades	Bone tools	Chipped stone tools	Groundstones	Groundstone fragm.	Grinders	Miniatures, Models, Seals
Sum	2	4	8	21	3	61	5	66	4	4
Finds	Polishers	Quartz tools	Querns	Projectile points						
Sum	5	3	6	1						

Thermal structures 17, 23 and 24

All three thermal structures TS 17, TS 23 and TS 24 are spatially distributed at the eastern sector of Avgi Neolithic settlement. It is noted that the eastern sector of the site has only been to limited excavation. As a result, the records of portable items unearthed here are low and fragmented preventing a sufficient interpretative discussion on the activities carried out in this open-air space (Table 5.13; Plan 5.14; 5.19). The distribution and diversity of tools unearthed in this area, however, such as blades, bone tools, projectile points and one quern demonstrates that food processing activities took place close to thermal structures. Chipped stone tools and groundstone fragments are the main categories of tools that have been unearthed in this space. Future research in the site will merge both in order to examine the causes of spatial differentiation between the western and the eastern neighbourhood of the settlement.

Table 5. 5 Quantitative analysis of the finds unearthed in the TS 17, TS 23 and TS 24 activity area.

Finds	Axe fragm.	Awls	Blades	Bone tools	Chipped stone tools	Groundstones	Groundstone fragm.	Polisher	Projectile points	Quartz tools	Querns
Sum	1	3	5	4	18	1	15	1	3	1	1

Thermal structure 22

TS 22 is located at a space that has not been fully excavated. Quantitative and spatial analysis is therefore, ineffective. Chipped stone tools are again the main category of tools unearthed in this kitchen space (Table 5.14; Plans 5.14; 5.20). Figurines, loom-weights, axes, querns and projectile points are also recorded here.

Table 5. 6 Quantitative analysis of the finds unearthed in the TS 22 kitchen area.

Finds	Awls	Bone tools	Chipped stone tools	Groundstone fragm.	Miniatures, Models, Seals
Sum	1	1	11	5	1

5.4.4 Quantitative and spatial distribution of portable finds in Avgi II

Avgi II is the second cultural habitation to be spatial and contextually examined in this study. It has already been noted that Avgi II constitutes a less extensive and spatially fragmented layer, mainly documented in the western sector of the excavation, while buildings have not been identified. Thermal structures were set as single units or in clusters at open-air spaces, comprising the principal fixed features around which daily activities were carried out. Subsequently, the following quantitative and spatial analysis refers to activities that occurred in the open-air areas, with an emphasis on kitchen and food processing spaces.

21% (1010 portable items) of the overall georeferenced finds are recorded in this period of occupation of the Neolithic settlement (Plan 5.10). The finds cover all main four categories: groundstone industry, chipped stone tools, bone tools and miscellaneous objects (Table 5.15). Table 5.16 and Figure 5.15 show in detail the percentage of each one of the categories recorded in Avgi II. Chipped stone tools constitute the main category recorded, covering 45% of finds (468 items), followed by groundstone tools with 33% (332 items) of overall georeferenced finds. Bone tools follow with 7% (65 items), and miscellaneous objects covers only 4% (53 items) of the Avgi II finds. Chipped stone industry covers 126 blades (12%), 323 chipped stone tools (32%), four flint cores (0%), four projectile points (0%) and 11 quartz tools (1%). Blades hold significant percentage (Plan 5.21). Groundstone industry is the second major category with 28 axes and axe fragments (3%), 142 (14%) groundstone fragments, 105 (10%) groundstones, 18 grinders (2%), 26 (3%) querns, one maceheads (0%) and 12 polishers (1%) (Plan 5.22). On the other hand, 26 awls (3%) and 39 bone tools (4%) comprise the third category of finds (Plan 5.22), whereas miscellaneous objects include one chisel (0%), 10 clay objects (1%), six figurines (1%), four miniature vessels (0%), 15 round sherds (1%), 2 seals (0%), one stone vessel fragment (0%) and one worked shell (0%). Loom-weights or whistles are lacking from Avgi II (Plans 5.10; 5.24).

5.4.5 Thermal structures' *places*: domestic activities, food preparation areas and kitchen spaces in Avgi II

Five kitchen spaces had been identified and selected for nuanced spatial analysis in Avgi II. The concentration of Thermal structures 1, 2 and 3 is one of the units to be discussed here. Two single cooking facilities constitute two more kitchen spaces in west sector: these are Thermal structure 5 and 6. The fourth kitchen spaces was organised around Thermal structure 12 and Thermal structure 28. Thermal structure 13 and Thermal structure 16 compose two more kitchen spaces, where due to limited excavation these evidence is insufficient for quantitative analysis. These activity spaces have been considered as places of recurrent activities and they are subjected to contextual examination.

The main complex area: thermal Structure 5

TS 5 is a single kitchen unit at the southern end of the main complex area in Avgi II. Distribution of five querns unearthed close to these structures demonstrates grinding activities related to food processing and cooking. Querns were placed in proximity with each other, in distance of 2.00 m to 4.30 m from TS 5. Blades, bone tools, groundstones and groundstone fragments were also found in this kitchen space context (Table 5.18; Plan 5.24; 5.26).

Table 5. 7 Quantitative analysis of the finds unearthed in the TS 5kitchen area.

Finds	Axes	Blades	Bone tools	Figurines	Chipped stone tools	Groundstones	Groundstone fragm.	Grinders	Projectile points	Quartz tools	Querns
Sum	3	19	8	1	34	6	16	1	1	2	5

The triangular cluster: Thermal Structures 1, 2, and 3

Chipped stone and groundstone tools occupy most of the finds unearthed in the cluster of TS 1, TS 2 and TS 3. Only three bone tools are recorded there, while miscellaneous objects are also lacking (Table 5.17; Plans 5.24; 5.25). Ten querns are associated with five grinders, forming two distinctive food preparation spaces. Seven of the querns are clustered at an area approximately 1.70 m to 3.00 south of TS 1, 2.00 m to 3.60 m westwards of TS 2 and 2.40 m westward of TS 1. This grinding space was developed at a short distance from all three oven structures, suggesting communal sharing of the food processing toolkit (Plans 5.25; Tsoraki 2007). In TS 1 kitchen space, querns were found by the oven, indicating that grinding took place close to fire. Distribution of querns in such close proximity to the oven suggests higher level of tool ownership, which marks possible individualisation of food practices and reveals diversity in the socialities of cooking, where collectivity coexisted with individuality. Blades, bone tools, chipped stone tools and axes are recorded along with the querns, suggesting variability in cooking practices and recipes. In general, finds are regularly distributed around querns, whereas an unusual concentration of groundstone fragments, a few chipped stone tools and blades discovered between TS 2 and TS 3 are considered as marking a waste area.

Table 5. 8 Quantitative analysis of the finds unearthed in the triangular cluster: TS 1, TS2 and TS 3.

Finds	Axes	Blades	Bone tools	Chipped stone tools	Groundstones	Groundstone fragm.	Grinders	Projectile points	Quartz tools	Querns
Sum	3	19	3	19	10	29	6	1	2	10

The main complex area: thermal Structures 6

TS 6 is an individual free-standing kitchen space that demonstrates recurrent daily consumption practices. Blades, axes, groundstone fragments, bone tools and figurines were found here, while five querns were unearthed close to the hearth reveal an area of food processing and cooking (Table 5.19; Plans 5.24; 5.27). Four of the querns were found at 2.30 m to 4.65 m distance from TS 6, while one quern is recorded in the context of a dense concentration of blades, chipped stone tools and bone tools at the eastern side of the feature that possibly represents waste accumulation. The spatial configuration of these querns in direct visibility of and at short distance from the hearth and the association of blades and chipped stone tools with grinding tools, suggest the development of 4 food preparation spaces directly linked with each other and with TS 6 (Plans 5.27). The distribution of these grinding spaces form a multi-task kitchen space where sharing of food processing tools (Atalay and Hastorf 2006). TS 6 was built 0.60 m north of TS 7 found in Avgi I. This choice for spatial preservation can be perceived as an act of collective remembering and tradition, where certain type of domestic routines are spatially embodied and transferred in time (Borić 2010b). The case of TS 6 is a good example that shows daily domestic practices carried out in the routine of kitchen spaces, but also a case of cooking spaces in Avgi Neolithic settlement that became agents of tradition, enhance sharing and interaction and contributed to the formation of collective identity (Borić 2010a; Brück and Goodman 1999b; Whittle 2010).

Table 5. 9 Quantitative analysis of the finds unearthed in the TS 6 kitchen area.

Finds	Axes	Blades	Bone tools	Figurines	Chipped stone tools	Groundstones	Groundstone fragm.	Miniatures, Models, Seals	Grinders
Sum	1	24	9	3	96	2	9	1	2
Finds	Projectile points	Quartz tools	Querns						
Sum	1	1	5						

The main complex area: thermal Structures 12 and 28

TS 12 is located at the centre of the main complex area and demonstrates dense concentration of finds in its surrounding space (Plan 5.24). The excavation brought to light 2 groundstones in direct association with the feature, which suggests that grinding was happening close to these two features (Table 5.20; Plan 5.28). A considerable number of blades and chipped stone tools suggest that more food preparation practices, such as butchering carcasses, and chopping vegetables and cereals, also took place around the hearth (Moudrea-Agrafioti 1996; Perlès 2001). Groundstones, groundstone fragments, axe fragments, projectile points, bone tools and 1 figurine reflect the material context of daily performances around the hearth. TS 12 supports the hypothesis of cooking facilities as spaces of collective remembrance in Avgi. TS 12 was built in 1.20 m distance south-east from another substantial cooking facility that is TS 11 from Avgi I habitation phase.

TS 28 is distributed at the north-western end of the complex area. It represents another case of long-term spatial preference given that TS 28 was placed only 1.40 m west of TS 27, which is recorded in the preceding Avgi I habitation phase. The distribution of finds here demonstrates regularity of the kitchen toolkit identified in Avgi. Blades, chipped stone tools, bone tools, groundstones, miniatures and models comprise the context of this kitchen space (Table 5.20; 5.24; Plan 5.28). One quern and 2 grinders are also recorded at 2.15m distance from TS 28, connecting grinding with the food practices in this Neolithic kitchen. An interesting element recorded is the close proximity of querns to both features, creating two distinctive and individual food preparation spaces. Alternatively to other cases, such as the cluster of TS 1, TS 2 and TS 3 that shared a spatially common food preparation space, or the case of TS 6, where several food processing spaces within a maximum range of 4.65m range shared the same hearth, here we encounter a rather individualised cooking experience. Regardless of the 5.90 m distance from the central TS 12 people decided to build TS 28 either due to the high number of users or for performing diverse cooking traditions (Plans 5.24; 5.28). I support that spatial configuration of domestic activities in the complex area of TS 12 and TS 28 demonstrates a rather individualised cooking behaviour and underlines the diversity of cooking practices and consumption socialities developed in Avgi II.

Table 5. 10 Quantitative analysis of the finds unearthed in the TS 12 and TS 28 kitchen area.

Finds	Axes	Axe fragm.	Blades	Bone tools	Cores	Figurines	Chipped stone tools	Groundstones	Groundstone fragm.	Grinders
Sum	1	1	12	5	1	1	44	40	40	2
Finds	Miniatures, models, seals	Polishers	Projectile points	Quartz tools	Querns					
Finds	2	4	1	2	3					

The main complex area: Thermal Structures 13 and 16

TS 13 and TS 16 form the north-western cooking spaces of the main complex area. Due to inconsistent and incomplete excavation practices, however, these two spaces are lacking contextual evidence and are therefore insufficient for quantitative and spatial analysis. Plans 5.24 and 5.29 show the few irregularly contextualised finds excavated in these two cooking spaces. One axe, axe fragments, groundstones, groundstone fragments, chipped stone tools and bone tools are recorded in the space south of TS 13 (Table 5.21). Two grinders and one figurine were also found in this area, whereas blades are not recorded here either. TS 16 is directly associated with a clay platform, which represents a food preparation space, constructed in 0.60 m distance to the north side of TS 16. One quern was also found in 5.30 m distance from TS 16 and constituted another food processing space associated with this fire installation. It is worth mentioning that TS 16 was constructed on top of the remains of Building 2a indicating a probable attempt for continuous use of space.

Table 5. 11 Quantitative analysis of the finds unearthed at the TS 13 and TS 16 kitchen ground.

Finds	Axes	Axe fragm.	Bone tools	Figurines	Chipped stone tools	Groundstones	Groundstone fragm.	Grinders	Quartz tools	Querns
Sum	1	5	4	1	31	10	25	2	1	1

5.5 Discussion: '*cooking socialities*' and embodied spatial memories in Avgi

The analysis above examines how functional properties and spatial order of thermal structures were entangled in a contextualised perspective. The discussion investigates the formation agents of social spaces and social identities related to daily cooking experiences in Avgi Neolithic settlement (Hodder 2004; 2005; 2011; Lefebvre1974; Moore1996; Overing 2003; Whittle 2003). Temporal and regional commonalities developed within the settlement formed variable domestic spaces. Thermal structures constituted a vital component of Neolithic household and composed the domestic *loci* where daily routines initiated and occurred (Hourmouziadis1979; Hodder 1990; Efstratiou 2007; Gillespie, 2007; Souvatzi 2008a; 2008b). Household has often been considered as a means to approach social organisation (Halstead 1999b; Souvatzi 2007; 2008b). As such the diverse spatial setting of hearths and ovens in Avgi Kastorias contributed significantly to understand various household performances and associated socialites developed. Moreover, it reveales the substantial distinction among these two habitation phases based on the unearth of building remains in Avgi I and the opposite lack of building residues in Avgi II. In both cultural horizons thermal structures were the regular features unearthed. Classified morphological variations suggest diversity in cooking techniques and recipes, where boiling, stewing and grilling are also acknowledged (Table 5.4; 5.5).

An important common ground in the formation and organisation of social space in Avgi I and Avgi II is that all twenty-five thermal structures were constructed in the open-air spaces of the settlement. In both phases, fire installations were encountered as free-standing, single units that formed outdoor kitchen spaces (*e.g.* TS 5, TS 7, TS 14) or as complex areas of maximum three interrelated feature clusters (*e.g.* the TS 1, TS 2, TS 3 complex, the TS 8, TS 9, TS 10 complex and the north-western complex). Based on the archaeological evidence to date, buildings in Avgi I are lacking *in situ* thermal structures inside buildings. This observation brings forth the discussion of spatial organisation of kitchen spaces throughout the chronological span of the settlement. TS 14 and TS 15 on the western sector of the site and TS 17 at the eastern sector of the settlement represent three occasions where fire installations were constructed in proximity to buildings in Avgi I (Plan 5.6). In particular, TS 14 and TS 15 ovens, in particular indicate direct association with Building 2a, whereas TS 17 hearth is directly connected with Building 1. These two cases of household activities had been also developed close to building structures supporting the argument of

compartmentalisation of space into activity units and indicates possible control of cooking facilities by certain households. The majority of kitchen spaces, however, were regularly placed at a considerable distance of approximately 7.00 m to 10.00 m from building structures (*e.g.* cluster TS 8, TS9 and TS 10, TS 7 single unit, north-western complex; Plan 5.6; 5.8), which suggests communal use of fire installations and even possible sharing of the domestic and cooking equipment. The recurrent construction of thermal structure clusters indicates a high degree of interconnection and interaction among the users of these cooking facilities. Here, I am not suggesting sharing of food in an egalitarian society, but I rather argue that daily cooking was a social act, in the sense of an act visible to the members of community.

Sharing of household equipment indicates communality and conviviality in social living in the settlement, whereas single fire installation units directly associated with buildings suggest rather individualised and privatised activities even outside the walls of a house but still in public view from the community (Byrd 1994; Chapman 1990; Halstead 1999b; Kotsakis 1999; Kuijt 2000; Valamoti 2005). The fact that in Avgi both cases coexisted suggests diversity and variability of daily life. Even if we cannot be confident of the sharing of food between households, kin groups and co-residents in Avgi, we can, however, be certain that the 'neighbours' knew when food was prepared, by whom, when and what ingredients were used. This sharing of daily experience implies an intimate sharing of living space with impact and interaction among individuals and groups (Bourdieu 1977; Bailey and Whittle 2008).

The distribution of finds in kitchen spaces around thermal structures follows a repeated pattern. Along with thermal structures querns constituted these tools that define cooking preparation spaces in the site. Querns are regularly associated with grinders (*e.g.* TS 1, TS 2 and TS 3 cluster, TS 28 and TS 5 kitchen spaces), while they are also found with groundstone fragments. Querns are evidence for grinding that took place in these cooking areas and indicate the consumption of cereals in Neolithic meals and recipes at Avgi (Perlès 2001; Tsoraki 2007). On the other hand axes and axe fragments are irregularly found in the context of these kitchen spaces (*e.g.* TS 27, TS 15, TS 5, TS 6) suggesting that shaping, splitting and cutting of wood did not commonly occur around fire. Blades are another category of tools found in nearly all kitchen contexts in both cultural phases in the settlement (*e.g.* TS 8, TS 9 and TS 10 complex area, TS 7, the north-western complex, TS 1, TS 2 and TS 3 cluster, TS 12). These tools can be used for the chopping of meat and vegetables and therefore their

contribution to food processing is significant (Moudrea-Agrafioti 1996; Perlès 2001; Skourtopoulou 2006). In addition, a significant quantity of chipped stone tools that could potentially facilitate cooking purposes is also unearthed there. A specialised study of the technological characteristics of these tools, however, will provide more information on their functional properties. Bone tools are recurrently found in association with thermal structures (*e.g.* TS 27, TS 11,TS 15, TS 8, TS 5, TS 6, TS 12, TS 28) suggesting the perforation of leather and sawing was a daily practice taking place by the fire (Moudrea-Agrafioti 1996; Perlès 2001). Ultimately, the categories of miniature vessels, models and figurines are irregularly found within kitchen ground contexts, even if in small numbers (*e.g.* in the context of TS 5, TS 6, TS 12, TS 28, TS 7). The representation of such objects in cooking spaces is significant, as they indicate that activities unrelated to cooking and ordinary daily tasks are also incorporated within the context of these daily arenas enhancing their multidimensional perspective. Figurines and miniatures are usually interpreted as symbolic representations of animals, humans, houses or even as children's toys (Marangou 1996). This first macroscopical analysis demonstrates that the distribution of finds at the food preparation and cooking spaces in Avgi I and II is generally similar.

An emphasis on outdoor activities in Avgi I raise questions about domestic practices and consumption performances carried out inside the buildings (Byrd 1994; Carsten 1995; Whittle 1997). As showed in Table 5.8 and discussed extensively in this chapter, the portable finds unearthed in building deposits in Avgi I were considerably less than ones found at the open-air spaces. Nevertheless, this might be the result of recurrent skimming of house floors. The lack of thermal structures raises questions about lighting and heating resources used inside the houses. Although, we are missing specific supportive archaeological evidence, portable fire furniture, such as braziers, may be of use inside the buildings. Materials such as broken pots in secondary use could also be used as a setting for fire and therefore as a source of lighting, heating or even small-scale grilling and parching inside the houses. The labour and time invested for the construction of these substantial buildings unearthed in Avgi weakens the hypothesis of their simple use as sleeping shelters. Additional household activities are anticipated, such as cooking, tool production and possible storing. Building deposits from Avgi I, however, are lacking such evidence, possibly due to skimming or as a result of the way dwellings were emptied before fire destruction (Binford 1978; Boivin 2000; Gé *et al*. 1993; Karkanas 2009). Sweeping and removal of household equipment may have

preceded the burning of the structure. New evidence and abundant accumulation of outdoor material remains in several Neolithic settlements in Greece set the discussion of diversity of household organisation through the Neolithic period in the region into a new perspective that will be analyzed further and the context of Chapters 7 and 8 (e.g. Makriyalos, Thermi, Promachonas-Topolnitsa, Stavroupoli).

The study of spatial organisation of fire installations in Avgi demonstrates preferences and continuity of cooking spaces between the two habitation phases of the settlement, Avgi I and II. TS 7 oven in Avgi I is a case that demonstrates continuity of kitchen spaces, since in Avgi II TS 6 hearth was constructed only 0.60m northwards the first feature (Plans 5.5; 5.7;5.18; 5.27). Based on this example, it is clear that people did not only sustain their cooking spaces but there is an identified uniformity on the spatial organisation of these two kitchen spaces. In both cases, the majority of querns found had been placed westwards of the two features forming active food processing spaces of repeated similar daily performances and movements that created comparable and lasting choreographies (Overing 2003; Hodder and Cessford 2004). Another example of continuity is the cases of substantial TS 11 hearth in Avgi I and TS 12 in Avgi II respectively. TS 12 was constructed at 1.20m range south-eastwards TS 11 (Avgi I), occupying the same cooking space into the successive Avgi II phase. In both cases querns were found in direct proximity to the features marking the formation of an associated food processing space (Plans 5.5; 5.7; 5.16; 5.28). At the North-west complex, spatial continuity is identified in Avgi I habitation phase, even if the functional properties among TS 25 and TS 27 had changed (Plan 5.5; 5.16). In the same activity area, during Avgi II TS 28 hearth was built at 2.00 m distance from the cooking space formed by TS 25 and TS 27 in Avgi I (Plans 5.7; 5.28). In addition, the creation of cluster TS 1, TS 2 and TS 3 in Avgi II, that is located only 5.00 m southwards of the TS 8, TS 9 and TS 10 cooking space of Avgi I, constitutes a clear indication of spatial preference and preservation (Plans 5.5; 5.7). Both clusters preserve a triangular configuration among features and are mainly composed by ovens indicating durable cooking preferences at certain cooking styles (Plans 5.15; 5.25). In particular, each one of these two clusters of thermal structures include one type 1b oven (TS 8 and TS 2 respectively), which also indicates similar foodways (Atalay and Hastorf 2005; 2006; Papadopoulou and Prévost-Dermarkar 2007; Parker 2011; Valamoti 2007). The spatial organisation of querns is, however, different between the two clusters. The analysis above showed that people in Neolithic Avgi were in favour of preserving functional properties of

cooking spaces either by successively adding new constructions on top of old ones, or by relocating them in close proximity to older fire installations creating and preserving traditions of cooking socialities and lifeways.

Another practice of spatial preservation is identified in Avgi II that marks a change of functional properties but also exhibits a long-term use and preference of space. In particular, TS 1 and TS 3 were constructed at the northern end of the remains of the burned and collapsed Building 5 (Plans 5.2; 5.3; 5.25). Accordingly, TS 16 was also built at the south-western end of the remains of Building 2a (Plans 5.2; 5.3; 5.29). This practice creates the hypothesis of another way to express spatial continuity by turning a dwelling space into a specialised cooking space. Spatially embodied routines and traditions bridged the two cultural phases by incorporating the past into the present (Borić 2010b; Brück and Goodman 1999b; Evans 2005; Jones 2007; Whittle 2010). These acts of collective of individual remembrance create narratives for ancestors and preceding lifeways, enhance social coherency and contribute to the formation of social identities. In this analytical framework, the lack of building structures from Avgi II is interpreted as an indication of non sedentary but on the contrary seasonal lifeway. This practice might also suggest that Avgi II was a place of periodic visits dedicated to honouring ancestors or a camp for non sedentary groups (Borić 2010b; Chapman 2008; Edmonds 1999; Hayden 1999; Tilley 1994).

The functional, spatial and contextual analysis I attempted here suggests variable and diverse interpretations of community, daily routines and cooking in the Neolithic settlement. I argue that cooking spaces were dynamic spaces of daily practical and social interaction. My analysis countered the prevailing theoretical argument that connects thermal structures to activities carried out inside buildings and relating them solely to female identity and domesticity on the basis of *domus* and *agrios* (Hodder 1990). Within this analytical framework social and daily agencies were considered to be carried out in demarcated units, whereas activities happening in the open-air spaces involved grazing, herding and hunting (Hodder 1990). My study provides evidence that the household could be extended outside its artificial boundaries (that is outside walls) in the open-air space.

One of the foremost and distinctive characteristics that differentiate flat extended sites from tell sites is the broad open-air spaces among buildings (Chapman 1989; Kotsakis 1999). Avgi Neolithic site, without question, is a typical example of such habitation pattern. Its broad

open-air areas among buildings constitute one of the major components of spatial arrangements and define the areas of activities and interactions in the site. In my analysis, I argue that open-air spaces constituted the centre of spatial and social organisation, where engagement with daily activities took place. In Neolithic Avgi, in particular, open-air spaces constitute arenas of repeated daily practices that enhance sociality and interaction among community members. Even though, there is evidence showing that house spaces shift into cooking spaces when abandoned and destroyed, there is no archaeological evidence in the site to date to demonstrate that one or more thermal structures were covered by a successive building structure. In contrast the areas, where hearths and ovens were clustered, were preserved by recurrent reconstruction works on some of these features or by constructing new fire installations on top of old ones. This practice indicates decision making for the preservation of defined and embedded social places, such as cooking spaces.

People decided to build their houses by maintaining open-air spaces between them, developing a practice that would ensure continuity of daily activities outside. Open-air spaces do not represent neutral areas of waste accumulations, nor are they just empty areas of transmission from one place to another. In contrast, a series of repetitive and spatially oriented agencies were taking place between buildings and this interaction supports a sense of community identity. IA suggest that these unroofed spaces constitute the most significant back-bone of social coherence in Neolithic Avgi. Therefore, for Avgi in particular, the theory of small agricultural gardens among buildings is not applicable (Chapman 1989; 1990). Furthermore, the richness of archaeological evidence and the impressive number of cooking facilities, which encourage human interaction and enhance social coherency in Avgi, do not support the hypothesis of flat-extended sites as loose of social cohesion due to the lack of direct spatial connectivity with ancestral groups (Halstead 1999b; Kotsakis 1999; Valamoti 2005). Social unity and the degree of shared interaction are not only achieved by the connection with ancestor population (Whitley 2002). I argue that social identity and coherency is formed and established in the daily interaction among the living and in order to identify these mechanisms we need to examine daily life and routines that incorporate several aspects of social life. My analysis in Avgi demonstrates that proximity in common activity spaces contributed significantly to enhance social bonds.

Chapter 6

Dispilio Neolithic settlement: cooking socialities and daily practices by the lake

6.1.1 Introduction: history of research

So far Dispilio Neolithic site has been the only lake-side site in Greece that is systematically excavated and partly published in Greece. It is a prehistoric settlement located on the southern shoreline, on a shallow sand ridge and a shore marsh in Lake Orestias, Kastoria in Northern Greece (Figure 6.1). Lake Orestias is a small, shallow lake, hydrologically open, extending 32.4 km², with a mean and maximum depth of 4.5 m and 9.1 m respectively. The lake has a natural outlet to the nearby Aliakmon River and is located 629.29 m above sea level (Karkanas *et* al. 2011, 84–6). The site was first discovered by Professor A. Keramopoulos, when in the early 1930s he organized a fieldtrip in search of the ancient Macedonian cradle, in the area of north-west Greece (Keramopoulos 1932; Sofronidou 2008). Dispilio was first mentioned when Keramopoulos found the remains of a wall, dated in the historic times, in the shoreline of the homonymous contemporary village (Keramopoulos 1932). In 1938 Keramopoulos returned to Dispilio to excavate the area 'Nisi', where he found a large number of standing wooden posts. A small scale excavation revealed limited number of sherds and chipstone tools that led Keramopoulos to suggest the presence of a prehistoric lacustrine village with houses built on raised platforms in the littoral zone at Nisi (Keramopoulos 1938, 58-61). An excavation project was organised in 1949 9n the site (Keramopoulos 1940). It was after 50 years from the first trial dig when on 1992 a systematic excavation project started in Neolithic Dispilio directed by Professor G.H. Hourmouziadi under the auspices of the University of Thessaloniki (Hourmouziadis 1996; Hourmouziadis 2002; Sofronidou 2008; Whitley 2004).

The area of the settlement forms a low, mound-like feature about 10.000 m² and 1.3 m high (Figure 6.1). The mound was formed and shaped by subsequent fluctuations in lake level (Figure 6.2). To this point, the excavation revealed 5.250 m² out of 17.000 m² of the site 'Nisi' that includes Neolithic, Bronze Age and Iron Age deposits (Sofronidou 2008, 14). The Neolithic excavation occupies the Eastern Sector of the site and covers an area of 600 m² (24 trenches) and the Western Sector that covers 760 m² (31 trenches) (Figure 6.3). Limited stone features dated in the Chalcolithic and Bronze Age period came to light at the Southern Sector, whereas a stone perimetric wall that was possibly dated in Late Bronze Age or Early Iron Age period (Figure 6.3), has been systematically excavated since 2000 (Stavridopoulos and Sianos 2009,63; Touloumis and Hatzitoulousis 2002, 76). The Neolithic habitation in Dispilio preserves local characteristics developed around the area of the lake, but at the same time shares common cultural characteristics with contemporary sites in western and eastern Northern Greece and broadly in the Balkan Peninsula. Eastern Sector is the main excavation area of the Neolithic deposits in this lacustrine site. A series of special studies has been partially conducted in Neolithic Dispilio (Adamidou 2006; Doulkeridou 2009; Hatzitoulousis 2006; Ifantidis 2006; Ntinou 2002a; Theodoropoulou 2007), however, the study of cultural remains (architectural material, pottery, chipped stone industry, organic remains etc) is still ongoing.

6.1.2 Landscape and geology

Pollen analyses, charcoal and phytolith studies, along with micromorphological analyses were organised both in the excavation area and at the broader 'Nisi' region aiming at the reconstruction of the Neolithic palaeoenvironment and the site formation processes (Karkanas *et al*. 2011; Kouli 2002; Ntinou 2002b; 2010; Tsartsidou 2010). The results of micromorphological and archaeobotanical studies show that diverse species of flora was developed in the area around the Neolithic settlement. Deciduous oak woodland was the dominant vegetation in the area probably growing at the southern part of Kastoria basin (Karkanas *et al*. 2011, 107; Kouli 2002, 308; Ntinou 2002b; Ntinou 2010, 48). Mountain conifers would have been present in small distance from the lake on the north-western and western part of the basin. Open woodland formations of *Juniperus* and various shrubs and small trees were probably growing on the flat plain (Karkana *et al*. 2011; Kouli 2002; Ntinou 2002b). Phytolith analysis suggests the presence of a few trees in the near shore environment, while pollen and charcoal confirm the presence of *Alnus* and *Salix* trees in this riparian vegetation (Karkanas *et al*. 2011; Tsartsidou 2010).

Based on palynological and archaeobotanical analysis, Kouli and Magafa suggested that agricultural activities took place in small distance from the area of the settlement (Kouli 2002, 311; Magafa 2002, 131). The suggestion of 'intense' agriculture of small gardens close to dwelling spaces is also by charcoal analysis. It is argued that human habitation did not affect significantly the ecosystem of the area and that minimum deforestation occurred by the settlement (Ntinou 2010).

All available data suggest that initially houses were built on raised platforms above the water. After a major conflagration identified by the end of the Middle Neolithic at 1.80 m to 1.95 m depth at the eastern sector of the excavation the lacustrine settlement was abandoned and a range of depositional microenvironments were established causing local changes in the sedimentation rate. Some areas emerged and turned into dry lands, while some others continued to be flooded as part of the transitional supra-littoral environment. In the western sector, the destruction layer soon formed dry land, whereas habitation at the eastern sector continued as transitional supra-littoral environment during the Neolithic period (Figure 6.2). Thus, gradually the prehistoric mound was formed gradually by subsequent lake-level fluctuation (Karkanas *et al*. 2011).

6.1.3 Stratigraphy: setting the timeframe, relative and absolute chronology

Three main occupation phases are recognized in Dispilio based on stratigraphy observations and the study of material remains, such as architectural remains, pottery, chipped stone tools and figurines. Pottery styles is dated to Middle (5800–5300 cal BC), Late Neolithic I (5300–4800 cal BC) and Late Neolithic II period (4800–4500 cal BC; Figure 6.5; Sofronidou 2008). Twenty-three ^{14}C dates have been dated and calibrated from Dispilio sedimentary sequences overall (Table 6.1; Figure 6.6; Facorellis and Maniatis 2002). Twenty-one are from the study by Karkanas *et al.* (2011) and two from earlier work by Facorellis and Maniatis (2002). All samples were processed in the Laboratory of Archaeometry at the National Centre of Scientific Research Demokritos in Athens and all the radiocarbon ages have been calibrated using CalPal 2007 (Weninger and Jöris, 2004). In addition, 41 large sediments cores (0.15 to 0.30 m long) of undisturbed sediment were collected and examined from four areas in the field (three of the flint cores were taken from the excavation area inside the mound and one from outside the mound close to the lake shore). These samples demonstrate more habitation episodes are identified at each major phase (Figure 6.5; 6.6). Ten ages were sampled from the sediment cores on charcoal fragments and one on an unburnt wood fragment (Karkanas *et al*. 2011, 104). Additionally, the habitation phases in Dispilio have been classified by the association of the settlement with the lake (Sofronidou 2008, 16).

In this respect, occupation of the settlement started in the late phases of Middle Neolithic period (ca. 5800–5300 cal BC) and ended during the early Bronze Age. There are additional, sporadic indications for activity during the early Iron Age period (Hourmouziades 1996, 2002b; Karkanas *et al*. 2011; Sofronidou 2008). The earlier phase of occupation is classified as Phase C or 'lacustrine' phase that lasted up to the end of Middle Neolithic period. The end of Phase C is safely identified by the remains of destruction layer mentioned earlier. Phase B or the 'amphibian' phase is dated in the end of Middle Neolithic and early Late Neolithic period (5300–4800 cal BC), while Phase A, or 'terrestrial' phase, dates in the end of the Late Neolithic and the Final Neolithic period (4800–4500 cal BC) (Karkanas *et al*. 2011; Sofronidou 2008). The earliest phase of the occupation in settlement was revealed in an area of 450 m² (average depth 2.20 m to 2.75 m), where the destruction layer was also revealed in the eastern sector. In the western and the southern sector, where the excavation is not exhausted to the lower levels of the site in every square, three ^{14}C samples from depths of

0.55 m to 0.80 m, are dated between 5300 and 4860 cal BC (GrN-309561, GrN-30961 and GrN-30963, Table 6.1). These ages came from trench 69a and 289 respectively (Figure 6.3). The ages discussed are associated with those of the deepest parts of the sediment cores and with those of the deepest levels of the eastern excavation sector (Figure 6.6; Karkanas *et al*. 2011, 106–7). This means that the settlement was extended to both eastern and western sectors at the same period of time. The western sector of the excavation, however, mainly revealed remains of Phase A or 'terrestrial' phase. Incomplete and ongoing study of organic remains, presents the identification of continuous or year-round occupation of the settlement, therefore the possibility of permanent, seasonal or periodical habitation is still open.

6.1.4 The site: posts, houses, 'yards', pits

Recurrent fluctuations prevented the identification of *in situ* features at the eastern sector of Dispilio Neolithic settlement, such as buildings, thermal structures, internal walls and platforms. A significant number of post and postholes, however, was encountered as one of the prominent elements of Dispilio, mainly at the eastern sector of the site throughout the three identified cultural phases. 2088 posts and postholes, revealed up to the 1998 excavation season (Hourmouziadi 2002, 54), indicating their significance in the spatial organization of daily life. The arrangements of postholes have not yet given us specific ground plans of buildings or other constructions. Even though microstratigraphy and geological research at the site suggests that building structures were constructed on raised platforms (Karkanas *et al*. 2011, 83), the accurate overall number of building structures is not yet confirmed.

At the western sector of the site three substantial daub spreads designate three free-standing building structures distributed loosely over 760 m² excavated area (Figure 6.7; Plan 6.2). These three building remains are not fully excavated; however, they all constitute important elements for the identification of building techniques, building sizes and equipments, the manipulation of the open-air space around them and for the understanding of spatial order and social organisation of daily life in this part of the settlement. Building remains and portable finds in western sector are dated in Final Neolithic period (Doulkeridou 2009, 39). For the sake of discussion, buildings were conventionally classified in numerical order. Therefore, the daub spread unearthed at the centre of the western sector is Building 1 with 51 m² size. Daub spread at the western side of the western sector is Building 2 with 40 m² size. Limited excavation at the north-eastern areas of the western sector revealed the remains of a daub spread that represents only part of a building structure, which is classified as Building 3 with 34 m² size (Table 6.5; Plan 6.2). The lack of standing wooden posts to all three buildings led to the conclusion that in Phase A buildings in the western neighbourhood of the Neolithic settlement were constructed directly on dry land, without following the building tradition of dwellings on raised-platforms suggested for the eastern sector (Figure 6.2). The orientation of these building is ambiguous. Limited research and study of material remains in western sector of the site resulted to indistinct character of these three buildings. The significant number of thermal structures found in Building 1 and the presence of a clay box with a great number of loom-weights recorded in Building 2 (Plan 6.2; 6.10) raises questions on the activities carried

out within a household in Final Neolithic Dispilio. In addition, it suggests that in Phase A this area of the Neolithic settlement cooking was performed inside dwellings. The spatial distribution of daily activities indicates the type of social associations developed. The inner space of these buildings is rich in portable finds, such as pottery, chipped stone tools, groundstone tools and ornaments. Evidence to date in the western sector of the excavation does not support the hypothesis of cooking in open-air spaces created around the three buildings. P[en-air spaces between buildings were not designated by cobbled yards or paved structures. Even though, a substantial amount of finds have been uncovered in the open-air space are interpreted as discards of domestic activities inside the housed and of daily performances outside in open-air spaces. Ten pits were revealed and excavated before 1998 excavation season. Three of them have been considered as storage pits, two were waste pits, whereas the role the five rests are ambiguous (Hourmouziadi and Yiagkoulis 2002, 66).

6.1.5 Setting the research framework and discussing constraints at Dispilio site

Settlement organisation and the use of space in the lake setting have been a primary focus of the excavation at Dispilio, building on related approaches employed by relevant research in lake-side settlements in Europe (Hofmann 2013; Hourmouziadis 1996; Sofronidou 2008; Karkanas *et al*. 2011). This analysis adds to the discussion of lake-side settlements with the study of spatial organisation and functional properties of cooking facilities in Neolithic Dispilio. Better preservation of *in situ* features at the western sector of the excavation was the main reason for choosing this area for my spatial and contextual analysis (Figure 6.3; 6.4; 6.7). Moreover, the identification of *in situ* features there, in contrast with the transitional supra-littoral environment at the eastern sector, gives the chance for a secure distribution of portable finds at the kitchen spaces under study. Therefore, my analysis focuses on Phase A (the late Late Neolithic and Final Neolithic period) in the western sector at Dispilio.

Excavation in the western sector started in 1999 and is still in progress until 2008. Significant drawbacks for a spatio-temporal study in the western sector in Dispilio are the lack of sufficient radiocarbon results, the incomplete excavation and the unfinished data analysis by specialists. Following the methodology created for Avgi Neolithic settlement in Kastoria (see Chapter 5), this study has primarily attempted to overcome the problems of ongoing research project by focusing on type-specific analysis of thermal structures and making extensive use of the data provided in daily notebooks and yearly reports.

6.2.1 Classification of thermal structures at the Western Sector in Dispilio: raw materials, construction techniques and functional properties

The thermal structures unearthed at the western sector of Dispilio Neolithic site show a homogeneous assemblage. Consistency in construction techniques and in raw materials used demonstrates that a single type of fire installation is classified within this timeframe at this particular region of the settlement. This recorded technological uniformity indicates standardization in building techniques and cooking practices. Five *in situ* features are classified as thermal structures here (Table 6.2), all of which are assorted as ovens (Table 6.3). In particular, these structures are defined as type 1a ovens. Type 1b ovens has not been recorded in the area under study, while hearths are also lacking.

6.2.2 Ovens: type 1a

Nuanced macroscopical analysis on the morphological components of these five type 1a ovens shows clear uniformity on construction techniques and building materials used. These are all above the ground features, semicircular in shape with a minimum and a maximum length of 0.96 m and 1.20 m respectively (Table 6.3; 6.4). Their repeated size and shape suggests that builders in Dispilio held a standardized know-how building technology for the construction of Final Neolithic ovens. Technological consistency also indicates the practice of certain cooking preferences.

Evidence on the construction techniques and the raw materials used to build the ovens under study are given by the damaged parts of these features (Table 6.3; 6.4). The damaged sides of the ovens work as vertical sections that unfold the *chaîne opératoire* of building practices (*e.g.* Figure 6.10; 6.11). Sub-bases were built directly on top of the ground, where a solid clay basin (currently preserved at an average 0.10 m height) had set the outline and the size of each structure. Raw materials used for the construction of the basin were tempered clay with roughly powdered gravel and irregularly organic mixtures, such as straw and splint. The construction of clay basins was succeeded by two building techniques for the construction of the oven floors (Figure 6.11; 6.12; 6.13; 6.14). The first technique involves the placement of pebbles on the top of the floor surface of the base. The cobbled surface created was then covered by a flattened finely sieved clay layer that lacks organic mixtures, which was additionally tempered and powdered inclusions. On top of this, a thin clay coating with

heavily powdered gravel constitutes the final stage of floor construction practices. This technique is recorded at TS 1 and TS 4 features (Table 6.3; 6.4; Figure 6.11; 6.13). The difference between the two building practices is that the second technique lacks the cobbled layer. When dried the top surface of the sub-base was directly covered with a fine clay layer, tempered with systematically powdered gravel on top of which a thin clay coating was finally applied. This technique is identified at TS 2, TS 3 and TS 5 respectively (Table 6.3; 6.4). One more technological evidence is the classification of two successive floor layers at TS 1 and TS 5 that demonstrate reconstruction works interpreted as attempts to preserve the two ovens for a longer period of time. The poor preservation of TS 2, TS 3 and TS 4 makes the identification of successive reconstruction floors ambiguous.

Poor preservation of these five ovens limits the evidence of their upper roofed construction. Taking into account structural design issues, however, it has been suggested that the height of the vault did not exceed the width of the oven's sub-base (Papaefthimiou- Papanthimou *et al*. 2000). The preservation of elevated sidewalls up to 0.10 m (Table 6.3; Figure 6.13; 6.14), as well as the levelled floor edges by the sidewalls in TS 3 (Figure 6.13) indicate their domed construction, which is suggested to be a solid roofed compartment. The vault was built in successive conjoined clay layers. Type 1b ovens are lacking from western sector of the excavation to date.

Front-loaded entrance of an oven constitutes a significant criterion for the classification of the feature. The width of an oven's entrance is crucial in controlling the fire and the temperature developed inside the vault (Maniatis and Facorellis 1998). The construction of the front-loaded entrance constitutes part of the building decision making in order to facilitate the predominant cooking practices (as discussed in Chapter 4.2.2). The preserved minimum and maximum front-loaded entrance width is 0.44 m and 0.90 m respectively (Table 6.3). With regard to the width of these features, their openings are considered large indicating better control of fire and unrestrained movements around cooking facilities and practices inside the vault compartment. The construction of a wide front-loaded entrance enables the reconstruction of floor surfaces inside the limited domed space.

Clay vitrification is not documented in macroscopic examination, which suggests that the temperature developed within the domes is unlikely to have exceeded 1000^{o}C. As a result, their use as kilns is not regarded possible (Maniatis and Facorellis 1998; Papaefthimiou-

Papanthimou *et al*. 2000). The wide front-loaded entrances and the generally large size of these ovens allow baking and roasting of food in pots (indirect heat) inside the ovens, while grilling (direct heat) is also possible (Table 6.4). Indirect cooking in baskets or skins is another possible cooking practice. Parching of grains and pulses is common in Neolithic cooking practices and can also constitute cooking practices in Dispilio (Atalay and Hastorf 2005; 2006). Smoking of meat or fish is one more cooking preference that enables preservation of provisions in long-term storage (Atalay and Hastorf 2005; 2006).

6.3.1 Thermal structures inside buildings: discussing spatial order

Five thermal structures are recorded in the western sector of Dispilio Neolithic settlement across 760 m² excavated area (Figure 6.3). All features are dated in Phase A, at the end of Late Neolithic and Final Neolithic period in Greece. Three building daub spreads have been identified in the area under study: Building 1, Building 2 and Building 3. The size and spatial position of Building 1 makes it the central structure in western sector. Building 1 stands in roughly same distance between Building 2 and Building 3: 4.60 m and 5.80 m respectively. The distance between Building 2 and Building 3 is 14.90 m (Plan 6.4). A direct association among building structures and unearthed fire installations was developed and will be presented in this section. As discussed in Chapter 4 and 5 my aim is to contextualise cooking spaces within the broad spatial layout of the settlements (see Chapter 4.2.3 and Chapter 5.1.5)

6.3.2 Spatial arrangements of thermal structures in Dispilio Phase A

Five thermal structures were found in two buildings at the western sector in Dispilio, all of which are classified as type 1a ovens marking a distinctive standardization of cooking practices (Table 6.3; Plan 6.2). These five ovens were found *in situ* in the inner space of building structures. There are no evidence of thermal structures at the open-air spaces. There is no indication of fire installations constructed outside buildings and directly or indirectly connected with them (Plan 6.2; 6.5). Only Building 1 and Building 2 are the two buildings with fire installations in their inner spaces, in constrast with Building 3 that shows no ecidence related to fire and cooking. The spatial distribution of ovens among buildings is uneven given that four out of five ovens were located inside a single building, the functional properties of which remains to be examined. In particular, Building 1 housed TS 1, TS 2, TS 3 and TS 4. TS 5, on the other hand, was found inside Building 2 (Table 6.5). My analysis demonstrates the spatial configuration of thermal structures within the broader context of the settlement. It examines the distance developed among the features, their orientation and association with other structures, and also suggests potential movements in daily routine pathways among the cooking spaces created.

Building 1: Thermal structures 1, 2, 3 and 4

Four thermal structures were found in Building 1 in an approximately 51 m² daub spread area TS 1, TS 2, TS 3 and TS 4 (Table 6.5; Plan 6.5). These are type 1a ovens marking standardization in functional properties and cooking preferences. All four features are clustered at the eastern part of Building 1, distributed from north to south, and formed four distinct kitchen spaces. This cluster of ovens demonstrates clear spatial order in the inner-building organisation and standardized the spatial distribution of daily household activities (Plan 6.2; 6.3; 6.5). The oven concentration occupies a space of approximately 21 m². Building 1 was noticably smaller than the unearthed daub spread, therefore, these four ovens occupied approximately half of the overall ground floor of the building demonstrating a spatial choice thatgives emphasis at the importance of these thermal structures in inner space.

TS 1 is located in the northern end of clusters as opposed to TS 4 that is placed in the southern end of this cooking facilities group. The distance between TS 1 and TS 2 is only 1.60 m indicating a close association between the two ovens. The internal demarcation wall remains are recorded at both sides of TS 2 showing the special role attributed to this feature that resulted at being spatially comparmentalized. This spatial segggregation may happened to facilitate specifiec cooking performances and recipies (Figure 6.8; Plan 6.2). The front-loaded entrance of TS 1is oriented from west to east, which suggests that the person kneeling in front of the fire installation to cook would have direct visibility eastwards to the activities taking place in the TS 2 cooking space. Similarly, the front-loaded entrance of TS 2 is facing at the opposed direction, from east to west, providing straight visibility with TS 1(Plan 6.3). Additionally, the distance between TS 1 with TS 3 and TS 4 is larger, 3.60 m and 5.10 m respectively. Even in this case the kneeling person at the front-loaded entrance of TS 1 had unrestrained visibility to the activities taking place in TS 3 and TS 4. TS 3 is 2.90 m distance from TS 4 that created closer cooking collaboration between them. Near to this cooking space is TS 2 with 3.10 m and 3.80 m distance from TS 3 and TS 4 respectively. The front-loaded entrances of both TS 3 and TS 4 are facing in the same direction, from west to east (Plan 6.3; 6.4; 6.5).

Overall, due to close distances, the visibility among these four ovens is direct. The short distance between the ovens formed a net of free movements within the cluster and supports their concurrent use. The orientation of each of these structures clearly indicates spatial order

and preplanning. Excavation works have not revealed other contemporary structures, such as pits or platforms, inside Building 1 or in association with the cluster of fire installations to date. Spatial configuration of thermal structures inside the building and the lack of fire installations at the open-air space suggest that cooking in ovens was happening inside the houses. More cooking preferences or recipes, such as smoking meat or fish and grilling could also took place outside at the open-air spaces but these evidence are lacking to date. Typological standardization suggests that this hypothesis since it suggests that certain cooking practices had occurred inside the buildings. It has been suggested that type 1a ovens were mainly built for baking. Boiling, parching and grilling, however, is also regarded possible (Table 6.4; Atalay 2005; Atalay and Hastorf 2006; Cavanagh 2007; Douglas 1972; Valamoti 2007; Parker 2011).

The identification of a central feature within this oven cluster is not clear, however, this hypothesis could only be applied in the case of TS 2. TS 2 is a large size feature, constructed in central place within this broad kitchen area, segregated by two wall remains from both sides. A concentration of sherds at the external south-eastern side of the vault is recorded. This sherd concentration is similar with the sub-base (setting) of as platform for food processing practices (Figure 6.12; Plan 6.2; 6.12). TS 2 is the only oven within this cluster with orientation from west to east, developing direct visibility to the activities taking place in TS, TS 3 and TS 4. One could suggest that the spatial configuration of TS 2 not only facilitated direct visibility with the rest of the structures, but it may have also encouraged supervision of cooking performances there. Another hypothesis is the existence of two cooking groups instead of one inside Building 1. TS 1 and TS 2 form one group, while TS 3 and TS 4 form the second one. This hypothesis is supported by the proximity between the two suggested groups of ovens. In this case one could even argue for two separate spaces or rooms with different functional and cooking performances Building 1. The spatial distribution of finds and the lack of an inner partition wall remains, however, do not support this hypothesis (Plan 6.2; 6.12). My analysis suggests that these four ovens formed one cooking cluster, which was set in a unified single space in the eastern area of Building 1. It is argued that a space for cooking was formed in the eastern part inside Building 1, creating an area that marks spatial division of activities, in contrast to western space that is empty of structures (Plan 6.6). This spatial configuration, suggests a kitchen space of reciprocal daily activities and sharing of cooking experiences.

Building 2: Thermal structure 5

TS 5 is the only thermal structure found in the daub spread of Building 2 (Table 6.5; Plan 6.5). This is a type 1a oven located in the north-eastern part of the building (Plan 6.2; 6.5). A clay box was found at 1.90 m distance north-west of TS 5. The size of this clay box is 1.80 m length and 1.00 m width. Seven *in situ* loom-weights along with querns, awls, chipped stone tools, axes and pottery sherds was preserved inside the clay box suggesting a practice of shelter specific household equipments in a demarcated place (Plan 6.2; 6.10). The top surface of the western wall of the clay box construction was covered by a layer of sherds, a practice that has been discussed earlier and is also recorded in association with TS 2 inside Building 1. The estimated space occupied by the oven and the clay box is a 10 m² area, where cooking, food processing and possibly weaving occured.

The orientation of the oven's front-loaded entrance is south to north, developing direct visibility to the clay box and the activities carried out at the space between these two structures (Plan 6.3; 6.5). As discussed earlier, a type 1a oven was mainly preferred for baking, where boiling, parching and grilling may also occurred (Table 6.4) (Atalay 2005; Atalay and Hastorf 2006; Cavanagh 2007). This is a single cooking unit, performing specific culinary practices inside a relatively small building. In this case, cooking was neither a collective practice nor a shared experience. On the contrary, cooking was performed individually and was associated with other household activities, such as food processing and weaving.

6.4.1 Daily activities around fire: intra-site quantitative and spatial analysis of material culture in context

The total number of finds unearthed at the Western Sector of Dispilio site during the excavation seasons 1999 to 2008 is 4553 portable items. From these 2291 (50%) were selected as sufficient for GIS project (Figure 6.15). The selection criteria for plotting the items on distribution maps were mainly dictated by their identified in securely stratified layers. In this respect, 2262 finds (50%) were regarded as insufficient for spatial and quantitative analysis in present study. Most of these finds came from unstratified surface layers. Others were dated in the successive Bronze Age layer and finally there were these finds unearthed in unclear stratified contexts within the Late Neolithic layer or that lacks coordinate references due to excavation shortfalls during fieldwork.

This study focuses on 2291 (50%) stratified and georeferenced finds that provide contextual information on the use of space and the daily practices around the thermal structures in this area of the Neolithic settlement. My analysis is reliant on the examination of Phase A identified in this part of the site, therefore all finds examined here are classified in this cultural and habitation context (Figure 6.15; Plan 6.1; 6.6). The portable finds are classified in four main categories. These are groundstone tools (axes, axe fragments, groundstones, groundstone fragments, grinders, polishers and querns), chipped stone tools (chipped stone tools, flint cores, projectile points, quartz tools), bone tools (awls, bone tools, antler tines, fish-hooks) and miscellaneous objects (ornaments, clay objects, figurines, loom-weights, miniatures, round sherds, stone objects, fishing weights) (Table 6.6; Figure 6.15). In addition, thirty-four georeferenced pots were found in stratified Neolithic contexts at the western sector of the settlement and are included in this analysis (Table 6.7; Figure 6.15; Plan 6.10). Sorting and examination of pottery is still ongoing and the 34 pots introduced in my project represent only part of the overall pottery material. Nevertheless, these were all unearthed *in situ* in secure stratified contexts and that they were chosen for the current spatial and quantitative analysis. Most were found close to thermal structures inside buildings (Table 6.6; Plan 6.6). Given that the analysis of organic remains (archaeozoological and archaeobotanical material) at the western sector is in progress, this material has not been introduced for spatial and qualitative analysis. The discussion is developed through successive stages, by quantifying

each of the above categories of portable items unearthed in the inner spaces, then open-air spaces, and finally activity grounds around hearths and ovens.

6.4.2 Quantitative and spatial distribution of portable finds at inner spaces and open-air areas in Dispilio, Phase A

Table 6.6 and Table 6.7 demonstrate a nuanced quantitative and spatial reference of each category of portable items separately. Two dominant categories of portable finds from the western sector in Dispilio, Phase A, are chipped stone tools and miscellaneous finds (Table 6.7; Figure 6.15). Chipped stone tools occupy 42% (974 items), while miscellaneous finds hold the 32% of the overall finds (724 items; Figure 6.15; Plan 6.8). The unexpectedly high figures of miscellaneous finds are due to the augmented number of ornaments that occupy 23% (517 items) of total finds (Table 6.6; Figure 6.15; Plan 6.10). The third category in this order is groundstone industry tools with 13% (300 items), and then follows bone tools with 11% (259 items) of the overall finds in Dispilio, Phase A. Pottery takes up 1% (34 pots) of the items processed in this analysis.

With regard to chipped stone tools category, 943 chipped stone tools (41%), 20 flint cores (1%), nine projectile points (0%) and two quartz tools (0%) are identified here (Plan 6.8). Classification of chipped stone tools did not take place in the course of the excavation, therefore the term chipped stone tools incorporates several different types of chipped stone tools (Table 6.6; Figure 6.15; Plan 6.8). A chipped stone tools analysis is in process. Miscellaneous finds that incorporate 517 ornaments (23%), 20 clay objects (1%), 13 figurines (1%), 86 loom-weights (4%), seven miniatures (0%), 10 round sherds (0%), 46 fishing weights (2%) and 25 unspecified objects recorded as stone objects (1%) (Table 6.6; Figure 6.15; Plan 6.10). Their association with domestic practices is indirect, and most of them are considered as expressions of symbolic or ideological representations (Marangou 1996; Perlès 2001). In contrast, the significant number of loom-weights directly associated with weaving and the considerable quantity of fishing weights describe domestic and subsistence practices respectively. Groundstone tools are 300 items in total (13%) with 82 axes (4%), 48 axe fragments (2%), 52 groundstones (2%), 42 groundstone fragments (2%), 16 grinders (1%), seven polishers (0%) and 53 querns (2%) (Table 6.6; Figure 6.15; Plan 6.7). Querns and grinders are two significant categories in the present spatial and quantitative analysis due to their direct association with food processing (Perlès 2001, 342-6; Tsoraki 2007). In particular, querns and grinders constitute one of the basic criteria for the identification of the food preparation spaces developed close to the thermal structures under study. On the other

hand, bone tools is the fourth category of tools that include 259 items of the overall percentage (11%): 92 awls (4%), 157 bone tools (7%), six antler tines (0%) and three fish-hooks (0%) (Table 6.6; Figure 6.15; Plan 6.9). Thirty-four pots are identified and classified in context to date.

Building deposits

Given that three daub-spreads are interpreted as three collapsed building remains, this supports a quantitative and spatial analysis of the finds from inner and outer spaces (Plan 6.2). Sorting the finds into inner and outer spaces in the western sector of Dispilio, Phase A, followed the methodology described earlier in Chapter 4. Based on this method 18% (416 portable items) of the overall stratified finds are classified at inner spaces building deposits (Table 6.7; Figure 6.16; 6.17; Plan 6.6). In detail, the greatest accumulation of finds unearthed in an inner space was found in Building 1, where 178 portable items constitute a rich assemblage (Table 6.7; Figure 6.19). Subsequently, 141 objects are classified in Building 2 deposits (Table 6.7; Figure 6.20) and 118 portable items represent the assemblage of finds in Building 3 (Table 6.7; Figure 6.21).

Nearly all categories of finds were found in building deposits (Table 6.6; Figure 6.17; 6.19; 6.20; 6.21). Quartz tools are the only category lacking from these assemblages, however, only two quartz items are recorded in Phase A in the western sector of Dispilio excavation, which makes their absence less meaningful. Furthermore, 163 chipped stone tools (37%) comprise the dominant category identified in every building structure. The second major category are the 65 ornaments (15%), followed by other categories of finds such as 28 bone tools (6%), 26 axes (6%) and 21 awls (5%). Overall 21 pots (5%) are recorded in building deposits so far, marking clear preference for their spatial deposition in inner spaces. Moreover, 20 querns (4%) and 19 loom-weights (4%) have been identified in building deposits. Additionally, 15 groundstone fragments (3%), 11 groundstones (2%), 11 axe fragments (2%) and 11 fishing weights (2%) are recorded in the three buildings. Finally, seven grinders, five flint cores, four figurines and four polishers along with three clay objects, three stone objects, two antler tines, two round sherds, one fish-hook, one miniature and one projectile point are added to the toolkits of Buildings 1, 2 and 3 (Plan 6.6). The assemblages presented above in building deposits suggest a rich toolkit within households and indicates that a great variety of daily practices took place there. Furthermore, the recorded richness of finds implies a possible

privatized approach of daily life, where tools had been accumulated or stored inside buildings in private and individualized spaces (Beck 2007; Byrd 1994).

Deposits in open-air areas

On the other hand, 82% (1854 portable items) of the material culture unearthed at the area under study were concentrated in open-air spaces (Figures 6.16; 6.17; 6.18; Plans 6.6). Chipped stone tools that hold 42% (780 items) of the overall percentage constitute again the main category, while only 1% flint cores are recorded (15 tools). Ornaments comprise the second major category of finds with 24% (452 objects) followed by bone tools and awls that occupies 7% (130 tools) and 4% (70 tools) in respect. Additionally, loom-weights hold 4% (67 objects) of the overall proportion, forming a significant category indicative of the domestic activities that took place in the settlement. Moreover, axes and axe fragments hold 5% of the finds under discussion (with 56 and 37 tools in each of the two categories in respect). Groundstone fragments and groundstone tools occupy 3% of the overall proportion, with 1% (27 tools) and 2% (41 tools) respectively in each category. Fishing weights hold 2% of the finds found in the open-air area (35 items). Querns occupy 2% (33 tools) and only nine grinders are recorded in outside spaces of western sector of Dispilio, Phase A. Thirteen pots (1%) are identified here so far, distinctly less than what was found inside buildings. Finally, 22 stone objects, 17 clay objects, nine figurines, eight round sherds and eight projectile points, along with six miniatures, four antler tines and two fish-hooks enhance the archaeological deposits of open-air spaces at the settlement.

6.4.3. Thermal structures' *places*: domestic activities, food preparation areas and kitchen spaces in Dispilio, Phase A

Two cooking areas are selected for nuanced spatial analysis at the western sector of Dispilio settlement, Phase A. These areas are considered as places of recurrent domestic activities, were subjected to contextual examination that relates thermal structures with the portable finds recorded in the surrounding cooking spaces. The areas analysed are displayed in small-scale plans, where fire installations and portable items are plotted together creating a mosaic of information in context. The concentration of Thermal Structures 1, 2, 3 and 4 constitute a cluster of features recorded in Building 1 and are discussed here (Plan 6.2; 6.12). Thermal Structure 5, on the other hand, is a single unit unearthed in Building 2 that constitutes the second cooking space under discussion in this section (Plan 6.2; 6.13). The following study is an attempt to unravel daily activities in kitchen spaces in Late Neolithic Dispilio, Phase A and to create a synthesis of their social contribution as agents of routine practices within the settlement (Bourdieu 1977; Hodder and Cessford 2004; Lefebvre 1974; Overing 2003). This analysis focuses on the examination of the small-scale plans of each area under study is based on the theoretical and methodological framework designated in Chapters 2 and 4.

Building 1: TS 1, TS 2, TS 3 and TS 4

The western half of Building 1 is an area with a considerable concentration of finds and features. This area is in contrast with the overall loose distribution of items recorded in the eastern half of the dwelling (Plan 6.6). Four thermal structures, TS 1, TS 2, TS 3 and TS 4, occupy an approximately 25.00 m² space. All four features are type 1a ovens indicating homogeneity in cooking practices (Tables 6.4; Plan 6.11; 6.12). The remains of two inner parallel walls have been identified and can be related to TS 1 and TS 2 (Plans 6.11; 6.12). Due to their currently fragmented and badly preserved condition it is difficult to reconstruct their initial form, however, given that their average width does not exceed 0.15 m it is difficult to imagine them standing high. As a result, these walls are considered as low structures aiming to demarcate rather to separate a certain area (Figure 6.8; 6.10; Plan 6.12).

A high variability of material culture has been identified at the western part of the building. Chipped stone tools, bone tools, querns and pots are some of the recorded items that form rich food processing areas (Table 6.8; Figure 6.19; Plan 6.11; 12). The space created southern

of TS 1, west of TS 2 and north of TS 3 forms a distinctive kitchen area. In particular, four querns were recorded there, two of which were in direct association with both TS 1 and TS 2 (Plan 6.12). These two querns were closely related with grinders, groundstones and groundstone fragments suggesting *in situ* food processing next to the thermal structures. Chipped stone tools, one axe and one bone tool were closely related with the activities carried out at this small quern cluster. Another quern was placed directly west of TS 3 suggests grinding close to the oven (Figure 6.8; 6.10; 6.11; Plan 6.12). In comparison with the arrangement of the three late querns the fourth one was found in relative distance from the three ovens, 3.20 m rate from TS 1, 2.70 m and 1.45 m distance from TS 2 and TS 3 respectively. This spatial arrangement features one more food processing space used by the users of the three ovens in common. Apart from the tools mentioned above, a concentration of, so far, five pots unearthed in close proximity to each other, indicates the location where these vessels were stored or preserved (Figure 6.8; Plan 6.12). Two more pots were found west of TS 1 and TS 2. Their spatial arrangement inside Building 1 makes clear the close association of pots with thermal structures and articulates their contribution to the daily routine practices in the cooking areas. The diversity of practices taking place at cooking spaces is supported by the records of three figurines directly north and east of TS 3. The identification of figurines found only in this particular part of the building and their spatial association with the oven cluster indicates that these Neolithic kitchen spaces had also constituted gathering places for the practice of symbolic activities and the formation of social ideology and coherency. It may also embody cooking as part of a broader symbolic action (Douglas 1972). As opposed to the diversity of tools and objects unearthed in the western part of Building 1, only one loom-weight is recorded, which implies that weaving did not constitute the dominant domestic activity there or weaving took place elsewhere in the building (Plan 6.11).

Although TS 4 was constructed at a close distance to the assemblage of three ovens, on the west-southern end of Building 1 a separate kitchen space was formed. Two querns that constituted the centre of the food processing space are recorded in 1.00 m distance west of the oven (Plan 6.11; 6.12). Axes, groundstone fragments, flint cores, polishers, bone tools and fishing weights are also accumulated there producing a distinct kitchen space (Table 6.8; Plan 6.12).

Table 6. 1 Quantitative analysis of the finds unearthed in the TS 1, TS 2, TS 3 and TS 4 cooking spaces.

Finds	Antler tines	Axes	Axe fragm.	Awls	Bone tools	Flint cores	Figurines	Groundstones
Sum	1	5	4	4	13	2	3	5
Finds	Groundstone fragm.	Grinders	Chipped stone tools	Loom-weights	Ornaments	Polishers	Pottery	Fishing weights
Sum	5	3	41	1	5	3	7	5
Finds	Querns							
Sum	6							

Building 2: TS 5

TS 5 is a type 1a oven unearthed in the northern part of Building 2. With regard to the lack of more fire installations in its surrounding space, TS 5 is a single unit feature (Plan 6.6; 6.11; 6.13). Finds are evenly distributed across the full spread of Building's 2 deposits forming areas of diverse tool domestic contexts. Some categories, however, such as pots, querns and loom-weights suggest spatial emphasis on certain activities indicating distribution of activities in specific areas (Table 6.9; Plan 6.6). The suggested spatial distribution of activities supports the hypothesis of inner spatial division of labour (Hodder 1990; 2006; Hodder and Cessford 2004). Another structure is identified only 1.90 m north-west of the oven. This was a clay box, named Clay Box I, with 2.70 m maximum length at its northern end and 1.00 m maximum width at its eastern side (Plan 6.11; 6.13). The top surface of the eastern wall of Clay Box I is covered with a layer of sherds, while in its inner space seven loom-weights, two querns, two groundstone fragments, two chipped stone tools, three awls and a pot were also unearthed. The proximity of Clay Box I with TS 5 suggests close association between the two features and forms a space of diverse kitchen practices and domestic activities. The area occupied by the two structures is estimated at approximately 17.00 m^2.

At the eastern end of Clay Box I a small concentration of tools is recorded: four axes, one flint core, three groundstones and one chipped stone tool. Most interestingly, however, in the space south of the clay box and east of the oven structure, a remarkable accumulation of pots is recorded (Plan 6.13). Ten out of thirteen pots recorded within the building deposits were found in this 17.00 m^2 space. The pots were either clustered in pairs or distributed individually in close proximity to each other, close to the with the two features (Plan 6.11; 6.13). At the western end of Building 2, aligned with TS 5 a pot was found together with one figurine (the only one unearthed within this building deposit), one chipped stone tools and one groundstone.

At the other end, directly east of the oven a small concentration of three groundstones, three awls and two chipped stone tools constitute a discarded toolkit, possibly associated with cooking processing practices. Weaving within Building 2 is also supported by the identification of 15 loom-weights unearthed in the building deposits. Loom-weights were mostly unearthed in the northern half of Building 2 where Clay Box I and TS 5 were

constructed. This observation emphasises the diverse and spatially task-specific activities carried out inside Building 2. In addition, a dense concentration of various tools, such as groundstones, grinders, loom-weights, chipped stone tools, awls, one axe fragment and one quern designate the boundaries of the building, where a wall is believed to stand. This observation supports the hypothesis of a waste space.

Four food processing spaces were formed in close proximity and high visibility to the west and south-west of TS 5 (Plan 6.5). The distribution of tools identified within these food preparation spaces is similar and suggest regular food processing and analogous cooking preferences (Moundrea-Agrafioti 1996; Perlès 2001; Tsoraki 2007). In particular, two querns are recorded at 2.80 m distance from the oven being associated with two axes, one groundstone, one awl, one miniature vessel and a pot. South-western in 3.70 m and 4.20 m distance from the oven, two querns indicate another grinding space (Plan 6.13). Chipped stone tools, groundstone tools and bone tools are the three categories of finds identified within this concentration. Ultimately, two more querns are clustered together at 2.35 m from TS 5, where one loom-weight is also recorde within this grinding toolkit. It is obvious that within Building 2 food processing occurred both by the oven and at a small distance close to the feature.

Table 6. 2 Quantitative analysis of the finds unearthed in the TS 5 cooking space.

Finds	Axes	Axe fragm.	Awls	Bone tools	Flint cores	Figurines	Groundstones	Groundstone fragm.
Sum	15	3	13	4	1	1	37	5
Finds	Grinders	Chipped stone tools	Loom-weights	Miniatures	Fishing weights	Pottery	Querns	
Sum	5	28	15	1	3	13	11	

6.4 Discussion: '*cooking socialites*' at the Western Sector in Dispilio, Phase A

Even though, the western sector of Dispilio, Phase A represents a temporally restricted and spatially limited area of the Neolithic lacustrine site, however, provides the opportunity to understand household performances and associated socialities developed in this explicit spatio-temporal scale. Spatial configuration setting of thermal structures suggests spatial regularity and morphological homogeneity that indicates embedded cooking techniques and preferences (Table 6.4).

Common component for the formation and organisation of social space in the area under study is that all five fire installations were constructed inside building structures. There are no identified hearths and ovens at the open-air spaces at the western sector of Dispilio. The limited case studies examined here form a single unit of an autonomous kitchen space (the case of TS 5) and a cluster of four interrelated features (TS 1, TS 2, TS 3 and TS 4). The lack of fire installations found in the open-air areas and their explicit location inside domestic structures suggests that cooking took place inside buildings (Table 6.5; Plan 6.2). This observation supports the hypothesis of compartmentalisation and individualisation of household activities into domestic units, where cooking facilities were private rather than communal (Hodder 1990; 2006).

A series of common distribution patterns recorded around these type 1a ovens will be summarised and presented as separate cases and not as recurrent motives. Querns constitute the tools that define the food processing spaces within these inner Neolithic kitchen areas and were regularly unearthed in direct (*e.g.* TS 1, TS 2, TS 3, TS 4) or indirect (*e.g.* TS 5, Clay Box I) association with thermal structures in building deposits. Moreover, querns are often found with grinders and groundstone fragments (Plan 6.7), establishing grinding at these spaces and marking the consumption of cereals in the Neolithic meals and recipes in Dispilio (Perlès 2001; Tsoraki 2007). On the other hand, axes and axe fragments are only irregularly found in building deposits and their connection with fire installation is infrequent (*e.g.* TS 2, TS 4, TS 5) indicating that the shaping, splitting and cutting of wood did not commonly occur neither inside the building nor around the fire (Plan 6.7). Chipped stone tools are a category of finds unearthed in both building and open-air space deposits. The restricted number of kitchen space examples discussed discourages the identification of patterns by linking them with thermal structures. Their given presence, in every kitchen context examined, indicates

the contribution of these particular tools in food processing, such as the chopping of meat and vegetables (Plan 6.8) (Moudrea-Agrafioti 1996; Perlès 2001; Skourtopoulou 2006). In contrast, flint cores are rarely found in building deposits (*e.g.* north-east of TS 4 and south-west of the Clay Box I) suggesting that tool making was mostly done outside the houses (Plan 6.8).

In the context of five cooking spaces formed around TS 1, TS 2, TS 3, TS 4 and TS 5 bone tools and awls constitute regular components of domestic activities carried out there indicating that perforation of leather and sawing (was also taking place by the fire (Plan 6.9; Moudrea-Agrafioti 1996; Perlès 2001). Weaving was one more domestic practice recorded in building deposits, mainly by the concentration of seven loom-weights in Clay Box I in Building 2 demonstrated special care for their maintenance and storage. Overall 15 loom-weights were recorded in Building 2, three in Building 1 and four in Building 3. The bulk of loom-weight finds, however, was unearthed in open-air deposits possibly as wastes, mainly in the south-eastern area of Western Sector (Plan 6.6). In addition, even though figurines, models and miniatures occupy a small percentage of the overall finds recorded in this area of the settlement, these were found in association with fire installations in building deposits (Figure 6.15; Plan 6.10). Their representation in inner spaces is important, because it indicates that various activities unrelated to cooking and domestic daily tasks are also incorporated within the context of these daily arenas enhancing their multidimensional purposes. Figurines and miniatures are usually interpreted as symbolic representations of animals, humans, houses or even as childhood toys (Marangou 1996). A substantial concentration of ornaments is recorded in the western sector of Dispilio, Phase A, mainly clustered in the northern, southern and western spaces outside Building 2 (Figure 6.15; Plan 10). It is suggested that the dense accumulation of ornaments in this area might be in close association with domestic practices taking place in Building 2 and with the role of this dwelling in the broader social order. The presence of large concentration of pots (seven in Building 1 and thirteen in Building 2 respectively) in kitchen spaces supports the hypothesis of potential storing strategies inside buildings and limited sharing of toolkits and products (Hodder 1990; 2006).

Spatial distribution of kitchen areas identified in the inner building spaces suggests further compartmentalization of space and separation of domestic activities (*see* 6.3.2 spatial arrangements of thermal structures in Dispilio Phase A). At the same time, at two out of five

ovens (TS 1and TS 5) reconstruction works are identified by the remains of successive second floor layers (Figure 6.10; 6.13; 14; Plan 6.11; 6.12; 6.13). Reconstruction works mark a long-term spatial and functional preservation of space (Hodder and Cessford 2004; Overing 2003). Renewals of the oven floors reflects a practice of conscious decisions making for the preservation of cooking facilities. It also indicates standardized preferences of functional properties, cooking practices and recipes (Atalay and Hastorf 2005; Papadopoulou and Prévost-Dermarkar 2007; Parker 2011; Valamoti 2007).

The analysis above shows that there is no discrimination between certain categories of finds between the inner and outer spaces. Moreover, it supports that thermal structures mark kitchen spaces of cooking practices and those diverse domestic activities that occurred within buildings. A broader discussion of the social structure of the Neolithic lake-side site shows enclosed cooking and domestic activities, privatised use of tools and household equipments along with secluded house storage, which supports individualised and privatised daily life in socially restricted units (Byrd 1994; Chapman 1990; Halstead 1999b; Kotsakis 1999; Kuijt 2000; Valamoti 2005). At Dispilio an identified spatial homogeneity of fire installation is established, revealing a formulated and privatised household routine, where domestic daily life was performed within segregated units as opposed to commonly used activity areas, where social interconnection and interaction could be enhanced. This spatial compartmentalisation promotes social segregation and decreases the degree of daily sharing and interchange of domestic practices, whereas at the same time it consolidates the affiliations developed within each building separately. Therefore, the spatial observations discussed above suggest a rather settled way of living (Byrd 1994; Carsten 1995; Whittle 1997).

What came out of the spatial and contextual analysis of fire installations in the Western Sector of Dispilio, Phase A is that household daily activities occurred within buildings, in the private sphere. Based on these results, I am suggesting that domestic social strategies in Dispilio give an emphasis on private domestic lifeways and reflect individualised social order. Here, Neolithic people chose to build their houses in loose spatial arrangements, maintaining substantial spaces among them. Nevertheless, the open-air spaces did not constitute the arenas of daily domestic interactions, sharing and embedded social amalgamation as dwellings figure the predominant places of cooking and household practices. In Dispilio, household boundaries were clearly shaped and reflect choices of the

regional Neolithic social *habitus*. Privatised house strategies indicate that social cohesion had not been established in the domestic sphere and that cooking did not constitute the means to bring extended or diverse social groups together. In contrast, cooking as a daily and social act in Dispilio reflected a practice shared with co-residents and contributed in this ways in the formation of a distinctive social identity. Results of the analysis above are in accordance with the theoretical approach that regards thermal structures as connected to activities carried out inside buildings (Hodder 1990; Halstead 1999b; Efstratiou 2007; Souvatzi 2007; 2008a; 2008b). Open-air spaces between buildings were lacking thermal structures as well as other forms of identified features, such as waste pits, internal walls and platforms. Being short of identifiable finds concentration, the presence of which would suggest the presence of explicit activity areas or task-scapes (Ingold 1993), the accumulation of tools and objects in the open-air spaces is considered as the result of repeated waste practices. Beyond cooking other forms of social interaction that shaped and enforced communal cohesion, such as the cultivation of small gardens, may have taken place in open-air space (Bogaard 2005; Chapman 1989; 1990).

Chapter 7

Kitchen spaces in context: socialities of cooking in Macedonia and Western Thrace

'In reality, social space incorporates social actions, the actions of subjects both individual and collective who are born and who die, who suffer and who act' (Lefebvre 1974, 33).

7.1 Introduction

Among daily routines, food preparation, cooking and eating are some of the most influential human activities and contribute significantly to the formation of individual and communal identities (Douglas 1972; Janowski 1995; Lévi-Strauss 1997). These activities, which evoke memories of tastes and smells and can be held singly or communally, form individual identity, bond families and enhance social cohesion. Eating is a daily vital requirement for people. Therefore, the preparation and cooking of food constitute fundamental activities of daily routine. Meals structure the lives of both the preparers and the consumers, making eating the practice that best defines particular *habitus* (Bourdieu 1977; Douglas 1972; Lévi-Strauss 1997). Food is one of the links that forms the bonds of family and society. The study of food, meals and preparation can get us closer not only to daily life but also to the variable mentalities of diverse past societies. My analysis examines the location of the kitchen spaces, where food preparation, domestic scale cooking and eating occurred. I am also approaching these preserved archaeological spaces as dynamic *loci* of recurrent social interaction, as places for advanced sociality, and central areas of family or social gatherings that contributed to the formation of social values through the sharing of common space around the fire. The sharing of daily experience implies an intimate sharing of living spaces with impact and interaction among individuals and groups. Additionally, kitchen spaces illustrate how individual and social needs formulated spatial choices that became embedded into the individual body and the group as a whole, through generations and years of daily practices (Atalay and Hastorf 2005; Hodder 1990; Janowski 1995; Meskell 2001).

In the context of the contemporary research agenda, this chapter carries on the discussion initiated in Chapter 2.2 regarding settlement patterns and intra-site spatial organisation in prehistory; the discussion was later continued in Chapter 3.6 with reference to the case of Neolithic Northern Greece. A synthesis for the spatial distribution of kitchen spaces, as single cooking areas and parts of the broader spatial semi-macro scale settlement system (kitchen spaces are defined in chapter 4.2.3), will be developed here and, when given, the association of cooking facilities with other adjacent features will be comparatively presented among contemporary sites of the same or different type. A contextual analysis of the remains of material culture recurrently unearthed around cooking facilities will be also discussed. The data incorporated in this analysis are selected from site publications and site reports. Additionally, the results of micro- and semi-micro level analysis from the two case-study sites, Avgi and Dispilio, presented in detail in Chapters 5 and 6 respectively, will be also embedded in the present analysis. The main objective of this chapter is to identify kitchen spaces and to recover their spatial distribution in a range of Neolithic settlements in Northern Greece. The macro-level study enables the comparative analysis among different settlements and diverse settlement types, such as tells, flat-extended sites and lake-side sites, it illustrates the organisation of domestic space and it elaborates on the spatial manifestations of the mechanisms that formed social identities. The identification of regularities or irregularities in domestic spatial organisation reveals variability and complexity in social organisation and is reflected on diverse living spaces in the Neolithic (Bailey 1999b; Byrd 1994; Hodder and Cessford 2004; Kotsakis 1994; Lawrence and Low 1990; Tilley 1982).

7.2 Methodology for cooking socialities in context

The analysis presented bellow attempts to place cooking facilities in social context, and to create a synthesis that examines the spatial distribution of kitchen spaces in diverse habitation environments. The analysis examines the spatial patterns that emerge from the spread of thermal structures both inside dwellings and outside in adjoining spaces among buildings or at distant areas. Overall 30 excavated sites from Macedonia and Western Thrace are integrated in this study covering a broad chronological spectrum from the EN, to MN, LN and FN period (Table 7.2). Sites will be initially analysed in chronological order, in geographical distribution and based on their settlement type. Macedonia is presented in three basic geographical units — western, central and eastern — while Western Thrace constitutes the fourth unit. After the categorization of settlement types, the fourth step is to classify the sites based on the intra-site distribution of their kitchen spaces (Table 7.3). Furthermore, associations of cooking facilities with other structures, such as buildings, paved external spaces, pits, clay boxes and platforms will be also progressively discussed (Table 7.1). Finally, a contextual analysis of the material culture remains found in direct proximity with the thermal structures will be displayed when possible.

The objective of this seemingly compartmentalised approach is to monitor the process and recover possible diversifications of spatial configurations that emerge from variable geographical and social contexts over time (Table 7.2; 7.3). Furthermore, this approach aims at revealing the potentially distinguishable local social identities that might emerge from a meticulous intra-site spatial study in the broad geographical region of Macedonia and Western Thrace. Unlike the two case study sites, Avgi and Dispilio, where a detailed intra-site spatial and contextual examination took place (Chapter 5 and 6), this is a rudimentary analysis based on evidence made available in publications , and not through any on-site analysis. Therefore, the orientation of each feature, the inter-visibility with other structures, and the potential movements and pathways between structures, along with the estimated area of kitchen spaces in m^2 will not be displayed, except when provided in publications (e.g. Makriyalos). The described analytical framework unfolds the results of intra-site spatial study at an individual and local scale, while the succeeding discussion reveals the diversity of social space and produces regional and supra-regional narratives.

Site sample: selection criteria

There are three main selection criteria for the sites. To begin with, the entire material under study comes from excavated sites. Considering that this is an intra-site spatial study, I excluded the information given by survey projects as ineffective for the scope of the current analysis. From the sample of the selected 30 sites the excavated area at each settlement varies from small-scale trial trenches to large-scale excavation projects. When specified, the excavated area of each site is provided in m² (Table 7.1; 7.4). Even though, a noted variety has been identified in the extent of excavated area at each of the selected settlements, they are all encountered equally to support the development of a consistent analytical framework.

The second criterion, which set the selected sample, is the identification and classification of the analysed sites as settlements. From the very beginning of this thesis, it has been clear that my major interest is to examine the intra-site organisation of habitation areas. As a result, the main body of data for my analysis includes settlements, where the remains of domestic building structures are identified. Cemeteries, cave sites, and non-residential archaeological sites are excluded from the present analytical sample. For example, Toumba Kremastis Koiladas, which constitutes an extensively excavated site with rich material remains, is not included in the current study. According to the Director of the excavation Dr. Areti Hondroyianni-Metoki, Toumba Kremastis Koiladas comprises a concentration of borrow pits on the outskirts of a yet undiscovered settlement (Hondroyianni-Metoki 1999a; 1999b), so the site is not classified as a settlement and consequently it is excluded from the present analysis.

The final selection criterion is the discovery and identification of thermal structures at each of the analyzed settlements. Hearths and ovens, however, have not been found at 6 out the 30 samples sites. These are: Axos A in Yiannitsa, International Fair of Thessaloniki, Drosia in Edessa, Kolokynthou in Kastoria, Proskinites in Komotini and Paliambela in Kolindros. Nevertheless, the failure to identify cooking facilities in the above sites was not critical for their exclusion from the present analysis. In these settlements the missing thermal structures are considered as the result of variable and diverse restrictions. For example, excavation practices and poor preservation of architectural remains may have been decisive for the lack of hearths and ovens at the extensively excavated settlement of Kolokynthou Kastorias (1000 m²) as well as at Axos A (100 m²) and Yiannitsa B on Yiannitsa plain (Chrysostomou 1989; 1991; 1993; 1996; Chrysostomou and Chrysostomou 1990; Tsouggaris *et al*. 2002). The

limited excavated area factor is also essential to the extent that building structures, features and open-air surfaces are exposed. Therefore, the small-scale excavated area at the settlement of Drosia, Edessa (48 m²) and Proskinites in Komotini (32 m²) is considered key to the lack of recorded thermal structures there. In the case of large-scale excavations, such as Paliambela in Kolindros and International Fair of Thessaloniki (825 m²), the interpretation of missing thermal structures is more complicated, given the broad excavated spaces and the importance of these features in the subsistence and daily life of a settlement. In these two cases we are probably dealing with poor preservation of material remains, numerous post-depositional interruptions and potentially even with archaeologically intangible cooking practices (Binford 1978; Koetje 1993; Matthews 2005a; Schiffer 1987). The spatial distribution and functional preferences of cooking practices in these two settlements may have been occurred in open-air spaces among buildings or at the outskirts of these Neolithic villages. Either of these practices would be archaeologically elusive as a result of post-depositional effects (Binford 1978; Mathews *et al*. 1997; Schiffer 1987). Given the extensive earth removals in both sites, it is hard to believe that the areas of kitchen spaces were simply missed due to excavation practices.

Contextualizing thermal structures: applications and biases

In order to communicate and visually represent spatial information effectively in this study, the creation of regional maps has been chosen as the principal tool for inter-site, macro-scale analyses (Clarke 1977; Hodder and Orton 1976; Wheatley and Gillings 2002). The key conception for the creation of these maps is to accumulate and plot a considerable number of archaeological data together with the principal natural features of the broad geographical area of Macedonia and Western Thrace. In this way, settlement type distributions and intra-site spatial organisations can be compared with the local natural environment in different chronological sequences. The archaeological data shown in these maps are predominantly settlement types and intra-site spatial evidence of kitchen spaces, the results of which will subsequently be projected at macro-scale and thematically layered plans. Layers enable archaeological information to be categorised by diverse environmental and social milieus over time. The material under study will be compared in chronological and geographical order. Therefore, comparisons among similar and dissimilar data are expected to unfold regional- and local-scale social characteristics (Clarke 1977; Hodder and Orton 1976; Wheatley and Gillings 2002).

The necessity to generate two separate template-maps, one for Macedonia (western, central and eastern) and another one for Western Thrace, emerged because the geographically broad study area and the large number of archaeological information presented would have ultimately produced illegible visual results. The first step was to digitise two atlases, one for each given geographical region, in JPEG forms. The choice of atlases was made mainly due to their scale that enables a detailed and yet geographically broad representation of data, and supports synthesis and comparisons of archaeological information. Furthermore, these atlases show both the geographical features and the modern political boundaries. These are official atlases produced by the Hellenic Army General Service, Directorate of Geographical Crops. The atlas for Macedonia was generated at 1:1,000,000 scale, while the one for Western Thrace was produced at 1:900,000 scale (e.g. Map 7.1; 7.4). The next step was to insert the digitized maps into the software package Adobe Illustrator and to draw the natural features (mountains, plains, rivers, lakes) and the political borders of the studied regions. Along with the atlases and the application of Adobe Illustrator as primary tools, this research greatly benefitted from Google Earth. The accurate geographic information provided by Google Earth

enabled me to trace the latitude and longitude of the examined sites, when such information was not provided. In this way, the plotting of the overall 30 settlements in Adobe Illustrator maps was possible. All maps are with Northward orientation and labelled with conventional signs.

On the distribution maps two principal settlement types represent the majority of the site sample. These are the flat-extended sites and the tell sites. Lake-side or lacustrine sites are represented singly by Dispilio, while Paliambela constitutes the only complex settlement, where flat-extended and tell features co-exist. Additionally, Kolokynthou is not classified as a certain settlement type due to sort of data provided in its report (Tsouggaris *et al*. 2002). Bearing in mind that there is reason to be cautious with interpretations that rely too heavily on site type such as tells and flat-extended (as discussed in chapter 2), they, however, remain useful categories in the current analysis. Low-mound and tell sites will be presented as one category under the term tell sites. From 30 settlements in total, 5 of them are recorded as low-mounds sites. These are Nea Nikomedeia and Polyplatanos in Imathia (Merousis and Stefani 1998; 1999; 2000; Rodden 1962; 1964; 1965; Wardle 1996), Servia in Kozani (Ridley and Wardle 1979; Ridley *et al*. 2000; Wardle and Vlachodimitropoulou 1998), Paradeisos in Kavala (Hellström 1987) and Paradimi in Komotini (Bakalakis and Sakellariou 1981). Nevertheless, for the present analysis, these 5 sites are grouped as tells. The lack of a systematic and statistically adequate research on site-formation processes between tells and low-mounds led to the decision to categorise them together under one term. Such research could clarify potential morphological similarities and/or differences, and could ultimately create a consistent research framework for further social analysis (Krachtopoulou 2010). Therefore, in the present study the term tell site will be applied to the archaeological mounds created by human occupation and abandonment, regardless of the depth of stratigraphic sequences and the inner spatial organisation (Bailey 1999a; Chapman 1989; Rosen 1986).

Beyond the spectrum of research questions posed in the present study, the sample of 30 settlements illustrates variety of excavation practices in the prehistoric research of Northern Greece. For example, the excavated area at each site varies primarily according to the research questions, the excavation type (salvage or systematic) and research funding (Table 7.1). Nevertheless, all 30 sites have been considered equally applicable for spatial analysis. In this study, 10 sites exceed 1000 m² excavated area (Table 7.1; 7.4). From these, Makriyalos Pierias and Kleitos Kozanis currently constitute the largest excavation projects in Greek

Neolithic research (Pappa and Bessios 1999a; 1999b; Ziota 1995; 2008; 2009; Ziota *et al*. 2009). It is worth mentioning that three more of these settlements, such as Grammi Pellas, Kolokynthou Kastorias and Stavroupoli Thessalonikis, were excavated as a consequence of large public works. Taken as a whole, the contribution made by large-scale salvage excavations to revealing Neolithic cultural and social identities is substantial in this region. Only four large-scale excavated sites are the result of systematic excavations: Avgi and Dispilio in Kastoria, Dikili Tash in Kavala and Nea Nikomedeia in Imathia. On the other hand, the excavated area occupies less than 1000 m² at 12 sites in total (Table 7.1; 7.4). From these sites International Fair of Thessaloniki in Thessaloniki, Promachonas-Topolnitsa in Serres and Makri in Alexandroupoli represent relatively bigger excavation projects in comparison with the remaining 9 sites, none of which exceeds 200 m² excavated area (Table 7.1; 7.4). Finally, for altogether 8 sites the extent of the excavated area is not specified in either publications or reports (Table 7.1; 7.4) (Bakalakis and Sakellariou 1981; Chrysostomou 1989; 1993; Elster and Renfrew 2003; Hellström 1987; Kotsakis and Halstead 2002; Mylonas 1929; Peristeri 2002; Renfrew *et al*. 1986; Ridley *et al*. 2000).

7.3.1 Thermal Structures in context in the Early Neolithic period in Northern Greece

Geographical distribution of excavated EN sites

The Early Neolithic (EN) in Greece, dated from 6500 to 5800 cal BC, remains a poorly investigated period. Even though the archaeological research of the past 30 years has revealed an admirable number of Neolithic settlements spread broadly all over Greece, EN sites are conspicuously missing. It appears that systematic field surveys, site definitions and excavation projects were unable to trace a substantial corpus of EN settlements mainly due to the focus of these projects on alluvial plains and basins (Perlès 2001; Andreou *et al*. 1996; Hondroyianni-Metoki 1990; 1992; Kotsakis and Andreou 1992; Merousis and Stefani 1999; Ziota and Hondroyianni-Metoki 1993). Not all regions were occupied or settled, while settlement density varied widely (Map 7.1). At a local scale, the scarcity of EN sites in Macedonia and Western Thrace is in-line with the general picture of sparse habitation on mainland Greece during this period. Only recently, due to large-scale public works in the region, a progressively growing number of EN settlements is steadily being exposed (e.g. Filostairi Mavropigis in Kozani; Hondroyianni-Metoki 2012).

In particular, the EN has not yet been documented in Central Macedonia and Western Thrace. Recently, at the Neolithic site Dikili Tash in eastern Macedonia, sporadic finds of EN occupation layers have been revealed. Chipped-stone tool concentrations unearthed at the site demonstrate the first occupation in the region (Darcque *et al*. 2009; 2011; Lespez *et al*. 2013). Dikili Tash in Kavala is not only the sole excavated site in Eastern Macedonia, but it is also the only site that revealed EN occupation layers in the broader geological formation of the Greek side of the Rhodope Massif. In contrast, Western Macedonia appears richer in EN material culture (Map 7.1). Six excavated sites revealed EN cultural remains. These are Axos A and Yiannitsa B in Yiannitsa, Drosia Edessas, Nea Nikomedeia Imathias, Polyplatanos Imathias, Servia-Varytimides Kozanis (Table 7.1). All of the above sites are geologically positioned at the Pelagonian zone formation in relatively close proximity and similar environments (Bintliff 1977; Higgins and Higgins 1996; Perlès 2001). Yiannitsa B and Axos A in Yiannitsa, along with Polyplatanos and Nea Nikomedeia in Imathia, were found on alluvial plains. Drosia Edessas and Servia-Varytimides Kozanis were located in the contrasting landscape in the mountains above the 1000 m contour (Map 7.1). In the broader region of Northern Greece, no coastal EN site has been identified so far. In 1988 Psychoyos

(1988) recorded only 12 EN coastal sites in Greece, none of which was found in Northern Greece. In agreement with Psychoyos' (1988) settlement model, all seven of the selected settlements were found at alluvial plains or mountains. Examining the general distribution of EN sites in Greece and particularly by Macedonia and Western Thrace, it appears that the Neolithic farmers had well defined criteria in choosing the regions of their settlements (Map 7.1) (Perlès 2001, 113). Perlès' observations led to a general suggestion that EN settlement were concentrated in the Eastern part of Greece (Perlès 2001, 113); however, as described above, this scheme is not applicable in the eastern part of Northern Greece, which is devoid of EN sites.

Settlement types in the EN period in Northern Greece

The excavated sites in Northern Greece during the EN period show uniformity in settlement forms (Table 7.2; Map 7.1). The visible tell sites predominated. From the overall seven sites, six are tells, five of which are located in Western Macedonia; these are Axos A and Yiannitsa B in Yiannitsa, Nea Nikomedeia and Polyplatanos in Imathia and Servia-Varytimides Kozanis. Dikili Tash in Kavala in Eastern Macedonia is another classified tell site. In Western Macedonia, Drosia Edessas is the only flat-extended site excavated to date. It is worth noting that this flat-extended site is located in a mountainous environment unlike the majority of the EN tell sites found on the plains (with the exception of Servia-Varytimides Kozanis that is also located in the mountains). Thus far, there is not yet a published lake-side site classified to the EN period. From the maps of the above settlement types and their geographical distributions, we cannot identify any association that links the settlement form with certain geographical or environmental contexts. It appears that in the EN period tells were the predominant settlements type regardless the geographical dispersion. In this respect, the assemblage of EN sites found on the Yiannitsa plain is not only the result of habitation choices at that time, but also the outcome of the intensive middle Aliakmon survey project in the region (Hondroyianni-Metoki 1990; 1992; Ziota and Hondroyianni-Metoki 1993).

What is noteworthy, however, is that besides the limited EN research in Northern Greece and the few related archaeological data, the location of a flat-extended site at a relatively close distance from the sites clustered on the Yiannitsa plain is certainly an indication that tells were not the only habitation form at that time and that a certain degree of settlement and social diversity also occurred. Perlès (2001, 174) agrees that the formation of tells started in the EN and reflect the permanence of the settlement over generations and a constricted concept of village space. Chapman (2008, 78) argues that tells began their life as villages, as opposed to flat-extended sites that began as single-household or hamlets. In Northern Greece, however, as a result of the sparse and spatially fragmented nature of archaeological evidence, along with the lack of an adequate number of sites that demonstrate continuous stratigraphic sequence throughout the Neolithic, none of the above two theories can be sufficiently proven thus far. The tell sites of Servia Kozanis and Dikili Tash Kavalas constitute the only two excavated and published sites in the region to date with continuous stratigraphy that covers a broad chronological span from the EN to the LN period. Their geographical dispersal and the limited research at the EN layers of sites discourage their connection with Perlès's and

Chapman's theoretical models that were produced for EN habitation in Thessaly and south-east Europe respectively (Serbia, Hungary, Romania and Bulgaria in particular).

Intra-site spatial organisation of kitchen spaces in the EN period

The intra-site spatial organisation of kitchen spaces during the EN period in Northern Greece is difficult to identify. A suggestion of intra-site spatial patterns from merely seven excavated sites is invalid as this number is too low to identify meaningful patterns (Table 7.3; 7.5). In particular, EN architectural remains of building structures or other domestic features are lacking from Dikili Tash in Kavala, Servia-Varytimides Kozanis and Polyplatanos Imathias (Map 7.2). Evidence of first occupation layers at Dikili Tash was identified by the sparse remains of pottery sherds and chipped stone tools, but not building remains or thermal structures were found (Darcque *et al*. 2009; 2011; Lespez 2013). Similar findings also mark the EN occupation layer at Servia-Varytimides. Chipped stone tools and sparse pottery sherds were the remains of the first occupation at the site, alongside a lack of structural remains or fire installations (Ridley *et al*. 2000). Polyplatanos is another site where architectural remains are missing in its EN occupation layer. What marks the EN occupation layer at Polyplatanos Imathias are rare finds of pottery sherds and chipped stone tools (Merousis and Stefani 1998; 1999; 2000).

Nothing secure can be inferred about intra-site spatial organisation from Yiannitsa B on Yiannitsa plain in any period. Three chronological phases are identified at the site: Phase 1 represents the EN occupation layers, Phase 2, the MN remains of material culture and Phase 3, the habitation remains of the LN period. The excavation results are not fully published. Therefore, our knowledge on the site is based on yearly reports that are missing coherent chronological classifications of the building structures, hearths and ovens unearthed at the site. More than 8 buildings were found at Yiannitsa B. The building techniques used for their construction varies. Pit-dwellings, post-framed buildings and foundation trenches were found at the site, but the building types and number of buildings are not recorded for each chronological period in the reports. The excavation at Yiannitsa B unearthed three hearths and ovens, from which only one was found as part of the interior domestic equipment of a building. The reports do not refer to the chronological context of each of the three features. Additionally, there is no spatial reference for the two out of the three thermal structures present at the site (Chrysostomou 1989; 1991; 1993; 1996; 2003; Chrysostomou and Chrysostomou 1990). Yearly reports are also the sole source of information for the flat-extended site Drosia Edessas. The site was inhabited during the EN and the MN periods. Two building structures of unknown construction techniques and morphological attributes are

recorded at the site, but the report does not provide a chronological classification of the two buildings, and does not attribute them to either the EN or the MN periods (Kotsos 1992). At the same time, the lack of thermal structures at Drosia Edessas could be the result of small-scale excavation (48 m²).

Further evidence of the chronological classification of architectural remains comes from Axos A in Yiannitsa. Three habitation phases have been identified in the EN period alone. In Phase 1, the remains of a post-framed building were exposed. Additionally, the excavation works unearthed the remains of two post-framed buildings in Phase 2 and the remains of a pit-dwelling structure in Phase 3 (Chrysostomou 1996). The lack of thermal structures in each one of these three EN habitation phases is possibly once again the result of the small scale excavation at the site (100 m²), that prevented the identification of kitchen spaces. Nea Nikomedeia Imathias is the only EN site in Northern Greece that permits an intra-site spatial analysis of domestic scale kitchen spaces, as the large-scale excavation conducted at the site (1690 m²) revealed 24 buildings. Nine buildings are classified in Phase 1, nine more in Phase 2 and finally Phase 3 is represented by six building structures (Figure 7.16; 7.17; 7.18; Wardle 1996). The buildings are square or rectangular in shape, post-framed with foundation trenches (Wardle 1996, 44-6). Hearths and ovens are also recorded at Nea Nikomedeia. Due to unclear morphological and structural characteristics, however, the classification of thermal structures into two distinct categories (hearths and ovens) is not possible, and the exact number of thermal structures also remains ambiguous (Wardle 1996, 50-2). At Nea Nikomedeia the association of hearths and ovens with buildings is direct. Thermal structures were found both inside and outside the houses but always directly related to them (Figure 7.16; 7.17; 7.18; Map 7.2). It has been suggested that the spatial variety of cooking facilities inside and outside the houses strongly suggests varied uses (Perlès 2001, 196). Organic remains, ashes and charcoal were the most regular finds inside and around fire installations at EN Nea Nikomedeia (Wardle 1996, 51). Neither Rodden, in his reports (Rodden 1962; 1964; 1965), nor the publication followed in 1996 (Wardle 1996) indicate an association between the thermal structures and other categories of material culture, such as pots, tools and figurines.

Given the shortage of data, we are unable to compare and contrast the spatial and contextual data of thermal structures from Nea Nikomedeia to other contemporary sites in the region. Comparing the contextual association of hearths and ovens with successive chronological

periods, however, such as the Middle and the Late Neolithic, the lack of pots and grinding tools mark a prominent difference. Three different interpretations are suggested here for the presence of organic remains, ashes and charcoal and the parallel lack of storage and cooking vessels or other tools for food processing around the Nea Nikomedeia thermal structures. The first hypothesis suggests that food processing took place independently of thermal structures, in separate areas inside or outside the buildings. That leads us to the second hypothesis that hearths and ovens were simply cooking facilities and did not form distinct, fully equipped kitchen spaces where food processing, cooking and gathering occurred. Based on the Nea Nikomedeia example one could suggest the general lack of recurrent spatial patterns of kitchen spaces during the EN in Northern Greece.

Discussion

The above descriptions of local and regional archaeological evidence, illustrates our current poor knowledge of the EN period in Northern Greece. It is clear that not all regions in Northern Greece were occupied or settled, while settlement density also varied widely. The restricted number and usually small-scale excavated EN settlements in the region, along with the limited exposure of architectural remains can neither sustain an extended discussion on settlement patterns nor can it support analytical and interpretational attempts at regional intra-site models. The lack of homogeneity of the distribution of the seven excavated sites in the sample discussed above, however, illustrates that the EN in Northern Greece may represent local phenomena with limited expansion prevailed at a single region. Six sites were clustered within the natural boundaries of the Pelagonian zone, which constitutes part of the broader geographical area of Western Macedonia. In contrast, a single excavated site is recorded at the much smaller area of Eastern Macedonia, which is part of the broad geological formation of the Rhodope Massif. In geographical terms the contingency of the four sites on the Yiannitsa plain, Axos A, Yiannitsa B, Polyplatanos and Nea Nikomedeia, enabled the development of shared cultural and social traditions. Nevertheless, the settlements of Drosia and Servia-Varytimides positioned in the mountains could indicate other diverse cultural and social formations. Additionally, Dikili Tash in Eastern Macedonia can represent one more local cultural group. Overall, the EN farmers had well defined criteria in choosing the region where they founded their settlements, with alluvial plains being their primarily focus of attention.

Another interesting point that arose in the above discussion of the analysis is the uniformity of settlement forms. Regardless of the geographical dispersion, it appears that tells were the principal settlement type. The discovery and excavation of one flat-extended settlement, however, indicates that tells were dominant but not the only habitation form at that time and that a certain degree of settlement and social diversity may have also occurred. Combined, this evidence suggests the presence of local cultural and social phenomena at the EN in Macedonia and Western Thrace. Due to restricted data, however, further speculation on the formation of EN local lifeways cannot be supported by the examination of intra-site spatial and contextual analyses. EN architectural remains and other domestic structures are lacking from most of the sites under study. As a result, until more contemporary archaeological data

comes to light, further spatial and contextual comparisons cannot be attempted. Nea Nikomedeia is the only EN site in Northern Greece where analysis of the intra-site spatial organisation is possible. The large number of exposed buildings there marks an organised daily pattern of living. The fact that thermal structures were found both inside and outside the dwellings, but always directly related to them, strongly indicates varied uses. The sparse contextual remains of material culture around hearths and ovens at Nea Nikomedeia suggest that cooking facilities there did not form fully equipped kitchen spaces. Although Nea Nikomedeia has a rich EN material culture, it will not be used here as a paradigm for the production of broader regional interpretational schemes. The EN period in Macedonia and Western Thrace remains a field of future focused archaeological research.

7.3.2 Thermal Structures in context in the Middle Neolithic period

Geographical distribution of excavated MN sites

During the last 30 years archaeological research in Macedonia and Western Thrace revealed a growing number of MN sites, dated from 5800 to 5300 cal BC. On a regional scale, the dispersal and density of sites in Northern Greece is more variable in the MN, covering a wider geographical spectrums (Map 7.3; 7.4). As opposed to the EN, the MN period is documented in every territory of Northern Greece, in Western, Central and Eastern Macedonia as well as in Western Thrace. Diversity in settlement types is also recorded, since tells, flat-extended sites, lake-side sites and complex sites, which demonstrate both tell and flat-extended morphological qualities, coexisted (Table 7.2; 7.3; Map 7.5; 7.6).

Altogether 19 sites meet the selection criteria described above and are, therefore, incorporated in the following analysis (Table 7.1; 7.2; 7.3). Starting westwards, six MN excavated settlements are recorded in Western Macedonia. These are Kolokynthou, Dispilio and Avgi in Kastoria, Drosia Edessas, Grammi Pellas and Servia Kozanis (Map 7.3). Five of these six sites, Kolokynthou, Dispilio, Avgi, Drosia and Servia, are located in mountainous environments that only just exceed 700 m in height. Grammi, on the other hand, has been located in a hilly environment which is less than 500 m high. What is worth noting, however, is that all six sites were founded in direct or indirect association with water resources. It appears that the natural qualities of Orestida Lake, Vergotida Lake and Aliankmon River and streams composed attractive natural environments that served the subsistence needs of the local MN settlers. In Central Macedonia, in contrast, another inter-site spatial pattern emerged. Seven excavated MN settlements are in accordance with the selection criteria and formed part of the present analysis. These are: Yiannitsa B in Yiannitsa, Paliambela Kolindros, Stavroupoli and Thermi in Thessaloniki, the International Fair of Thessaloniki, along with Lete I and Lete III on Langadas plain (Map 7.3). All seven of these settlements have been placed in plains in direct or indirect proximity with water resources. In contrast with the MN sites excavated in Western Macedonia, the excavated settlements in Central Macedonia show preference for plains. Another point that differentiates the spatial dispersal of these settlements is their association with the sea. Stavroupoli, International Fair of Thessaloniki, Thermi, Paliambela, Lete I and Lete III are all placed around the Thermaic Gulf Sea. Yiannitsa B, however, is set well away from the Macedonian coast. In geological terms,

the wide area of Macedonia has been formed by the Sub-pelagonian zone, the Pelagonian zone, the Vardar zone and Serbo-Macedonian zone (Bintliff 1977; Higgins and Higgins 1996; Perlès 2001). Evidence of MN occupation is recorded in each one of these geological formations, illustrating a wide-spread occupation.

In contrast to the dispersed EN settlement pattern recorded in Eastern Macedonia and Western Thrace, denser inhabitation has been identified there during the MN period. With regards to Eastern Macedonia, in particular, Dikili Tash and Dimitra in Kavala along with Arkadikos Dramas constitute the 3 excavated sites in the region. Arkadikos and Dimitra were founded in plains, while Dikili Tash is located in a hilly environment, which does not exceed more than 500 m in height. Moreover, the site of Dimitra is indirectly associated with the Strymon Gulf (Map 7.3). Ultimately, Western Thrace is currently represented by 3 excavated settlements: Paradimi and Proskinites in Komotini, along with Makri at Alexandroupoli. All three sites are located on plains at the southern part of the region, while Makri was founded in direct visibility and association with the sea (Map 7.4). The North-eastern plain and the northern mountainous areas of Western Thrace (the Rhodope Massif) were not inhabited during the MN period. All sites from Eastern Macedonia and Western Thrace fall in the broad geological formation of the Rhodope Massif.

It is clear that from MN period in Macedonia and Western Thrace people became well settled (Grammenos 1996, 42). Plains with direct or indirect access in water resources seem to have been preferred, whereas mountains seem to have been inhabited mainly in the Western Macedonia region. In comparison with the inland EN settlement dispersal, during the MN period a shift to coastal areas is also noted. Around the wide coastal area of the Thermaic Gulf four settlements were excavated (Paliambela, Stavroupoli, Thermi, International Fair of Thessaloniki). Additionally, in Western Thrace the closeness of the MN settlement Makri to the sea is prominent. The proximity to the sea during that time marks a possible intensification of seafaring, which subsequently underpinned contacts with other social groups and enhanced subsistence economy with maritime resources (Broodbank 2000; Cherry 1981; 1985; Finlayson 2004; Patton 1996). This shift to coastal areas may have well encouraged the MN economy to flourish and even possibly may have resulted in the settlement growth described above.

Settlement types in the MN period in Northern Greece

In contrast with the EN period, during the MN the excavated sites in Northern Greece illustrate diversity in settlement forms. In the large-scale analysis, from the 19 MN sites in the sample discussed in this study no prominent settlement type emerges from the wide area of Northern Greece. On the contrary, differences in settlement type preferences have been identified at the local scale. Looking at the general picture, out of 19 MN excavated settlements, eight are tell sites (Table 7.1; 7.2; Map 7.3; 7.4). Servia Kozanis constitutes the only excavated tell site in Western Macedonia. Furthermore, Yiannitsa B in Yiannitsa is the only MN tell site excavated in Central Macedonia. Tell sites constitute the only type of settlement found in the MN in eastern Macedonia and western Thrace and to date no other form of settlement has been excavated (Chrysostomou 1989; 1991; 1993; 1996; Chrysostomou and Chrysostomou 1990; Ridley *et al*. 2000). Dimitra and Dikili Tash in Kavala, along with Arkadikos Dramas represent the three MN tell sites excavated in the region. Further east, in Western Thrace, three more tell sites, Paradimi and Proskinites in Komotini and Makri Alexandroupolis represent the MN occupation in the area (Bakalakis and Sakellariou 1981; Efstratiou 1993b, 35-6). Overall, in Northern Greece a total of eight excavated flat-extended sites have been classified for the MN period. In Western Macedonia three out of the total five MN sites are classified as flat-extended sites. These are Avgi Kastorias, Drosia Edessas and Grammi Pellas (Table 7.1; 7.2; Map 7.3) (Chrysostomou *et al*. 2000; 2001; Kotsos 1992; Stratouli 2004; 2005; 2007; Stratouli *et al*. 2010). Consequently, in Central Macedonia, five out of seven MN sites are recorded as flat-extended sites: Lete I and Lete III in Langadas, Stavroupoli and Thermi in Thessaloniki along with the International Fair of Thessaloniki.

I argue that the concentration of five contemporary sites of the same settlement type in similar natural environments (the alluvial Langadas plain) and in proximity to the sea (close to the Thermaic Gulf) indicate the possible sharing of common traditions and lifeways. Thus far, the only published lake-side site recorded in MN Northern Greece is Dispilio Kastorias in Western Macedonia (Hourmouziadis 2002a). Paliambela Kolindros is the only complex site, which incorporates both tell and flat-extended morphological characteristics, recorded in Macedonia and Western Thrace to date (Blackman 2001; 2002; Kotsakis and Halstead 2002; Kotsakis *et al*. 2005). Finally, due to lack of sufficient information provided in the report

(Tsouggaris *et al*. 2002), Kolokynthou Kastorias in Western Macedonia remains unclassified. However, the extensively excavated area of nearly 1000 m² and the recorded large open-air spaces within the settlement area indicate that Kolokynthou may be described as a flat-extended settlement. In Eastern Macedonia and Western Thrace, in particular, several similarities are noted in the choice of natural environments. Arkadikos Dramas and Paradimi Komotinis are located in inland plains. Additionally, Dimitra in Serres and Makri Alexandroupolis were founded in proximity to a coastal area. Proskinites Komotinis is also found in a plain environment, whereas Dikili Tash in Kavala is situated in a hilly location lower than 500 m high (Map 7.4). With the exception of Dikili Tash in Kavala in the MN the rest of the sites discussed here demonstrate evidence of settled living and these are all tell sites (Table 7.1; 7.2).

Although preferences in certain natural environments and settlement types do not constitute sufficient evidence of cultural and/or social communalities, they can be, however, indications of habitation uniformity, common living choices and lifestyles. Local preferences are also identified in Central Macedonia, in the area of Thessaloniki and on the Langadas plain, where the cluster of five flat-extended settlements, Lete I and III, Stavroupoli, Thermi and International Fair of Thessaloniki, constitute a group that shares adjoining environmental surroundings and same settlement form (Map 7.3). At the western end of the Thermaic Gulf, however, Paliambela Kolindros is the only complex site unearthed in the wide area of Northern Greece overall, while Yiannitsa B located further north on the Yiannitsa plain is the single excavated tell site in Central Macedonia. Paliambela Kolindros and Yiannitsa B support the discussion of diverse living lifeways, in a region where flat-extended sites have been considered the dominant settlement type (Andreou and Kotsakis1987; 1994; Chapman 1989; Grammenos 2006; Pappa 1993b; 2007). Western Macedonia, on the other hand, illustrates evidence of notable local diversity and variability in habitation styles. Three flat-extended sites, Avgi Kastorias, Drosia Edessas and Grammi Pellas, are loosely distributed in the region. In addition, Dispilio and Servia represent the single excavated lake-side site and tell site recorded in the region. Furthermore, Avgi, Dispilio and Kolokynthou in Kastoria formed a cluster of diverse settlement types, which indicates that variable living traditions coexisted at that time on a local scale. Even though local differences in habitation forms are distinguished, the conjoining mixture of settlement types recorded on the local scale in Western Macedonia constitutes a unique case in Northern Greece overall.

Intra-site spatial organisation of kitchen spaces in the MN period

The intra-site organisation of MN kitchen spaces in Northern Greece is difficult to capture and classify. The considerable number of 19 excavated MN sites in this region, however, makes such an attempt a promising challenge (Table 7.3; 7.6). The uneven state of research at certain locations and the variable scales of the area excavated at each site (Table 7.4) resulted in the creation of a divergent site sample in Macedonia and Western Thrace. From the 19 excavated sites incorporated in the analysis, 6 of them lack thermal structures (Table 7.3; 7.6; Map 7.5; 7.6). In Western Thrace, the site of Proskinites in Komotini constitutes a small-scale (32 m²) excavation that revealed the remains of a one phase settlement. The Proskinites site was inhabited from the late MN to the early LN periods (Map 7.6). An unstated number of post-framed buildings and habitation floors were recorded there, although, possibly due to the limited excavated space, the remains of thermal structures are missing (Efstratiou 1993b, 35-6). Evidence of continuous occupation from the EN to the MN period is also recorded at Dikili Tash in Eastern Macedonia by the remains of pottery sherds and chipped stone tools. Building remains and thermal structures, however, are missing from the MN excavated layers (Map 7.5) (Darcque *et al*. 2007; 2009; 2011). In Central Macedonia, the rescue excavation at the International Fair of Thessaloniki revealed 15 pit-dwellings scattered loosely over an 825 m² area (Map 7.5; 7.25). In spite of the considerable excavated surface, cooking facilities are missing from what has been interpreted as part of the habitation area of a large MN settlement (Pappa 1993a; 2008). The failure to identify thermal structures at the International Fair of Thessaloniki might be related to the raw materials used and the choices of building techniques used for the construction of cooking facilities. Another reason for such an information shortage might be related to preservation conditions or to the probability that the location where hearths and ovens clustered within the settlement did not fall within the excavation area.

Additionally, limited information on intra-site spatial organisation is known from the systematic excavation Paliambela Kolindros at the western side of the Thermaic Gulf (Map 7.5). The site is formed of a system of ditches and mud-brick constructions but, although this is an ongoing excavation project, the number of the identified buildings is not yet recorded in yearly reports. No thermal structures have so far been reported from Paliambela (Blackman 2001; 2002; Kotsakis and Halstead 2002). As a result, the site does not meet the requirements

necessary to be incorporated in the present intra-site spatial study. The case of the site Drosia Edessas has been discussed earlier in this chapter (Chapter 7.3.1). Even though two buildings were unearthed at the site, the report failed to identify the chronological phase and whether these two structures belonged to the EN or MN inhabitation of the site. Additionally, records of cooking facilities are also missing (Kotsos 1992). Kolokynthou is another site where intra-site spatial analysis of cooking spaces is not applicable (Map 7.5). The 1000 m² wide salvage excavation conducted in 2001 revealed a rich material culture dated to the MN, LN and FN periods. Pits, floors, post-framed and pisé buildings were unearthed there, but the lack of hearths and ovens in the excavated part of the settlement resulted at a shortage of evidence for the location of food processing and cooking (Tsouggaris *et al*. 2002, 630).

Three additional sites have been considered insufficient for the present intra-site spatial analysis. In the small scale (32 m²) excavation at Dimitra in Serres, dated to the MN and the LN periods, even though the results of the excavation are published in a single volume the lack of a site plan and the failure to provide evidence for building structures prevent a discussion of intra-site spatial organisation (Map 7.5; Grammenos 1997). Moreover, the remains of three hearths are lacking chronological, spatial and contextual references. Thus Dimitra is excluded from the current intra-site spatial analysis because of the shortage of spatial and contextual data. Due to its EN material remains, Yiannitsa B was discussed earlier in this chapter (Chapter 7.3.1). Although an assemblage of three hearths and ovens was found during the excavation, the shortage of chronological, spatial and contextual classification of the material culture made the site inadequate for a spatial analysis that aims to examine intra-site spatial associations. Finally, the MN deposits at the lake-side site Dispilio, found in the eastern sector of the excavation, are heavily disturbed due to the tidal flow effect in the archaeological layers (Fig. 6.3). The results of palaeoenvironmental and site formation processes analyses suggest that during the MN period dwellings were built on raised platforms in the shallow lake-bed area by the shoreline (Fig. 6.2 top) (Karkanas *et al*. 2011). The collapse of these structures created assemblages of architectural remains and out of context scatters of portable finds, resulting in a restricted spatial and contextual study. Remains of a yet unspecified number of thermal structures have been unearthed at the MN layers of Dispilio, but their analysis constitutes a future research project.

From the sample of 19 MN sites, only ten are qualified for the current analysis. Even though the number of sites efficient for spatial analysis increased in comparison with EN period, it

still remains difficult to identify succinct spatial patterns. Here I am discussing the sites based on the spatial configuration of thermal structures in three main categories: inside buildings, in the open-air spaces, both inside and outside of building structures. I will now turn to the discussion of the sites where hearths and ovens were found inside the dwellings.

In Western Thrace, systematic excavations at the tell site Makri Alexandroupolis revealed the remains of a significant Neolithic settlement. The settlement was inhabited during the MN (Makri I) and the LN (Makri II) periods. Post-framed buildings, successive lime floors, pits, clay platforms, hearths and ovens are the main structures identified (Map 7.6). A rich material culture of domestic and symbolic remains, such as pots, groundstones, chipped stone tools, figurines and organic remains are also recorded in several reports and publications (Efstratiou 1989; 1993a; Efstratiou *et al*. 1995; 1998; Karkanas and Efstratiou 2001; 2009; Tsartsidou *et al*. 2009; Urem-Kotsou and Efstratiou 1993). Even though the Neolithic settlement is extensively excavated (500 m²), it lacks the outline of a complete building due to incomplete excavation and extensive, deep interruptions. As a result, the spatial organisation of building remains and their association with other structures, such as pits, clay platforms and thermal structures is not sufficiently understood for the current study. Through the study of publications and the examination of site plans, I developed the hypothesis that the intra-site spatial organisation at Makri I followed the typical tell site intra-site configuration formed by densely constructed buildings and by the lack of wide open air-spaces. According to this spatial model, thermal structures were created in direct association with buildings, as part of their inner household equipment. The context of these kitchen spaces is hard to reconstruct from the studies published to date. Nevertheless, the suggested spatial hypothesis indicates that at least cooking took place in private spaces and constituted a shared domestic experience among the co-residents of each house.

Moving westwards, in Central Macedonia the small-scale excavations (117 m²) at the MN flat-extended site Lete I exposed two loosely scattered pit-dwellings and rich material culture remains (Map 7.5). Each building included one hearth as part of its domestic equipment, marking the direct association of cooking facilities with the habitation space. The wide open-air spaces exposed by the excavation works were empty of thermal structures. Querns and chipped stone tools were found close to hearths, inside the buildings (Tzanavari and Filis 2002). Overall, the intra-site spatial and contextual data known from MN Lete I illustrate that food processing and cooking occurred inside the buildings as a visible and potentially

interactive practice among the inhabitants of each house. In the same region, in close distance to and south of Lete I, another contemporary settlement, Lete III, was partially excavated. The systematic and small-scale excavations at Lete III (Table 7.4) revealed one single pit-dwelling and the remains of material culture at the relatively wide and exposed open-air space. Inside the building, the remains of one oven also suggest a direct association of cooking with the household equipment, while pots are also recorded by the oven (Tzanavari and Filis 2002).

In contrast to the intra-site spatial organisation of the indoor kitchen spaces described above, at Paradimi Komotinis, Western Thrace, a MN and LN settlement, thermal structures have only been found in the open-air spaces (Table 7.1; 7.3; MAP 7.6). Four cultural phases have been identified during the Neolithic habitation at the site: Phase I, II, III and IV. The accurate number and the spatial configuration of the post-framed buildings unearthed at the site has not been recorded (Bakalakis and Sakellariou 1981). It is known, however, that hearths and ovens were located in the open-air spaces and were found in direct association with the buildings. The exact number of thermal structures and the context of these kitchen spaces are also missing. In Central Macedonia, the large-scale but sporadic excavation of Thermi B exposed widespread parts of a flat-extended settlement (Table 7.1; 7.3; Fig. 7.26; Map 7.5). Thermi B is dated to the MN and LN periods and has been classified in three habitation phases: Thermi 1, 2 and 3. Thermi 1 represents the MN habitation of the settlement. At that time the site was developed in irregularly scattered habitation clusters with wide archaeologically empty areas among them illustrating spatial discontinuity (Pappa 2008, 68). The excavation exposed a significant variability of building structures, pit-dwellings, clay floors and stone-paved inner spaces or yards among the dwellings, while the presence of post-framed buildings is also possible (Grammenos *et al*. 1990; 1992; Pappa 2008; Pappa *et al*. 2000). The exact number of buildings and the overall assemblage of thermal structures are not given. The only two hearths discussed in the publications were found in open-air spaces, possibly in paved yards (Pappa 2008). The lack of thermal structures in inner spaces in the MN period indicates that cooking was taking place in the public sphere and possibly constituted a shared, visible social activity (Byrd 1994; Halstead 1995; 1999b; Hodder 1990). The context of these two kitchen spaces and their association with building structures is not reported.

In Western Macedonia a large-scale excavation (Table 7.4) at the site of Grammi Pellas exposed a substantial area of the MN flat-extended settlement (Table 7.1; 7.3; Map 7.5). Pit-dwellings and post-framed buildings were scattered loosely over a wide but still partially structured open-air space (Fig. 7.5). Although the number of buildings found and excavated at the site is not recorded, the reports make reference to at least two of these dwellings. The only thermal structure unearthed at the site is an oven located in the open-air space. The oven seems not to be related to any of the known buildings, while the context of this single kitchen space in not discussed in the reports (Chrysostomou *et al*. 2000; 2001). Finally, Avgi Kastorias in Western Macedonia completes the category of MN sites in Northern Greece with kitchen spaces organised solely outside the dwellings at the open-air spaces (Table 7.1; 7.3; Map 7.5). Given that Avgi Kastorias constitutes one of the case study sites of this thesis, the results of intra-site spatial analysis of the MN/LN habitation horizon (Avgi I) have been extensively analyzed and discussed earlier in Chapter 5. Five buildings and 14 thermal structures were identified at Avgi I. Thermal structures were classified as seven hearths, six ovens and one nondescript feature (Table 5.3; Plan 5.2). Cooking facilities at Avgi I were organised in clusters (e.g. the cluster of TS 8, 9 and 10) or in single structures (e.g. TS 7, TS 14 and TS 15). The thermal structures were either developed in direct association with a building (e.g. TS 14 and TS 15 with Building 2a) or indirectly placed in a relatively distant area (e.g. the distance of the north-west complex is nearly 10 m from B2a and Building 5). Although the context of the MN kitchen spaces at Avgi I varies, querns, bone tools and chipped stone tools are the most common finds in the kitchen contexts (Plan 5.9; e.g. Plans 5.15; 5.16; 5.18). Even though Buildings 5, 2a, 7 and 1 have been thoroughly excavated and analysed, their interior space was lacking thermal structures which strongly suggests that food processing and cooking did not occur in private household contexts. On the contrary, it constituted a daily household activity that was recurrently taking place in public view.

The third spatial model identified by the study of cooking facilities in MN Northern Greece consists of thermal structures found both inside and outside the dwellings, in yards and open-air spaces. Arkadikos Dramas is a tell site in Eastern Macedonia dated to the MN and the LN period. Three post-framed and pisé buildings were excavated there (Anagnostou and Vargas-Escobar 1991; Touloumis and Peristeri 1991). An assemblage of five hearths and ovens was found both inside and outside the buildings illustrating direct and indirect association with the structures (Table 7.1; 7.3; Fig. 7.3; 7.4). Storage and cooking pots, along with querns,

groundstones and organic remains formed the complete context of a MN kitchen space. Further west, in Central Macedonia, Stavroupoli Thessalonikis constitutes one of the large-scale excavations in Northern Greece (Table 7.1; 7.3; Map 7.5). This flat-extended settlement is dated to the MN and the LN periods and three habitation horizons could be classified: Stavroupoli Ia, Ib and II. Stavroupoli Ia represents the MN habitation layers of the site (Table 7.4). An unspecified number of loosely scattered pit-dwellings have been recorded during the excavation of the MN habitation horizon, along with stone paved yards and an unknown number of hearths and ovens. Ovens of the type 1a and 1b have been identified at the site, while the excavation of a pottery kiln was also possible (Grammenos and Kotsos 2002). Domestic cooking facilities are recorded inside the pit-dwellings and in the open-air spaces, always in direct connection with the buildings (Fig. 7.34; 7.35; 7.36; 7.37; 7.38; 7.39) (Grammenos 2006; Grammenos and Kotsos 2002; 2004). During the MN period storage pots regularly constituted a common find in the kitchen spaces at Stavroupoli Ia and they were repeatedly unearthed close to the domestic cooking facilities. This recurrent spatial co-existence of storage and cooking facilities indicates the direct link between the storage of the culinary products and food production.

Ultimately, in Western Macedonia, the final publication of the site Servia Kozanis allowed a detailed analysis of the archaeological data to take place and encourages further spatial and contextual discussions. The MN period at Servia Kozanis has five identified habitation phases: numbered from 1 to 5. Nineteen post-framed buildings and subterranean spaces were recorded as standing during the MN, while yards and roofed activity areas complete the spatial configuration of the village (Fig. 7.30; 7.31; 7.32). Buildings are free-standing with regular distance between them. An assemblage of 10 thermal structures can be assigned to the MN phases of the settlement, including two ovens and eight hearths found inside the dwellings and outside in the open-air spaces. At least one hearth located in an open-air space was recorded with perimetric postholes for shelter, which marks the significance attributed to food processing and cooking (Fig. 7.30; 7.31; 7.32) (Ridley *et al*. 2000, 34-42). The exterior thermal structures were always located in direct visibility and close to one or more buildings. Querns constitute the most regular find in the kitchen spaces of MN Servia, suggesting that food processing occurred at the location of the cooking facilities.

Discussion

Although the number of excavated EN sites in Macedonia and Western Thrace is sparse, a tentative hypothesis of possible continuity among EN and MN sites may be suggested. Four sites, Yiannitsa B, Dikili Tash, Drosia and Servia, were settled during both the EN and MN periods. Provided that none of these four sites is fully published and the available reports do not provide us with the relevant evidence and discussion, continuous or seasonal occupation to any of them cannot be currently acknowledged. The increased number of MN sites in Northern Greece is possibly the result of a noted settlement growth at that time. Consequently, the increase of MN sites encourages an analytical and interpretational discussion of habitation patterns. Although the MN emerged as a short period of less than 500 years (Gallis 1996, 30) in Macedonia and Western Thrace, it illustrates a widespread occupation and covers various regions and diverse landscapes. In Western Macedonia, in particular, settlements have been recurrently found in direct or indirect association with water resources (e.g. Servia Kozanis, Avgi and Dispilio Kastorias) (Map 7.3). In Central Macedonia, MN settlements were located on plains also directly or indirectly linked with rivers and streams, while the proximity to the sea was also preferred (e.g. Stavroupoli and Thermi Thessalonikis and International Fair of Thessaloniki). In contrast, at Eastern Macedonia MN villages were mainly located in inland plains, distant from the sea (e.g. Arkadikos Dramas and Dikili Tash in Kavala).

Plains were also preferred by the MN settlers in Western Thrace, while the proximity to the sea is noted here too (e.g. Paradimi and Proskinites Komotinis and Makri Alexandroupolis) (Map 7.4). It is clear that the MN period in Northern Greece was well settled and that local patterns of landscape choices are also prominent. Plains linked with water courses to serve the subsistence economy and a preference for coastal areas appears to be the dominant habitation models, while mountains were mainly inhabited in Western Macedonia. This shift from inland territories during the EN to coastal regions in the MN period indicates intensification of seafaring, frequent contacts with other coastal social groups and possibly resulting in, or is the outcome of, considerable settlement expansion.

As opposed to the uniformity recorded in the EN, the MN period illustrates diversity in settlement forms (Map 7.5; 7.6). Eight tells and eight flat-extended settlements respectively shape a variable range of habitation patterns, which in turn reflect discernible local

preferences. Dispilio is the only lake-side site excavated and published to date, while Paliambela is currently a single complex settlement that combines both tell and flat-extended characteristics in Northern Greece. In Western Thrace and in Eastern Macedonia tells are the only settlement types acknowledged during the MN. In contrast, flat-extended sites emerge as the dominant habitation form, especially in the western coastal area of the Thermaic Gulf and in the Langadas basin. Western Macedonia represents a mosaic of variable settlement types, where flat-extended sites, tell sites and the one lake-side site co-existed. Flat-extended settlements, however appear to be the most frequent type.

Although intra-site organisation of kitchen spaces is difficult to classify, such an attempt is attainable due to numerous excavated MN sites in the region (Table 7.6; Fig. 7.1). The initial categorization of the sites, which is based on a three-part spatial model (thermal structures unearthed indoors, outdoors and both in- and outdoors), gave interesting results. Hearths and ovens were found inside dwellings (e.g. Lete I, Lete III and Makri), or outside in the open spaces (e.g. Paradimi, Thermi and Avgi), while settlements where cooking facilities were unearthed both in- and outdoors are also recorded (e.g. Arkadikos, Stavroupoli and Servia). It appears that cooking was taking place in private contexts, among kin groups, families or co-residents, but also in public spaces as part of the daily routines that could have enhanced social coherency. The majority of outdoor cooking facilities developed in direct association with buildings, although indirect connections between these structures are also recorded in the region. The context of kitchen spaces is also varied, possibly for the accomplishment of different requirements. An emphasis is given in the case where storage pots or pits were found by the thermal structures, since this grouping suggests a direct link between the storage of culinary products and cooking (e.g. Arkadikos and Stavroupoli). A spatial variability of kitchen spaces indicates diversity in the social organisation of MN villages in Macedonia and Western Thrace and reflects varied perceptions in the organisation of the household at a regional and local scale. At a regional scale, Western Thrace lacks settlements that concurrently combined indoor and outdoor cooking activities, which possibly demonstrates a more fixed spatial and social model. Macedonia, on the other hand, shows variability in the spatial organisation of kitchen spaces revealing a rather unpredictable and unsettled social landscape, through a broad spectrum of different residential environments, settlement types and intra-site spatial configurations that potentially indicate unfixed and changeable socialities. What emerges as a conclusion from the attempt to entangle all relevant data, is

that the MN period in Macedonia and Western Thrace lacks consistent spatial models rigidly connected with certain geographical regions. Even though common local characteristics arose from the above analysis, diversity and lack of categorisation in spatial form emerge as prominent components for the comprehension of MN lifeways in this wide region.

7.3.3 Thermal Structures in context in the Late Neolithic period

Geographical distribution of excavated LN sites

In contrast to the MN, the LN emerges as a period of long duration of approximately 800 years, dated from 5300 cal BC to 4500 cal BC and was, therefore, subdivided into LN I and LN II (Gallis 1996, 30). Since this temporal categorisation is only irregularly provided in reports and publications (e.g. Dikili Tash, Dispilio, Makriyalos, Thermi B), it has been decided, for the purposes of the present study, to present LN spatial data of Northern Greece as a chronologically unified assemblage. The lack of chronological sub-division of the archaeological, spatial data between LN I and LN II is not the result of theoretical and methodological diversification to the suggested scheme, but the outcome of the creation of a consistent analytical framework. In contrast with earlier phases of the Greek Neolithic, such as with the EN and the early MN periods, the LN in Macedonia and Western Thrace was well settled, covering a wide geographical range of habitation from Western Thrace to Western Macedonia. The geographical distribution of LN sites in the region demonstrates a significant degree of continuity from the MN period. An assemblage of 24 LN sites was available for the present inter- and intra-site spatial analysis. From the collection of 24 LN sites, 14 were initially inhabited or occupied during the MN period (Table 7.1; 7.2; Map 7.7; 7.8). From the group of 14 sites, three — Dikili Tash in Kavala, Yiannitsa B in Yiannitsa and Servia Kozanis — illustrate a long occupation from the EN to the MN and finally to the LN period, demonstrating a remarkable duration in specific environmental preferences. Based on radiocarbon dates, the last LN II village at Dikili Tash was destroyed by fire at 4300/4260 cal BC. Some areas of the tell were still in use for two more centuries after the fire, but evidence of occupation is missing from the period between 4000 cal BC and the beginning of the EBA habitation at the site (Koukouli-Chrysanthaki *et al*. 1997a; Koukouli-Chrysanthaki and Treuil 2008; Treuil 1992; 1996). From the initial assemblage of 24 sites, three settlements — Axos A at Yiannitsa B, Polyplatanos and Nea Nikomedeia in Imathia — were originally founded in the EN and then re-inhabited in the LN period. Archaeological remains demonstrate that Yiannitsa B was initially occupied in the EN period, while MN and LN finds and structures show evidence of settled living during these two periods. Axos A is a site originally considered in this analysis due to its initial occupation in the EN period. After a long period of abandonment the settlement was reoccupied in the LN times. Polyplatanos Imathias and

Nea Nikomedeia Pellas are in accordance with this tradition, since both sites were inhabited during the EN and, after a period of abandonment throughout the MN, they were both re-inhabited during the LN.

Western Thrace is currently represented by 4 sites: Makri Alexandroupolis, Proskinites and Paradimi in Komotini and Paradeisos Kavalas. Paradeisos is the only settlement founded in the LN period, while Makri, Proskinites and Paradimi were originally settled during the MN and were also inhabited during the LN. All four sites are located on plains scattered in the western half of the contemporary geographical region of Western Thrace, close to water resources. Makri is to date the only LN settlement in the region found so closely located to the sea (Map 7.8). Following the local MN tradition of settlements located on alluvial plains as opposed to mountainous landscapes, the Rhodope Mountains remained uninhabited during the LN. In contrast to Western Thrace, where sites are scattered within a wider landscape, LN sites in Macedonia clustered around certain environments. It appears that the location of MN settlements attracted LN inhabitants, who progressively created cells of adjoining villages, making settlement groups the prominent residential model of this period (Map 7.7; 7.8). In Eastern Macedonia, Arkadikos Dramas and Dimitra in Serres were settled from the MN to the LN, while Dikili Tash was occupied during the EN period. Sitagroi Dramas was initially founded in this region during the LN period. Arkadikos and Sitagroi Dramas were located at relatively close distance in alluvial plains, as opposed to Dikili Tash in Kavala, which was founded in a hilly landscape. Dimitra differs from the other 3 sites, since it was situated on a plain, indirectly linked with the sea (Strymon Gulf; Map 7.7). All four sites are classified as tell settlements. In contrast with these four tell sites, the flat-extended site Promachonas-Topolnitsa was located in a hilly environment, on the northern Greek-Bulgarian borders. The settlement is positioned only a short distance from water resources, while four phases of habitation have been identified (Phase I, II, III and IV) dated to the LN period (Koukouli-Chrysanthaki *et al*. 1999; 2000; 2007).

In central Macedonia, three groups of a maximum of three settlements each were widely scattered, marking diversity in habitation preferences and living traditions. Starting eastwards, the first group includes two flat-extended sites; these are Stavroupoli and Thermi B in Thessaloniki. Both sites were settled during the MN and the LN period, located on alluvial plains, close to the sea (Map 7.7). In contrast, the second group of LN villages in Central Macedonia includes three adjacent tell settlements that were founded on the inland

Yiannitsa plain, distant from the sea. Axos A, Mandalo and Yiannitsa B constitute the second cluster of sites. Mandalo is the only settlement within this group initially founded in the LN period. Based on radiocarbon dates the site was inhabited from the early FN period at 4400 cal BC (Papaeuthimiou-Papanthimou and Pilali-Papasteriou 1987; 1988; 1990; Pilali-Papasteriou and Papaeuthimiou-Papanthimou 1989). Its key location between Axos A and Yiannitsa B potentially supports a model of a close network of cultural and social interaction and exchange among the group. Furthermore, two tell sites inhabited from the EN constitute the third group in Central Macedonia. Nea Nikomedeia and Polyplatanos Imathias were found on plains close to water resources. Additionally, Paliambela Kolindros is a single complex site situated on a plain on the western side of the Thermaic Gulf. This is a flat-extended site with two habitation phases. Based on the remains of material culture the settlement classified as Makriyalos I was inhabited during the LN I phase. Correspondingly, Makriyalos II represents the LN II phase (Pappa 2008; Pappa and Bessios 1999a; 1999b). The site is situated on the western side of Thermaic Gulf close to the sea.

Finally, all sites in Western Macedonia are located in mountainous surroundings, while most of them developed direct or indirect associations with lacustrine or riparian environments. LN settlers in Western Macedonia continue the tradition of habitation around Orestida Lake and Aliakmon River that was initiated in the MN (Map 7.7). It appears that the natural qualities of Orestida Lake and the streams of Aliakmon River were attractive natural environments serving local subsistence needs that LN settlers chose to preserve. Kolokynthou, Dispilio and Avgi in Kastoria (originally founded in the MN period) constituted a contemporary LN cluster of diverse settlement types and lifestyles, located in a mountainous environment that exceeds 700 m height, in the peripheral territories of Orestida Lake and Aliakmon tributary. In a mountainous environment, in the southern and the northern riparian territory of Aliakmon River, two tell settlements, Servia and Megalo Nisi Galanis in Kozani, constitute the fifth LN group of Macedonia. On local scale, Servia represents the earliest Neolithic habitation in the region. The proximity to water resources may have contributed to the settlement's long duration. On the northern river bank, the site of Megalo Nisi Galanis was originally founded in the LN and was inhabited until the early FN period (Ziota 1995; Ziota and Hondroyianni-Metoki 1993; Ziota *et al*. 1990). The single flat-extended site Kleitos Kozanis is another settlement founded in the LN period, subdivided into Phase I and Phase II.

The site is situated in an inland mountain, but its association with water resources is currently unknown (Ziota 1995; 2008; 2009; Ziota *et al*. 2009).

From the MN to the LN period settlements increased significantly indicating a considerable degree of population growth (Grammenos 1996, 42). During the LN period, alluvial plains with access to water resources constituted the prominent habitation choice, while mountains were preferred in Western Macedonia. Based on the excavated archaeological data to date, the shift to coastal environments noted in MN period did not increase during the LN. Most of the mentioned coastal sites settled in the MN period continued in the LN, but no new sites were founded (Map 7.7; 7.8). From the above inter-site spatial analysis it appears that the location of MN settlements was largely preserved during the LN. Only seven out of 24 excavated sites under study were originally founded in the LN period, suggesting a significant continuity ratio. Moreover, the chosen MN regions were rather expanded with the creation of adjoining villages at easy access and visible (potential) production areas (mainly plains) forming dense habitation networks and lasting local traditions. Habitation density indicates better communication between villages and a higher degree of interaction and exchange among the communities. It appears that adjoining villages became the preferable residential model of the period.

Settlement types in the LN period in Northern Greece

Earlier in this study, it was suggested that the MN emerged as a period of diverse settlement forms in Macedonia and Western Thrace, demonstrating plurality of social structures and a variability of lifestyles. The equal proportion of tells and flat-extended sites and the lack of a prominent settlement type throughout this period supports such a suggestion. However, in contrast to settlements in the MN, the LN emerged as a less diverse and more standardized period. Although local differences are recorded, a general regional analysis of Northern Greece shows that tells constituted the prominent settlement type. Two categories of settlement types are mainly identified in the region; tells and flat-extended sites. Out of the 24 excavated sites, 15 constitute an assemblage of tell sites, while flat-extended sites are limited to only six settlements (Table 7.1; 7.2; Map 7.7; 7.8). Dispilio Kastorias is the only LN lake-side site recorded in the region, Paliambela Kolindros is the single complex site and Kolokynthou Kastorias remains unclassified (Tsouggaris *et al*. 2002). This consistency in settlement forms, which is identified all through the wide geographical spectrum of the region, indicates a widely systematized and accepted way of living. Moreover, it appears that, with the exception of the Avgi-Dispilio-Kolokynthou cluster in Western Macedonia, there is no other case recorded to date, where diverse settlement types coexisted in one of the known site concentrations.

In Western Thrace tell sites constitute the only settlement type excavated thus far (Table 7.1; 7.2; Map 7.8). LN occupation, in particular, is represented by four tells. These are Makri Alexandroupolis, Proskinites and Paradimi in Komotini and Paradeisos Kavalas. In Eastern Macedonia, although tells appear as the prominent settlement form, a contemporary flat-extended village was also excavated there. Dikili Tash and Dimitra in Serres along with Arkadikos and Sitagroi in Drama are the four tell sites identified in the region. Moreover, Promachonas-Topolnitsa is the only flat-extended site excavated in Eastern Macedonia to date. Central Macedonia, on the other hand, demonstrates a more diverse assemblage of settlement forms. Yet again, tell sites comprise the most frequent habitation form, with five sites excavated in the region: Yiannitsa B, Mandalo and Axos A on Yiannitsa plain, along with Polyplatanos and Nea Nikomedeia in Imathia. Moreover, flat-extended sites are represented by a total of three sites. Stavroupoli and Thermi B comprised a group of two flat-extended sites in Thessaloniki, while Makriyalos Pierias is a single site on the western site of

the Thermaic Gulf. The complex site Paliambela Kolindros is also recorded in the area forming a discernible local and variable habitation context. Finally, Western Macedonia in the LN period appears to have continued the tradition of coexistent settlement types initiated during the MN times. Tell sites are represented by Servia and Megalo Nisi Galanis in Kozani, while, Kleitos Kozanis and Avgi Kastorias constitute the only two flat-extended settlements in region. Settlement variability is supplemented with the lake-side site of Dispilio Kastorias.

Intra-site spatial organisation of kitchen spaces in the LN period

With regard to geographical location and settlement types, intra-site spatial organisations of LN kitchen spaces in Northern Greece appears to be more standardized than in the previous MN period, reflecting broadly embedded social rules and traditions. An assemblage of 24 LN sites in Macedonia and Western Thrace constitutes the following spatial analysis (Table 7.1; 7.3; 7.7). As discussed earlier, the geographical distribution of LN sites in the region demonstrated a high degree of settlements' continuity from the MN to the LN period (Map 7.7; 7.8). Only four out of the 19 MN sites discussed earlier in this study were not settled in LN times; these are Grammi Pellas, Lete I and Lete III on Langadas plain and the International Fair of Thessaloniki. It appears, however, that even though settlers chose to continue habitation in familiar man-made and natural environments, intra-site spatial organisation was to some extent modified.

Out of 24 sites incorporated here six are missing thermal structures (Table 7.3; 7.7; Map 7.9; 7.10). In Western Thrace, the lack of cooking facilities at the site of Proskinites Komotinis was largely discussed in the preceding MN analysis (Chapter 7.2). Even though evidence for occupation is recorded at Sitagroi Dramas in Eastern Macedonia, thermal structures are missing from the LN layers of the site. LN habitation at Sitagroi is subdivided into Phase I and Phase II, and has been mainly identified from the remains of pottery sherds and chipped stone tools. Sparse remains of postholes and floors represent the only structural remains from Phase II, while architectural remains were not found in Phase I (Elster and Renfrew 2003; Renfrew 1970; 1971; Renfrew *et al*. 1986). In Central Macedonia, unlike the EN habitation layers, building remains are not recorded in the LN Phase 4 deposits at Axos A in Yiannitsa. Thermal structures are also lacking from this final habitation phase of the settlement (Chrysostomou 1996). In addition, concentrically organised stone walls and ditches represent the building remains of LN occupation at Paliambela Kolindros, whereas thermal structures are not reported in this habitation phase of the site either (Blackman 2001; 2002; Kotsakis and Halstead 2002). LN occupation at Nea Nikomedeia has been identified by material remains found in a series of ditches that cut EN deposits. Thermal structures or other building remains dated to the LN were not preserved (Fig.7.19; Map 7.9; Wardle 1996). Finally, as discussed earlier, the failure to identify hearths and ovens in the excavated area of the

settlement makes Kolokynthou Kastorias unusable for intra-site spatial analysis of cooking spaces (Tsouggaris *et al*. 2002, 630).

The shortage of chronological, spatial and contextual classification of the unearthed material culture from Dimitra in Serres, Yiannitsa B and Megalo Nisi Galanis in Kozani made these three sites inadequate for an analysis that aims at intra-site spatial associations. Although cooking facilities were unearthed at Dimitra and Yiannitsa B, the failure to provide chronological, spatial and contextual references in the publications resulted in their exclusion from the present study (Table 7.1; 7.3; Fig. 7.10; Grammenos 1997; Chrysostomou 1989; 1991; 1993; 1996; Chrysostomou and Chrysostomou 1990). LN and FN habitation layers are also recorded in the 32 m² area excavated at the site Megalo Nisi Galanis in Kozani. The assemblage of building remains at the site is represented by an unknown number of pisé buildings and one single feature identified as a hearth or an open kiln (Table 7.1; 7.3) (Ziota 1995; Ziota and Hondroyianni-Metoki 1993; Ziota *et al*. 1990). Chronological, spatial and contextual restrictions of these features in the reports, however, prevented use of the site in the current intra-site spatial study.

From the sample of 24 LN excavated sites in Macedonia and Western Thrace, 15 sites meet the requirements for being included in the following spatial and contextual study. I will start my analysis with the sites on which cooking facilities were only found inside buildings/dwellings. Starting from Western Thrace, the case of the tell site Makri Alexandroupolis has been extensively discussed in the section of MN intra-site spatial analysis (Chapter 7.3.2). Rich architectural remains represent the LN habitation phase of Makri II (Fig. 7.11; 7.12; 7.13). Although hearths, ovens and clay platforms were found in Makri II, the precise size of this cooking facilities assemblage is not yet known (Efstratiou 1989; 1993a; Efstratiou *et al*. 1995; 1998; Karkanas and Efstratiou 2001; 2009; Tsartsidou *et al*. 2009; Urem-Kotsos and Efstratiou 1993). In addition, the lack of complete building plans and the extensive horizontal and vertical interruptions in LN habitation layers resulted in following the hypothesis developed for the MN Makri I habitation phase. Based on publications and site plans Makri II developed a regular tell site intra-site configuration, formed by densely constructed buildings and the lack of wide open-air spaces (Fig. 7.11; 7.12; 7.13). According to the suggested spatial model thermal structures were situated in inner spaces creating direct association with dwellings as part of their inner household equipment. Paradeisos Kavalas is another tell site in Western Thrace where cooking facilities

are recorded inside building structures. Postholes and floors constitute the main components of an unspecified number of post-framed buildings in the LN habitation layers of the site (Hellström 1987). Even though thermal structures are not catalogued in the site publication, it is mentioned, however, that a hearth was found inside a building, suggesting direct association of cooking facilities to dwellings.

On the Greek-Bulgarian borders of Eastern Macedonia, two 700 m² and 844 m² excavations by a Bulgarian and a Greek archaeological team respectively exposed two areas of the flat-extended settlement Promachonas-Topolnitsa in Serres. The site was originally discovered by a team of Bulgarian scholars in 1979 and was then systematically excavated from 1980 to 1990 (Table 7.1; 7.3). From 1993 to 2007 a Greek team began a long-standing excavation project aiming at synchronising and eventually joining the results of the two sectors (Koukouli-Chrysanthaki *et al*. 1993; 1995; 1996; 1997b; 1998; 1999; 2000; 2007). Given that the synchronisation of the two sectors is not yet achieved, for the purposes of the present study I will mainly refer to the results known from the Greek sector. The excavation of the Greek sector exposed four successive LN habitation phases at Promachonas-Topolnitsa: Phase I, II, III and IV. Building structures are missing from Phase I, but evidence of open-air spaces and possible yards was loosely scattered. Thermal structures are also missing from the site at that time (Fig. 7.22; 7.23; 7.24). Phase II exposed an unspecified number of loosely scattered post-framed buildings. All four hearths and ovens found inside the dwellings demonstrate direct association of the kitchen spaces with the living space and suggest that cooking was taking place in private contexts. Pots were regularly found around thermal structures and a figurine is also recorded in one of the identified kitchen spaces (Koukouli-Chrysanthaki *et al*. 2007). It appears that in Phase III, intra-site spatial organisation at Promachonas-Topolnitsa demonstrates considerable similarities with the previous habitation phase. An unspecified number of loosely scattered post-framed buildings have been recorded in Phase III, while irregularly dispersed stone and clay paved areas are also identified. Although the number of hearths and ovens is not defined, these were all found indoors demonstrating continuity of the cooking in the domestic space. The context of the kitchen space is not recorded in this habitation phase. Finally, Phase IV exposed a considerable assemblage of a minimum of nine pit-dwellings with hearths and ovens as indoor household facilities. The number of thermal structures and the spatial distribution of buildings are not

defined. Pots, querns and organic remains were regularly found in these kitchen spaces (Table 7.1) (Koukouli-Chrysanthaki *et al*. 2007).

Additionally, from two tell settlements in Central Macedonia, cooking facilities were found inside building structures. At Mandalo Pellas, in particular, an unknown number of hearths were found inside two adjoining post-framed buildings. Bone tools, chipped stone tools, pots and loom-weights were regularly directly associated with the domestic cooking facilities. The dense distribution of the identified building structures in the settlement resulted in limited open-air spaces between the houses (Fig 7.14; 7.15; Map 7. 9) (Papaeuthimiou-Papanthimou and Pilali-Papasteriou 1987; 1988; 1990; 1997; Pilali-Papasteriou and Papaeuthimiou-Papanthimou 1989). Unlike the lack of architectural remains recorded during the EN occupation of the site, LN habitation at Polyplatanos Imathias is sub-divided into three phases: Phase 1, 2 and 3. At least one post-frame building is recorded at the site, whereas due to the lack of a general site plan, the configuration of the dwelling in association with other structures or with the open-air space is unknown (Merousis and Stefani 1998; 1999; 2000). The only hearth mentioned in the reports was found inside the post-framed building. Storage pots and loom-weights are directly related with the hearth, demonstrating that storing, cooking and weaving were part of the indoor household routine. Finally, the case of the lake-side site Dispilio Kastorias has been extensively discussed in Chapter 6 (Map 7.9). In brief, in the Western Sector of the excavation, the remains of three loosely scattered post-framed buildings, Building 1, 2 and 3, are dated to the LN II period (Plan 6.2). In particular, four adjoining ovens were found inside Building 1. Querns, pots and chipped stone tools constitute the dominant finds unearthed in these four kitchen spaces (Plan 6.12). Furthermore, a single oven is recorded in Building 2, while querns, pots and loom-weights are directly associated with the thermal structure (Plan 6.13). Overall, the intra-site spatial and contextual data discussed above suggests that in certain LN societies in Northern Greece food processing, cooking, storing and weaving constituted part of the indoor household activities, recurrently occurring in private contexts (Halstead 1995; 1999b; Hourmouziadis 1979; Nanoglou 2008; Skourtopoulou 2006; Valamoti 2005). From the assemblage of sites with indoor cooking facilities, it appears that tell settlements prevailed over flat-extended site and lake-side sites.

Alternatively, from the earlier discussion of the private organisation of kitchen spaces, three LN sites in Macedonia and Western Thrace show that in different social environments

household activities, such as food processing and cooking, occurred in outdoor spaces. The sites are Paradimi Komotinis, Thermi B Thessalonikis and Avgi Kastorias (Map 7.9; 7.10). All three settlements were inhabited during the MN, while two of them illustrate a notable continuity in intra-site spatial organisation regarding the location of kitchen spaces. In particular, during the LN period, Paradimi Komotinis in Western Thrace and Thermi B Thessalonikis in Central Macedonia sustained the MN spatial configuration of outdoor thermal structures situated in open-air spaces and paved-yards, in direct link with buildings (Bakalakis and Sakellariou 1981; Grammenos *et al*. 1990; 1992; Pappa 2008; Pappa *et al*. 2000). In contrast, at Avgi Kastorias in Western Macedonia differences in intra-site spatial organisation are recorded among MN/LN Avgi I to LN Avgi II and Avgi III habitation phases. Avgi II demonstrates a lack of preserved building structures. An assemblage of 11 thermal structures constitutes the structural remains of Avgi II, represented by five ovens and six hearths (Table 5.3). Cooking facilities at Avgi II were organised in clusters (e.g. the cluster 1, 2 and 3) or as single, free-standing features (e.g. TS 5 and TS 6; Plan 5.7). The distance between them varies from 1.30 m to 17.50 m (Plan 5.8). Although the context of LN kitchen spaces varies at Avgi II, querns and groundstone tools, which suggest food processing that occurred close to the cooking area, are indicative (Plan 5.10; e.g. Plans 5.25; 5.26; 5.26). A minimum of five free-standing buildings are currently recorded at Avgi III (e.g. Buildings 2b, 4 and 6b; Plan 5.4). Due to extensive ploughing and disturbance of archaeological strata, however, thermal structures are not preserved from this period of habitation. It appears that in the LN period, more forms of intra-site spatial organisation coexisted, indicating diverse scales of social organisation. During this period, food processing and cooking did not simply happen in private household contexts. In different social environments it constituted part of daily household activities that occurred in public view, suggesting that cooking was incorporated in other shared and visible social practices. Although this is a small sample of three sites, it seems that outdoor cooking was more dominant at flat-extended sites than it was at tell sites.

Finally, the third model of intra-site spatial organisation of cooking facilities in LN Northern Greece represents the settlements where hearths and ovens were simultaneously found inside and outside building structures. In Eastern Macedonia, Arkadikos Dramas continued the MN spatial configuration model of hearths and ovens found both inside and outside buildings during the LN. Thermal structures were in direct association with the dwellings, while

storage and cooking pots, with querns, groundstones and organic remains were found in the LN kitchen spaces (Anagnostou and Vargas-Escobar 1991; Touloumis and Peristeri 1991). Unlike the unclear spatial organisation of the EN and MN periods, when building remains and thermal structures are missing, the LN presents a rather clear habitation plan at the Dikili Tash site in Kavala in Eastern Macedonia (Table 7.1; 7.3). Two phases of continuous habitation are recorded during the LN period demonstrating a dissimilar distribution of cooking facilities. At Dikili Tash, the LN I is represented by Phase I, which includes the remains of four post-framed and wattle-and-daub buildings densely distributed. An assemblage of a minimum of 22 thermal structures includes hearths, ovens and a single kiln. Cooking facilities were found in inside spaces, demonstrating direct links with buildings. Pots, querns and organic remains are the regular material finds found in these LN kitchen spaces (Fig. 7.7; 7.8; 7.9). Additionally, the LN II is represented by the material remains classified as Phase II at Dikili Tash in Kavala. Overall five post-framed buildings were unearthed in this habitation phase, while the open-air spaces demonstrate rubbish areas, possible courtyards and sheltered outdoor activity areas. A considerably smaller number of thermal structures was unearthed in Phase II, when only four hearths and ovens were recorded in direct association with buildings, found both inside the dwellings and outside in the open-air spaces. At Dikili Tash, Phase II, clay platforms were regularly found close to cooking facilities (Koukouli-Chrysanthaki *et al*. 1997; Koukouli-Chrysanthaki and Treuil 2008; Treuil 1992; 1996).

Dated to the early LN period, Stavroupoli Ib is one more settlement that demonstrates significant modifications from the preceding MN habitation phase. Regarding intra-site spatial organisation, these changes are noticeable in both levels of building techniques and in the spatial planning (Table 7.1; 7.3; Map 7.7). In contrast with the previous habitation phase, at Stavroupoli Ib buildings are post-framed structures, regularly constructed with stone foundations and pisé in parts of their upper-structure. Buildings are densely distributed, while the close spread of stone-paved yards illustrates restricted open-air spaces. Ovens represent the only type of thermal structures recorded in this habitation phase. In comparison with the previous habitation phase, ovens are only recorded inside dwellings. At Stavroupoli Ib storage pots and storage pits were repeatedly found in the contexts of the early LN kitchen spaces (Fig. 7.34; 7.35; 7.36; 7.37; 7.38; 7.39) (Grammenos and Kotsos 2002). At Stavroupoli II, in contrast, represents the late LN habitation phase of the flat-extended

settlement. Similarities in building techniques and in intra-site spatial organisation suggest a degree of continuity of spatial practices between Stavroupoli Ia and II. Buildings are post-framed with pisé upper-structures in parts, while these are also densely packed among closely spread stone-paved yards. The spatial organisation diverges from the preceding one with hearths and ovens recorded both inside the dwelling and outside in open-air spaces, developing direct association with building structures. Storage pits were regularly found linked with thermal structures (Grammenos 2006; Grammenos and Kotsos 2002; 2004).

Further west in Central Macedonia, at the flat-extended settlement of Makriyalos Pierias, archaeological remains demonstrate two habitation phases covering a wide chronological span of the LN period: Makriyalos I and II represent LN I and LN II respectively (Map 7.9). An assemblage of 66 loosely scattered pit-dwellings, incorporated in 11 clusters (Pappa 2008; Pappa and Bessios 1999a; 1999b), represents the central architectural remains of Makriyalos I (Fig. 7.27; 7.28). As opposed to the large group of buildings, thermal structures unearthed in this habitation phase are significantly low. Only four ovens were discovered both inside the buildings and in a small range of shallow pits found attached to the pit-dwellings. The openings of these ovens was turned to face the interior of each dwelling (Pappa 2008; Pappa and Bessios 1999a; 1999b), demonstrating a direct link to and visibility with the activities that occurred in the house. In this way, ovens were connected with a single household but at the same time they were also detached from it, by placing cooking under public view. Archaeobotanical remains, chipped stone tools, shells and groundstones were found around cooking facilities both inside the dwellings and in the shallow pits suggesting that food processing was also taking place in these kitchen spaces. At Makriyalos II, in contrast, post-framed buildings replaced pit-dwellings and the number of thermal structures increased significantly (Fig. 7.29). Buildings were found densely packed, among closely spread stone-paved yards, creating a rather compact intra-site spatial web. Yet again, ovens constitute the only thermal structure type. Overall 25 ovens, 22 of which found *in situ*, were dispersed inside the buildings and mainly outside in separate shallow pits, singly or in clusters (Pappa 2008; Pappa and Bessios 1999a; 1999b). The context of these kitchen spaces is similar to the preceding Makriyalos I habitation phase, given that archaeobotanical remains, pots, chipped stone tools, shells and groundstones were spread around and between fire installations, indicating that food processing had also been happening there.

In Western Macedonia, at the tell site Servia in Kozani, the LN period is divided into two habitation phases: Phase 6 and 7. Overall nine loosely distributed post-framed buildings are recorded at LN Servia (Map 7.9). Building structures have been mainly identified by floors or by single or double wall rows (Figs 7.33) (Ridley *et al*. 2000, 75–7). Wide open-air spaces among buildings are typical of the LN intra-site spatial organisation at the site. An assemblage of five thermal structures, including one oven and four hearths were found both inside the dwellings and outside in the open-air areas. Three postholes recorded around an outer oven indicate that this feature was possibly sheltered (Fig. 7.33) (Ridley *et al*. 2000, 44–54). Thermal structures constructed in exterior spaces had direct association with dwellings. Finally, querns, regularly unearthed in the deposits of these kitchen spaces, suggest that food processing was also taking place around the fire. In Western Macedonia the flat-extended site Kleitos 1 in Kozani County is the last settlement included in this analysis (Map 7.9). More than ten wattle-and-daub buildings are loosely distributed in a widely excavated area that reaches 20000 m² (Table 7.4) (Ziota 2009; Ziota *et al*. 2009). The open-air space at the site is organised from thermal structures, pits and shelter spaces. More than 50 hearths and ovens are spread in various spatial formations, both inside and outside the dwellings. Thermal structures were found as single features or in clusters, developing direct association with buildings. Postholes commonly recorded around fire installations suggest that these features were often sheltered (Ridley *et al*. 2000).

Discussion

Between MN and LN the number of known sites increased substantially; many MN sites continue into LN. Stability, continuity and a steady increase in population are the natural inferences from this picture (Map 7.9; 7.10). It appears that alluvial plains with access to water resources were among the most prominent habitation choices. Mountains, on the other hand, were chosen by the groups inhabiting in the Western Macedonia region. Alternatively, coastal sites did not increase during the LN period. Variable choices in settling in diverse landscapes are still observable on a local scale, but are less prominent throughout the LN, reflecting rather standardized and settled lifeways. From the assemblage of 24 LN sites, 14 were initially inhabited during the MN (e.g. Makri Alexandroupolis, Arkadikos Dramas, Thermi B Thessalonikis, Servia Kozanis, Avgi Kastorias), while three of them were first occupied during the EN (Dikili Tash in Kavala, Yiannitsa B in Yiannitsa and Servia Kozanis) showing a remarkable persistence in habitation practices. Only 6 settlements were originally settled in the LN (e.g. Paradeisos Kavalas, Makriyalos Pierias, Kleitos 1 Kozanis) supporting the suggestion of an increased continuity ratio between MN and LN period. What is noteworthy, however, is that most of the newly founded LN settlements are recorded in the adjacent geographical and natural regions of MN sites, deliberately creating clusters of adjoining villages, forming dense habitation networks, creating well controlled territories for the subsistence economy (easy access and visible areas of potential cultivation) and in due course developing lasting social traditions. Density in sites' dispersal indicates increased communication between villages and amelioration in interaction and exchange among adjacent communities. From the western to the eastern broad geographical spectrum of Macedonia, the formation of village-clusters became the preferable habitation model throughout the LN. In contrast, settlements are recorded dispersed rather than clustered in LN Western Thrace.

With regards to MN development of settlement types, a notable discontinuity has been recorded in the LN period of Northern Greece. As opposed to the plurality of social structures and the variability of lifestyles indicated by the diversity of MN habitation forms, in this region the LN emerged as a less divergent and more standardized period. Although differences are recorded at a local scale, an analysis of settlement types across the wide area of Northern Greece demonstrates that tells are the prominent settlement type. Out of the total

of 24 sites incorporated in the current analysis, 15 are tell sites, representing 65% of the sample. Flat-extended sites emerged as the second major category of LN settlements in the region, with 6 sites forming 26% of the overall sample (Table 7.2; Fig 7.2). The consistency observed in settlement forms indicates widely accepted and systematized ways of living, formed by durable subsistence daily practices and household routines that reflect the needs and aspirations (ideologies) of community groups. What is also noteworthy is the relative uniformity of settlement types within the LN village. These groups of adjacent villages were principally formed by concentrations of the same settlement types, such as the case of the tell site cluster at Axos A, Mandalo and Yiannitsa B on the Yiannitsa plain, in Central Macedonia. An exception to this uniform model is the case of contemporary and diverse settlements Avgi, Dispilio and Kolokynthou that were grouped in direct or indirect association with Orestida Lake in Western Macedonia. In contrast to the broadly acknowledged uniformity of village groups, the latter cluster incorporates a flat-extended and a lacustrine site, while Kolokynthou remains unclassified due to lack of information provided in the report (Tsouggaris *et al*. 2002).

It appears, however, that overall LN settlers chose to continue habitation in familiar MN man-made and natural environments, and where this was the case, the intra-site spatial organisation of kitchen spaces was often modified (e.g. Dikili Tash Kavalas, Stavroupoli Thessalonikis, Dispilio Kastorias and Servia Kozanis). Out of the overall 6 sites, where cooking facilities are recorded in inner spaces, four are tell sites (Makri Alexandroupolis, Paradeisos Kavalas, Mandalo Pellas and Polyplatanos Imathias), only one is a flat-extended site (Promachonas-Topolnitsa) and one more is a lake-side settlement (Dispilio Kastorias). Thermal structures situated in inner spaces develop direct association with dwellings and become part of their inner household toolkit. Moreover, such a spatial choice demonstrates a well organised domestic space and direct association between the kitchen space and the living space, suggesting that cooking was mainly taking place in private contexts among kin-groups, family members and co-residents (Byrd 2000; Hodder 1990; 2006; 2013; Hodder and Cessford 2004; Janowski 1995). With reference to the archaeological data of the region, the privatized organisation of kitchen spaces was a preferred practice at tell settlements more than in any other form of habitation. Alternatively, the architectural remains of three LN sites in Macedonia and Western Thrace demonstrate that in diverse social contexts food processing and cooking were recurrently performed in outdoor spaces. Although this is a small sample to

represent wider interpretational models, it is noted that the above spatial tradition is recorded only at one tell site (Paradimi Komotinis) and two flat-extended settlements (Avgi Kastorias and Thermi B Thessalonikis). Additionally, the majority of outdoor cooking facilities developed in direct association with buildings, showing a high range of connectivity between inner and outer household practices.

Ultimately, the spatial model that combines indoors and outdoors cooking spaces is represented by 6 sites in LN Northern Greece. These are three flat-extended settlements (Dikili Tash Kavalas, Servia Kozanis and Arkadikos Dramas) and three tell sites (Stavroupoli Thessalonikis, Makriyalos Pierias and Kleitos 1 Kozanis) (Map 7.7; Fig 7.2). One can suggest that this intra-site spatial variability of cooking facilities between inner: private and outer: public space within a single village reflects diverse perceptions of family scale household organisation within the settlement. The standardized and settled way of living supported by environmental and settlement-type data, however, is in contrast with this interpretation. What I am suggesting here is that this LN spatial model extends the physical boundaries of the household by creating direct links between the inside and the outside space and renounces the separation between private and public sphere through daily cooking performances. As was also discussed for the MN period, this variable intra-site spatial organisation of kitchen spaces is not recorded in Western Thrace and its absence might be related to locally fixed lifeways. In contrast, this extended household model is visible across the wide geographical spectrum of Macedonia (Map 7.9). Great variability is recorded in the spatial configuration of thermal structures in LN Northern Greece. At Makriyalos I, for instance, the openings of ovens were positioned in shallow pits facing the interior of pit-dwellings, while at Makriyalos II ovens were placed both inside and outside the buildings, singly or in clusters (Pappa 2008; Pappa and Bessios 1999a; 1999b; Skourtopoulou 1999; Tsoraki 2007; Urem-Kotsos and Kotsakis 2007). Additionally, at LN Servia Kozanis hearths and ovens are found not only inside the buildings but also outside in the open-air spaces, in yards or protected by sheltered constructions (Ridley *et al*. 2000). To conclude, a closer observation of the LN dispersal of intra-site spatial organisation of kitchen spaces in the wide geographical region of Macedonia and Western Thrace reveals loose local characteristics. In Eastern and Western Macedonia, in particular, the model that combines inner and outer kitchen spaces is rather preferred, as opposed to Western Thrace were cooking facilities are mainly recorded inside the buildings. Central Macedonia, on the other hand, demonstrates

clusters with mixed intra-site spatial characteristics. What emerges as a conclusion from an attempt to entangle all the relevant data here are the standardized components of LN lifeways in Macedonia and Western Thrace. Density, locality and the prominence of tell settlements are also evident.

7.3.4 Thermal Structures in context in the Final Neolithic period

Geographical distribution of excavated FN sites

As it is mentioned earlier in Chapter 3.4, FN period, dated from 4500 to 3200 cal BC, is not observed everywhere in Greece (Souvatzi 2008a, 51). In the area of Macedonia and Western Thrace in particular, this period is only sparsely represented raising questions about habitation preferences (Map 7.11). Only three FN settlements from Northern Greece are available for the current analysis. These are Sitagroi Dramas, Olynthos Halkidikis and Kolokynthou Kastorias in Eastern, Central and Western Macedonia respectively (Table 7.1; 7.2). In Western Thrace to date, no FN settlements have come to light. Dikili Tash is not embedded in this study, because after the destructive fire of 4300/4260 cal BC the site was only sporadically occupied until its abandonment in 4000 cal BC, and it therefore has insufficient and inconsistent FN habitation evidence (Koukouli-Chrysanthaki and Treuil 2008). Correspondingly, Mandalo Pellas and Megalo Nisi Galanis in Kozani in Central and Western Macedonia respectively do not constitute adequate representative samples of the period and are, as a result, also excluded from the present analysis. Both sites were inhabited during the LN and were only irregularly occupied during the early phases of the FN, lacking consistent evidence of occupation (Papaeuthimiou-Papanthimou and Pilali-Papasteriou 1987; 1988; 1990; Pilali-Papasteriou and Papaeuthimiou-Papanthimou 1989; Hondroyianni-Metoki 1990; 1992).

On the Greek mainland the prevailing FN economy, which was largely based on trade and transaction, contributed significantly to the change of environmental habitation preferences and resulted in a shift from fertile plains and inland sites to the coast and the islands (Gallis 1996, 37). The lack of excavated FN sites in Western Thrace and the limited sample of three excavated settlements demonstrate diversity in environmental preferences of habitation and prevent the suggestion of a regional inter-site spatial model (Map 7.11). The small assemblage of FN habitation evidence in Northern Greece, however, may well originate in a slow adaptation to the dominant economic status of the new era. In eastern Macedonia, the settlement at Sitagroi Dramas is located in a plain with easy access to water resources (Elster and Renfrew 2003; Renfrew *et al*. 1986). On the other hand, Olynthos Halkidikis, in central Macedonia constitutes a tell site situated in a plain environment close to the sea (Mylonas 1929). Finally, Kolokynthou was founded in a mountainous terrain of approximately 700 m

height, in the periphery of Orestida Lake and the tributaries of Aliakmon River that were continuously attractive to Neolithic settlers (Tsouggaris *et al*. 2002).

Settlement types in the FN period in Northern Greece

The small sample of FN excavated sites in Northern Greece makes the development of a settlement type model deficient. Correspondingly, an analysis of the inter-site distribution of habitation forms is also considered to be not currently possible. As opposed to the habitation models suggested for the preceding LN period, the three sites discussed here were not grouped into settlement clusters of adjoining villages, but they were all scattered at considerable reciprocal distances representing single settlement units (Map 7.11). In FN Macedonia the tell is the only known type of site to have been excavated so far (Table 7.1; 7.2). Both Sitagroi Dramas and Olynthos Halkidikis in eastern and central Macedonia respectively are tell sites (Elster and Renfrew 2003; Mylonas 1929; Renfrew *et al*. 1986). Ultimately, Kolokynthou Kastorias in western Macedonia remains an unclassified site (Tsouggaris *et al*. 2002).

Intra-site spatial organisation of kitchen spaces in the FN period

Due to a lack of sufficient data, the intra-site spatial organisation of FN kitchen spaces in Northern Greece is difficult to identify (Table 7.1; 7.3; 7.8). The geographical distribution of the three FN sites in Northern Greece demonstrates a minimum scale of continuity from the LN to the FN period given that two sites, Sitagroi Dramas and Kolokynthou Kastorias, were already inhabited in the preceding periods. From the three sites sampled, Olynthos is the only one first settled in the FN (Map 7.11). In addition, out of the three sites incorporated in the present analysis one is missing thermal structures (Table 7.3; 7.8). As discussed earlier, the lack of identified hearths and ovens at Kolokynthou Kastorias in Western Macedonia makes the site insufficient for the intra-site spatial analysis of kitchen spaces (Tsouggaris *et al*. 2002, 630). In contrast with the lack of thermal structures in the LN Phase I and II at Sitagroi Dramas, evidence of cooking facilities is recorded in the FN Phase III of the settlement. Successive floors, postholes and the remains of a single burned wall represent the structural remains of Phase III. The number of buildings from this habitation phase is not recorded (Renfrew *et al*. 1986). At Sitagroi Phase III, one hearth found in the open-air spaces constitutes the only thermal structure unearthed. Organic remains, grinders and pots constitute the context of this free-standing kitchen space. The association of the hearth with the building structures and the overall configuration of buildings with open-air spaces remain unknown. It appears, however, that at Sitagroi Phase III, food processing and cooking were

taking place in public view as part of the visible and shared daily social activities. In FN Olynthos four buildings are recorded. The buildings were constructed with stone foundations and a mud-brick upper structure, whereas information on their spatial configuration is missing from the publication (Mylonas 1929). Overall two thermal structures are recorded, one of which was identified as a fire place and the other one as a potential pottery kiln (Fig. 7.20; 7.21). Although some description is provided in the publication, the spatial organisation and the contextual associations of the two features remain unknown.

Discussion

FN in Northern Greece is a relatively inconspicuous period known only from a small assemblage of settlements that provide sporadic and insufficient evidence. As opposed to LN economy that established a more settled way of living, archaeologically identified in other parts of Greece, Macedonia and Western Thrace were slow in adapting the changing economic status of the new era. Sitagroi Dramas, Olynthos Halkidikis and Kolokynthou Kastorias were founded in diverse environments, which possibly indicate local habitation preferences. Plains with access to water resources, plains close to the sea and mountainous areas were chosen for habitation during the FN period (Map 7.11). Provided that two out of three of these sites were already settled earlier a minimum continuity from the LN to the FN is recorded. Furthermore, tells constitute the only identified and excavated settlement type in Western Thrace thus far (Table 7.2). In contrast to the suggested LN habitation model of village-clusters, FN settlements appear scattered representing single settlement units. The lack of sufficient data make an analysis of intra-site spatial organisation of kitchen spaces a difficult task. Sitagroi Dramas is the only site for which the spatial context of kitchen spaces is known. At this site food processing and cooking appear to have taken place in public view as part of visible and shared daily routines. As a result, a general narrative on household and communal social organisation based on intra-site spatial configuration of cooking routines in the FN Northern Greece is not pausible.

Chapter 8

Conclusions: diversity, locality and social identities

'The degree of 'systemness' is very variable' (Giddens 1984, 156)

8.1 Introduction

The final chapter of my thesis brings together the analysis of settlement types and kitchen spaces into broader synthetic observations about habitation lifeways, community organisation and social identities in Neolithic Northern Greece. Three main areas were addressed throughout this study: geographical and chronological distribution models of settlement types, intra-site spatial patterns of cooking practices, and material entanglements of kitchen spaces. The central theme of my research refers to *habitus* and the social and cultural entanglements that represent local similarities or differences, which respectively reflect varied social and cultural identities. I argued that key to the understanding of social structures and lifeways in dissimilar cultural and social surroundings is the routine daily activities in private as well as in public contexts. The local-scale and spatio-temporal analysis applied in this study has been aimed at achieving a better understanding of regional lifeways and traditions and producing narratives that encourage the varied forms of social structures to unfold. Principal research questions have been to investigate how communities were organised and how different forms of *habitus* or different kinds of entanglements tell us something about social structures. In this final chapter I will also explore the causes of the evident diversity of settlement types and complexity of social structures.

Thirty excavated sites were examined from Macedonia and Western Thrace. Intra-site and contextual analysis in two case-study sites from Western Macedonia — Avgi and Dispilio in Kastoria, a flat-extended and a lake-side site respectively — have complemented this study. This research explores the formation processes of dissimilar social structures in varied surroundings, such as tells, flat-extended sites and lake-side sites and focuses on the spatial configuration of kitchen spaces. The results of my study demonstrate variability within

patterning and suggest that socio-cultural assemblages in prehistory do not correspond to geographically broad united community groups but instead show local diversity and social complexity. People seem to have come together around a sequence of chronologically and geographically focused form of local identities. Small clusters of adjacent villages often show similar spatial configurations and indicate cultural groups of comparable social structures. A local-scale examination of intra-site spatial patterns from the study area demonstrated that rather than a straight forward similarity one can see difference in settlement types while at the same time similarities in practices indicate the development of similar social structure types. Therefore there are nuanced layers of social *habitus* which developed differently and similarly at the same time.

8.2 Distribution patterns in time and in space

Chronological distribution of settlement types

In Neolithic Northern Greece evidence of EN settlements are sparse, revealing limited information about how people organised their daily lives, how they structured their societies and the extent of contacts between adjacent groups. Uniformity of settlement types is evident in this chronological period in the region, since six out of the overall seven sites are classified as tell settlements (Table 7.1; Map 7.1). These are Axos A and Yiannitsa B in Yiannitsa, Nea Nikomedeia and Polyplatanos in Imathia, Servia Varytimides in Kozani and Dikili Tash in Kavala. Only Drosia in Edessa is classified as a flat-extended site, whereas lake-side sites have not yet been identified. What is noteworthy, however, is that four of these sites were inhabited in the following MN period, showing a significant degree of continuity. The sites are Yiannitsa B in Yiannitsa, Servia Varytimides in Kozani, Drosia in Edessa and Dikili Tash in Kavala. Moreover, both tells and flat-extended settlement types demonstrate continuity in the next chronological period, suggesting that within this geographical and historical context habitation stability is not directly relevant to settlement type. The causes of settlement continuity constitute too large a subject to discuss here and it requires a holistic approach of evidence that goes beyond the scopes of the present work.

In contrast with the small assemblage of EN sites in the area, the MN period shows a remarkable increase in settlements in the region. In addition to the four settlements that were inhabited from the EN period 15 more new sites were settled in the MN raising the total number of excavated MN settlements to 19 (Table 7.1; 7.2; Map 7.3; 7.4). Moreover, the increase in flat-extended sites, producing evident diversity of habitation lifeways, is notable. Eight tell settlements are recorded along with eight flat-extended sites (Map 7.3; 7.4). Arkadikos in Drama, Dimitra in Serres, Makri in Alexandroupoli, Paradimi and Proskinites in Komotini are added to the three tell settlements inhabited in the EN period. Avgi Kastorias, International Fair of Thessaloniki, Lete I and III in Langadas, Stavroupoli and Thermi B in Thessaloniki and Grammi in Pella are added to the earlier inhabited settlement of Drosia Edessas. In the MN period the first lake-side site and complex site appeared: the earliest habitation phase of the lake-side site Dispilio in Kastorias and of the complex site Paliambela Kolindros respectively.

Twenty-four LN sites were found and excavated in Macedonia and Western Thrace demonstrating considerable population growth in the region (Table 7.1; 7.2; Map 7.7; 7.8). Fourteen of these sites were initially founded in previous cultural phases, demonstrating evidence of habitation continuity, while newly founded villages were also identified in the area. From this group three sites were inhabited from the EN: Yiannitsa B in Yiannitsa, Servia in Kozani and Dikili Tash in Kavala, which show persistent evidence of continuous occupation of the settlement throughout the Neolithic from the EN to the LN period. Settlements inhabited from the MN and preserving occupation through the LN are Makri Alexandroupolis, Paradimi and Proskinites Komotinis, Arkadikos Dramas, Thermi B and Stavroupoli in Thessaloniki, Paliambela Kolindros and Dimitra in Serres, and Kolokynthou, Avgi and Dispilio in Kastoria (Table 7.1; 7.2; Map 7.7; 7.8). Moreover, Axos A in Yiannitsa, Polyplatanos and Nea Nikomedeia in Imathia were originally inhabited during the EN period, abandoned during the MN and again reoccupied in the LN.

Only seven new settlements originated in the area in the LN; these are Paradeisos in Kavala, Promachonas-Topolnitsa in Serres, Sitagroi in Drama, Makriyalos in Pieria, Mandalo Pellas Kleitos and Megalo Nisi Galanis in Kozani (Map 7.7; 7.8). Some of the new founded settlements, such as Sitagroi Dramas, Makriyalos Pierias, Megalo Nisi Galanis and Kleitos Kozanis are spatially recorded in regions adjacent to MN villages. I argue that the practice of occupation created clusters of adjoining villages that developed dense habitation networks, preserving and reproducing lasting cultural and social traditions. A high degree of interaction and communication among different groups is also expected within this inter-site spatial configuration. With regard to settlement types, the LN period appears less divergent than the MN, showing clear evidence of settlement uniformity that indicates more standardized and systematized ways of living. Tells are the prominent settlement type with 15 sites distributed throughout Northern Greece (Table 7.1; 7.2). Only six flat-extended sites are recorded; these are Promachonas-Topolnitsa, Thermi B, Stavroupoli, Makriyalos, Kleitos and Avgi. Dispilio Kastorias and Paliambela Kolindros are again the only lake-side and complex site respectively to have been unearthed in the area.

The progressive settlement growth in LN period in Northern Greece was succeeded by a decline in the FN period, indicating a decrease in population. Most of the LN settlements were abandoned, and evidence of continuous occupation is recorded only in two villages: Sitagroi Dramas, and Kolokynthou Kastorias. Olynthos Halkidikis was the only settlement

founded in the region at this time (Table 7.1; 7.2; Map 7.11). Out of the three settlements that were occupied in the FN, Sitagroi Dramas and Olynthos Halkidikis are classified as tells, while information for the settlement type classification of Kolokynthou Kastorias is missing from the reports (Tsouggaris *et al*. 2002). None of the flat-extended sites preserved habitation or was re-inhabited. It seems that at this time the landscape of Macedonia and Western Thrace did not attract inhabitants. The small assemblage of FN sites marks a clear change of the dominant economic, cultural and social habitation.

Geographical distribution of settlement types

The geographical distribution of settlement types in Neolithic Northern Greece provides interesting evidence of how and where people had decided to organise their societies. During the EN period, although a generally dispersed distribution of settlements is identified, it appears that people had well defined criteria for the location of their habitation spaces. Five out of seven settlements were founded in alluvial plains close to water resources, while only two villages were located on mountains of less than 500 m high (Table 7.2; Map 7.1). Evidence of EN habitation is not recorded throughout Northern Greece, while occupation density also varies locally (Map 7.1). In Western Thrace, in particular, evidence of EN settlements is lacking. Dikili Tash in Kavala is the only site in Eastern Macedonia, from which we can gather sparse information of a local EN material culture development. Central Macedonia is to date the only region in Northern Greece where we have found a cluster of EN villages. Four settlements were grouped in pairs on the northern and the western periphery of the Yiannitsa plain near higher ground: Yiannitsa B, Axos A, Polyplatanos Imathias and Nea Nikomedeia (Table 7.2; Map 7.1). The proximity of these four sites suggests regular interaction among the settlers living on the plain and encourages sharing of cultural and social traditions that enhance the development of distinct local social identities. The diverse settlement types and the distance between the two EN settlements recorded in Western Macedonia on the other hand might represent the remains of two different and localised social formations. Both the flat-extended settlement of Drosia in Edessa and the tell site Servia Varytimides in Kozani were located in close distance to water resources (Map 7.1). This varied inter-spatial distribution of the known sites in Northern Greece shows that the EN is characterised by diverse habitation lifeways that were organised around local geographical factors and needs which varied over time.

During the MN period in Northern Greece a geographically distinct spread of settlement types is even clearer. The evident increase of MN settlements and their distribution pattern in the landscape demonstrates that people had been generally choosing to settle in groups in direct or indirect proximity to other villages (Table 7.1; 7.2; Map 7.3; 7.4). First evidence of settlements in Western Thrace is recorded during the MN period. Makri Alexandroupolis, Proskinites and Paradimi Komotinis are three tell settlements that were located on plains and developed direct or indirect association to the sea (Map 7.4). In Eastern Macedonia two tell sites, Dikili Tash in Kavala and the newly founded Arkadikos in Drama were found at the periphery of Drama plain near higher ground, whereas the tell settlement Dimitra in Serres is located in a plain closer to the sea and directly associated with riparian water recourses (Map 7.3).

Central Macedonia constitutes a distinct example of segregation between different settlement types. Five flat-extended settlements comprised a dense cluster of the same habitation types that reflect characteristics of uniform, local and distinctive social identities. From this group, Stavroupoli, International Fair of Thessaloniki and Thermi B are located in the Thessaloniki plain in close distance from the sea, while Lete I and III are in the Langadas plain, not far from the three coastal sites. The same settlement type and similar habitation choices through the geographically dispersed settlements indicate shared traditions of settling down and suggest common lifeways ethos and therefore comparable social identity formations in the region.

At the western side of the Thermaic Gulf the only complex site unearthed in Northern Greece to date is Paliambela Kolindros, which stands as a single unit, distant from other contemporary settlements (Map 7.3). This physical separation from other contemporary and active sites in the area indicates the development of another model of inhabiting and living. On the north periphery of Yiannitsa plain the tell site Yiannitsa B shows on the other hand that certain groups had more persistent occupation and living choices. The dense cluster of flat-extended sites in the Thessaloniki and Langadas plains, the localization of a single complex settlement distant from other contemporary villages and the continuity of habitation at the tell site of Yiannitsa B shows that in the region of Central Macedonia local habitation variability was developed within regional patterning.

In contrast to what has been described above concerning local and/or regional separation of settlement types, Western Macedonia demonstrated variability of diverse habitation models. The common geographical pattern of all six settlements unearthed there is their close proximity to water resources, both rivers and lakes (Map 7.3). The lake-side site of Dispilio, the flat-extended site of Avgi and the settlement of Kolokynthou in Kastoria formed a diverse habitation hub that developed direct or indirect associations with the lake and shows varied lifeways and social structures (Map 7.3). Two more flat-extended settlements are located in different environments. Drosia in Edessa was located close to the lake water resources, while Grammi in Pella inhabited a hilly environment. Servia is the only excavated tell settlement in Western Macedonia and indicates another living tradition, adding more diversity in a region that lacks consistent patterning.

In comparison to the MN the LN appears as more standardized period. LN settlers in Northern Greece chose to maintain habitation of most MN settlements and/or to re-occupy familiar, man-made and natural environments of the EN period. During the LN, tell settlements appear to be the prominent habitation form. Alluvial plains with access to water resources constitute the main habitation choices, while mountains were settled by the inhabitant groups of Western Macedonia. Coastal sites did not increase during this period showing a clear preference for living in the plains (Table 7.1; 7.2; Map 7.7; 7.8). Four of the newly founded LN settlements, Sitagroi Dramas, Megalo Nisi Galanis in Kozani, Makriyalos Pierias and Mandalo Pellas are recorded in close proximity to adjacent sites that were inhabited from the MN or the EN period (Map 7.7; 7.8). This practice created clusters of adjoining villages that formed direct and/or indirect networks of interaction and exchange among adjacent communities, while it also encouraged the development of shared long-term social traditions. The geographical segregation of settlements types that was observed during the MN period remains evident during the LN as well, marking locality of lifeways and grouping social identities.

In Western Thrace, four tell settlements were scattered on plains with access to water resources (Map 7.8). In Eastern Macedonia the settlement of Sitagroi Dramas was added to the MN pair of Arkadikos and Dikili Tash creating a more dense interactive network among the inhabitants of this region. The flat-extended site Promachonas-Topolnitsa and the tell site Dimitra at the northern and the southern end of Serres county respectively give emphasis to the variability and complexity of living during the LN period in the region.

In Central Macedonia the MN cluster of flat-extended settlements in Thessaloniki and in Langadas plains turned into a pair of two flat-extended sites, since only Stavroupoli and Thermi B continued to be inhabited during the LN (Map 7.7). This local change of living practices signifies a reduction of preference for flat-extended settlements noted during the LN and emphasises the evident preference for tell settlements in this period. Two more village clusters were developed in Central Macedonia at the time. One cluster of three tell settlements is recorded at the north edge of the plain of Yiannitsa, near higher ground. The tell site Yiannitsa B continues habitation, while Axos A that was inhabited during the EN period was re-occupied in the LN. Mandalo is a newly founded LN settlement that complements the dense cluster configuration. Polyplatanos and Nea Nikomedeia constitute the second pair of villages at the western periphery of Yiannitsa plain, also near higher ground. Both sites were first inhabited during the EN and after a long period of abandonment throughout the MN they were re-occupied in the LN period. The single complex site of Paliambela Kolindros and the newly founded flat-extended settlement of Makriyalos Pierias add more diversity to the complex settlement environment in the region. During the LN period Central Macedonia shows a diverse, varied settlement pattern, forming a complex setting, where local social identities were formed around geographical formations (Map 7.7).

Western Macedonia differs from the model of uniform village clusters. Dispilio, Avgi and Kolokynthou constitute the only settlement group recorded in the region, which incorporates diverse settlement types and reflects dissimilar habitation lifeways on the local-scale (Map 7.7). Moreover, the two tell settlements Megalo Nisi Galanis and Servia in Kozani represent a village pair of same settlement types next to water resources, adding further diversity of local habitation lifeways in the region. The flat-extended site of Kleitos Kozanis reflects another way of living and its presence emphasises the local variability and complexity of social identities recorded in Western Macedonia.

Finally, the small assemblage of three FN settlements in Northern Greece reflects diversity in habitation environments. Sitagroi Dramas was located on a plain close to water resources and Olynthos Halkidikis was founded on a plain close to the sea, while the settlement of Kolokynthou was located on a mountain, close to water recourses (Table 7.1; 7.2; Map 7.11). Western Thrace is not inhabited during the FN period. The lack of excavated FN sites in Western Thrace and the small sample of settlements in the region demonstrate diversity of environmental preferences and indicate the development of different living traditions.

Intra-site spatial organisation and material entanglements

Where were cooking facilities located? Did the location of kitchen spaces indoors and/or outdoors relate to settlement types? Can we identify intra-site spatial patterning of kitchen spaces associated with chronological and/or geographical variations? The EN period in Northern Greece provides sparse architectural remains, which makes a discussion of the organisation of domestic space incomplete. Dispersed excavated settlements in Macedonia, the cluster of four sites in the Yiannitsa plain and the identification of diverse settlement types in the region, however, suggest that the EN was characterised by varied local habitation forms that reflect diverse local social identities. Nea Nikomedeia is the only EN settlement in Northern Greece to date that enables intra-site spatial analysis of domestic structures (Wardle 1996). Cooking facilities were found inside and outside the buildings and always in direct association with them (Figures 17; 18; Map 7.2). Except ashes and organic remains no other material remains were repeatedly associated with hearths and/or ovens in the settlement. The identification of cooking facilities as part of the domestic equipment both inside and outside of the buildings suggests that cooking was a practice linked with the inhabitants of each house rather than constituting public and/or collective performances; the lack of thermal structure clusters in open-air spaces and the close distance of these features with the dwellings emphasises a spatial model of private domestic use. In the case of Nea Nikomedeia, cooking facilities in outer spaces may be related with the performance of certain cooking recipes, with the number of people inhabiting each building and with the quantity and frequency of daily meals, as well as with other activities that were carried out in inner spaces that developed certain forms of *habitus* and lifeways. Limited intra-site spatial evidence from EN Macedonia, however, discourages the comparative analysis of intra-site habitation forms on regional or local scale; therefore, a discussion that associates spatial forms with settlement types and geographical or chronological choices is not currently valid.

During the MN period in Macedonia and Western Thrace, evidence of spatial organisation based on the intra-site distribution of kitchen spaces does not show clear spatial patterns. On the contrary, the MN period in the region demonstrates diversity of spatial models that indicates different household perceptions, varied social structures and dissimilar lifeways. I argue that the MN period in Northern Greece was well settled and that within it the diversity indicates local-scale variation in habitation practices rather than a broader regional unity (Map 7.5; 7.6). Within this varied habitation setting, however, local patterning is recorded. In

Central Macedonia, for instance, the concentration of five flat-extended sites in the Thessaloniki and Langadas plains shows variability within local patterning. As discussed earlier, in this cluster of similar settlement type villages, similar habitation choices reflect, to a certain extent, shared living traditions. Cooking facilities in the adjacent contemporary villages Lete I and III, located on Langadas plain, are recorded inside buildings. Even though the spatial organisation of kitchen spaces between these two settlements is in common, the cooking facilities served different cooking practices. Only hearths were found in Lete I, whereas ovens constituted the only type of thermal structure found in Lete III, suggesting local preferences and trends unrelated with habitation types (Table 7.1; Map 7.5; Tzanavari and Filis 2002). Querns along with chipped stone tools and pots were also found within the context of these kitchen spaces. Further south, Stavroupoli and Thermi B, both in the Thessaloniki plain, demonstrate dissimilar spatial configuration of kitchen spaces. During the MN, cooking facilities in Stavroupoli were found both inside pit-dwellings and outside in the broad, open-air spaces in direct association with buildings. Hearths and ovens were regularly associated with storage pits directly linking storage with cooking and consumption practices (Grammenos and Kotsos 2002; 2004). During the MN period, Central Macedonia is the only region where uniformity of settlement types and similarity of kitchen space configuration is recorded.

Although all three excavated settlements in Western Thrace are tell sites, demonstrating that to some extent people followed common habitation traditions, the intra-site spatial organisation of the two sites that preserve kitchen spaces differ (Map 7.6). These spatial differences suggest diverse household perception and organisation of daily routines and living. Cooking facilities in Makri Alexandroupolis were found inside buildings, whereas in Paradimi Komotinis hearths and ovens are recorded in open-air spaces in direct association with buildings (Bakalakis and Sakellariou 1981; Efstratiou *et al*. 1998). Even though the sample of sites in the region is small, these two examples show that intra-site spatial organisation is often unrelated with the type of habitation and suggest that archaeological interpretations for the understanding of social structures and daily life routines should not simply depend on the morphological characteristics of settlement types.

In Eastern Thrace the tell settlement Arkadikos in Drama is currently the only site in the region that provides evidence for the intra-site spatial organisation of kitchen spaces. Hearths and ovens were found both inside and outside of the post-framed buildings. Cooking facilities

there are often associated with pits, cooking pots, querns and organic remains creating fully equipped kitchen spaces. According to the excavators, those hearths and ovens unearthed in outside spaces were found in direct and indirect association with buildings (Anagnostou and Vargas-Escobar 1991; Touloumis and Peristeri 1991). Such spatial choices suggest that cooking was a private practice performed by and addressed to certain participants (family, kin group, co-residents), but consumption and cooking practices also constituted a public act visible to the wider community. The archaeological remains associated with these kitchen spaces suggest small-scale, domestic cooking and food consumption rather than large-scale events, such as feasts.

Servia Kozanis in Western Macedonia is another case in MN Northern Greece where cooking facilities are recorded both inside and outside buildings (Figure 7.31; 7.32; Map 7.5). Unlike Arkadikos in Drama, where some of the outside cooking facilities were indirectly associated with buildings, hearths and ovens in Servia were always located close to buildings indicating direct links with house structures (Ridley *et al*. 2000). Querns were recurrently incorporated within kitchen spaces' contexts, framing food processing next to cooking facilities. Furthermore, although the single-phased, flat-extended site of Grammi in Pella constituted a large-scale excavation that exposed a significant area of the MN settlement (1600 m²), only one oven unearthed there was located in open-air space and was not directly related with a building structure (Chrysostomou *et al*. 2001). This paucity of evidence prevents further interpretation of how the daily life in this village was organized. Nevertheless, it introduces yet another habitation lifeway in the region, increasing diversity of social structures and emphasising at the importance of local developments.

Avgi Kastorias in Western Macedonia is the only settlement among the cluster of three diverse sites concentrated in the area surrounding Orestida Lake (Kolokynthou, Dispilio and Avgi) from which clear evidence of intra-site spatial organisation of cooking spaces is recorded during the MN period (Map 7.5; Stratouli 2004; 2005; 2007; Stratouli *et al*. 2010). The preceding analysis of this flat-extended settlement in Chapter 5 provides detailed information of the spatial configuration of cooking facilities within the settlement. Based on the evidence to date, buildings in the MN Avgi I Kastorias are lacking *in situ* cooking facilities. All 14 hearths and ovens unearthed in Avgi I were located singly or in clusters in the open-air spaces created among buildings. The association of thermal structures with the houses is either direct, such as in case TS 14 and TS 15, or indirect, such as in case TS 8, TS

9 and TS 10 (Plan 5.2; 5.6). The clusters of thermal structures never exceeded three interrelated features. This spatial choice and the usually small size of the thermal structures suggest that small-scale, domestic cooking was carried out there (Map 5.2; Plan 5.15; 5.16; 5.19). In addition, the spatial arrangement of cooking facilities within the clusters shows that coincidental food preparation and cooking was also attainable and probable there (e.g. TS 8, 9 and 10, TS 17, 22 and 23; Plan 5.2; 5.15; 5.19).

The considerably larger size of cooking facilities within the North-western complex (TS 11, 26 and 27) and the spacious configuration of the three features open this complex area to discussion as a public, common space used for the performance of collective gatherings and feasts. The quantity and ordinary typology of material remains contextually distributed in this space, however, does not support such a hypothesis (Plan 5.16). I argue that the North-western complex constituted a common, public space where daily domestic food processing and cooking occurred; a space accessible by various members of the community. Querns were regularly unearthed in kitchen space contexts there, suggesting that in Avgi I grinding was carried out close to cooking facilities and that cereals were consumed in meals and used in recipes. Based on patterns of material culture remains and waste in these kitchen spaces particular domestic activities happened there, such as food preparation, chipped stone tool making, perforation of leather and sawing. Figurines, seals and miniature models were frequently found in kitchen space contexts in Avgi I, binding daily activities with conceptual dimensions and the sphere of intellectual symbols (e.g. Plan 5.15; 5.16; 5.18; 5.20). The exposure of household equipment to public sight in Avgi I possibly suggests sharing of specific structures and tools, such as cooking facilities and querns, indicates conviviality and communality of social lifeways and outlines sharing of living space (Bourdieu 1977; Bailey and Whittle 2008). This living model increases interaction between individuals and groups and enhances social coherence. Moreover, I argue that due to the scattered distribution of cooking facilities in open-air spaces in MN Avgi I, the hypothesis of small-scale cultivation in garden plots next to the buildings is not well-founded (Andreou and Kotsakis 1987; Andreou *et al*. 1996; Chapman 1989; 1990).

In contrast to the plurality of spatial models and the varied lifeways indicated by diverse MN habitation forms, the LN emerged as a more standardized period, demonstrating rather settled habitation patterns that reflected well embedded regional and/or local traditions throughout Northern Greece (Map 7.9; 7.10). Although tell settlements constituted the predominant

habitation form, locality is still acknowledged. A spatial preference of moving cooking facilities in the private contexts of buildings is discernible during the LN period throughout Northern Greece. Paradeisos Kavalas, Promachonas-Topolnitsa in Serres, Polyplatanos Imathias and Dispilio Kastorias are only some of the settlements where cooking occurred inside dwellings (Table 7.7; Map 7.9; 7.10). Nevertheless, it appears that people chose to continue the spatial tradition in which food processing and cooking in certain settlements were performed both in private (houses) and public contexts (open-air spaces). The number of settlements that fall into this spatial model increased from three sites in the MN (Servia, Arkadikos and Stavroupoli) to six sites in the LN period, these being Dikili Tash Kavalas, Arkadikos Dramas, Stavroupoli Thessalonikis, Makriyalos Pierias, Servia and Kleitos Kozanis (Map 7.9). I argue that the LN entanglement of kitchen spaces both in private and public contexts demonstrates certain habitation and living traditions that indicate the extension of household boundaries and household activities from the individualised private settings to routines carried out in public view. In addition, the expansion of the physical household boundaries creates direct links between inner and outer spaces and renounces the separation between private and public spheres through daily cooking performances.

This variable intra-site spatial organisation of kitchen spaces is not recorded in Western Thrace and its absence is potentially related with locally fixed lifeways that are spatially represented in rather straightforward spatial configuration, such as either inner or outer location of cooking facilities (Map 7.10). It appears that the prevailing regional model of intra-site spatial domestic organisation in LN Western Thrace places household activities and cooking in private contexts (Map 7.10). In two tell settlements, Paradeisos Kavalas and Makri Alexandroupolis, food processing and cooking took place inside buildings (Efstratiou *et al*. 1998; Hellström 1987). In contrast, Paradimi Komotinis is the only tell settlement in the area where hearths and ovens were found in open-air spaces, in direct association with dwellings (Table 7.1; 7.7; Map 7.10; Bakalakis and Sakellariou 1981). In Makri Alexandroupolis, pots and organic remains unearthed in the context of cooking facilities suggest that food processing and possibly storage also occurred close to the structures.

In Eastern Macedonia, although local variation is recorded, the preferred intra-site regional spatial model places cooking facilities both inside and outside buildings. Arkadikos Dramas maintained this mixed spatial tradition, which was initiated in the preceding MN period, while the spatial evidence of Dikili Tash demonstrates that the varied model of private and

public kitchen spaces was developed in the settlement in the LN period (Koukouli-Chrysanthaki and Treuil 2008; Peristeri 2002; Treuil 1992; Vargas *et al*. 1992). Promachonas-Topolnitsa in Serres constitutes the only excavated flat-extended settlement in the region to date. Hearths and ovens there were simply placed in private contexts inside dwellings. The remains of pots, querns, figurines and organic remains demonstrate fully equipped kitchen spaces (Table 7.1; 7.7; Map 7.9; Koukouli-Chrysanthaki *et al*. 2007).

In Central Macedonia the position of cooking facilities found in private contexts, forms an obvious regional spatial pattern and became a standardized, prevailing regional choice. This model shows cooking facilities either exclusively found inside buildings or in mixed spatial form both inside the houses and outside in the open-air spaces (Table 7.7; Map 7.9). Two flat-extended settlements at the eastern and the western side of the Thermaic Gulf respectively, Stavroupoli Thessalonikis and Makriyalos Pierias, demonstrate a mixed spatial configuration of kitchen spaces both in private and in public contexts (Table 7.1; Map 7.9; Grammenos 2006; Pappa 2008). In addition, the two tell sites, Mandalo Pellas and Polyplatanos Imathias, both located on the edge of the Yiannitsa Plain near higher ground represent a rather straightforward model of spatial organization of cooking, where hearths and ovens were only located in private contexts inside buildings (Table 7.1; Map 7.9; Papaeuthimiou-Papanthimou and Pilali-Papasteriou1987; 1988; 1990). Thermi B is the only settlement in that region where kitchen spaces were recorded in the open-air habitation space (Table 7.1; Map 7.9; Pappa 2008).

Its broad plains, the accessible water resources and the proximity to the sea are some of the characteristics that made Central Macedonia a destination habitation location throughout the Neolithic period (Map 7.1; 7.3; 7.7). During the LN the spatial organisation of kitchen spaces reflects local variability within the wider regional pattern. The evident regional pattern of cooking in private contexts is supplemented by local models that present cooking facilities in various spatial forms: inside and outside of buildings, simply inside or simply outside of dwellings (Map 7.9). The spatial choice of indoor contexts reflects settled traditions of well organised domestic spaces and places kitchen areas in direct association with living spaces, suggesting that cooking was primarily happening among kin-groups, family members and co-residents (Byrd 2000; Hodder 1990; 2006; 2013; Hodder and Cessford 2004; Janowski 1995). Based on settlement types, geographical location and intra-site spatial configuration, three social traditions are identified in the region reflecting varied habitation lifeways and diverse

social identities. Stavroupoli Thessalonikis and Makriyalos Pierias seem to belong to the same lifeway tradition since they reflect common habitation characteristics; both settlements are flat-extended sites, located close to the sea and have developed comparable intra-site spatial configuration of kitchen spaces (Map 7.9). Another tradition seems to be developed in the periphery of the Yiannitsa Plain by the tell settlements Polyplatanos Imathias and Mandalo Pellas, where cooking spaces were recorded simply inside houses. The third tradition is merely attributed at the flat-extended settlement Thermi B in Thessaloniki, where cooking was only happening in the open-air spaces of the village.

As discussed earlier in this study, Western Macedonia demonstrates diverse and varied local habitation lifeways throughout the Neolithic. The obvious variability and locality in the region shows that living is a complex process and it cannot always be modelled or patterned in categories. During the LN phases of the tell settlement, Servia Kozanis' cooking facilities are directly associated with buildings both in private and in public contexts (Table 7.1; Map 7.9; Ridley *et al*. 2000). Querns were repeatedly unearthed close to hearths and ovens demonstrating that food processing took place within these kitchen spaces (Table 7.1). Further North, in the flat-extended settlement of Kleitos Kozanis, the same spatial model is also recorded. Although Servia and Kleitos represent two different settlement types the organization of kitchen spaces is comparable indicating common or shared traditions in daily domestic routines (Table 7.1; Map 7.9; Ziota 1995; 2008; 2009).

As opposed to the clear spatial evidence recorded in MN Avgi I in Kastoria, the analysis of spatial data from LN Avgi II does not allow clear interpretations of how daily life was organised at the time. Eleven hearths and ovens were recorded in open-air spaces and were usually associated with querns, placing food processing close to cooking. These thermal structures were found singly or in clusters, and nine out of the eleven were concentrated in the western quarter of the site forming a space of intense food processing and cooking activity (Map 7.9; Plan 5.8). Although this is an unusual assemblage of cooking facilities that could support the hypothesis of large-scale community gatherings, the relatively low of the remains supports domestic-scale consumption (Plan 5.25; 5.26; 5.27; 5.28; 5.28). Based on the archaeological evidence to date, the working hypothesis for the interpretation of the lack of building remains in LN Avgi II suggests the development of non-sedentary lifeways. In this analytical framework, Avgi II might represent a periodically visited place dedicated to remembrance, where small groups of people traditionally gathered to honour ancestral ways

of living (Parker Pearson and Richards 1994; Parker Pearson 1999). Another hypothesis suggests that the spatial configuration of thermal structures reflects the remains of a seasonal camp that served certain periodical subsistence practices, such as seasonal nomadic husbandry, with dwellings made of raw materials which were not archaeologically preserved. Regardless of the interpretation chosen, Avgi II in Kastoria supports the argument for the development of locally varied and diverse cultural and social identities in the region.

Unlike the contemporary sites Avgi II Kastorias, Servia and Kleitos in Kozani, where the boundaries of domestic space were blurred and changeable between private and public space, Dispilio represents a rather individualised household model, where daily domestic activities occurred inside buildings in private contexts. This diverse model of social living adds more evidence to the discussion of locality, diversity and complexity of social identity and community lifeways. In the Western Sector of Dispilio, Phase A household boundaries were clearly shaped reflecting local *habitus* choices and traditions. All five cooking facilities unearthed there were found inside two dwellings (four ovens are recorded in Building 1 and one oven in Building 2, respectively; Map 7. 9; Plan 6.2; 6.3). Although people chose to build their houses in loose spatial arrangements, maintaining broad unbuilt spaces between them, they did not use this space to develop domestic practices. The lack of structures and gathering points between buildings in this quarter of the lacustrine settlement indicates that open-spaces did not constitute arenas of daily domestic interaction and that social cohesion was developed and enhanced in other forms of social gathering or outside daily activities. In this context, cooking did not constitute the means that brings extended and/or diverse social groups together. On the contrary, in Dispilio cooking was a daily social practice addressed to and shared with certain agents inside building contexts (Hodder 1990; Halstead 1999; Efstratiou 2007; Souvatzi 2007; 2008a; 2008b). Querns, pottery, bone tools, figurines, models and miniatures constitute the remains of material culture unearthed in these kitchen spaces and suggest that grinding, perforation of leather, sawing and storing were taking place inside the buildings (Plan 6.12; 6.13). Loom-weights are numerous in Building 2 indicating that weaving was practiced into this domestic space (Plan 6.13). I suggest that in the case of Dispilio Phase A the hypothesis of small-scale garden plots next to buildings may be linked with the open-air spaces around and between buildings and that this hypothesis is worth further archaeological exploration at the site (Bogaard 2005; Chapman 1989; 1990; Jones 2005).

As opposed to the proposed LN habitation model of village-clusters, the scarcer FN settlements include only the three recorded sites in Northern Greece, scattered in single units. Sitagroi III Dramas in Eastern Macedonia is the only FN settlement in the region to date that provides some limited spatial contexts of kitchen spaces (Elster and Renfrew 2003). One hearth was unearthed in the excavated open-air area of the site, and organic remains, grinders and pots were found close to the feature. The connection of this cooking facility to contemporary buildings is unknown (Table 7.1; Map 7.12). At any rate, food processing and cooking appears to be happening in public view.

8.3 Social identities: diversity, locality and variability

What do the evident spatial patterns express about forms of *habitus*, social organisation and different kinds of material entanglements? What kind of social and cultural formations caused the development of different settlement types and habitation lifeways? Archaeological discussions have primarily focussed on cultural difference and have examined why people formed dissimilar living traditions. Therefore, archaeologists have employed and developed various methodological and theoretical research frameworks in order to explore the validity of their interpretations of material culture patterns. Recently, preference for local scale analysis marks a shift in archaeological methodology, emphasising particular contexts in historical perspective rather than labelling large-scale lifeways patterns (Asouti 2005; Mac Sweeney 2009; 2011; Shennan 1989; Smyth 2010; Souvatzi 2008a; Twiss 2007b). It has been suggested that each site and sub-region carries different narratives of daily life and social structures, and that similarities and/or differences need to be examined in their historical context in comparison with other socio-cultural traditions (Asouti 2005, 90). My approach examines social identity as part of the social dialogue that actively formed dynamic interactions between internal and external lived experiences in the routine *habitus* of daily life.

In the present study I explored aspects of daily organisation and community lifeways by examining the spatial and contextual configuration of cooking *habitus* in diverse habitation environments. My research methodology emphasised small-scale, intra-site studies that unfolded diversity, locality and complexity of habitation within larger regional patterns. This work supplemented the discussion of space as an arena of daily performance that enhances community development and contributes to the formation of social identities. The obvious variability and locality in the region showed that living is a complex process, which cannot always be modelled or patterned in broad-sweep categories. My analysis clarified that intra-site spatial organisation in the region does not directly correspond with settlement types. The analysis of archaeological data showed that similar configurations of social space can be found in dissimilar settlement types, such as in the case of LN flat-extended sites Stavroupoli and Makriyalos compared with LN tell sites Arkadikos and Servia, or in the case of MN flat-extended site Avgi compared with MN tell site Paradimi (Map 7.5; 7.6; 7.9). It appears that in the area studied, intra-site spatial organisation is rather related to chronological and geographical distributions. Habitation preferences might be more chronological there by

cross-cutting site types rather than corresponding with them. Therefore, I argue that site types are not necessarily indicative of 'culture'. They might continue original settlement practices, but practices on site might have moved on to be rather similar to those at sites which do not have similar building histories (resulting in tells, flat-extended sites or lake-side sites). Human communities did not correspond to unified cultural models. Instead, people seem to have come together around sequences of chronological and geographically focused forms that encompass different kinds of material entanglements and formulated local cultural and social identities. My study is opposed to geographical determinism, but instead it identifies regional patterning and emphasises the unfolding of local variation as a process. The formation of village clusters of maximum three settlements with common spatial and settlement type characteristics constitute a habitation tradition that was initiated during the MN and was later established by the LN period in Northern Greece (Maps 7.3; 7.4; 7.7; 7.8).

Throughout the Neolithic, Western Thrace demonstrated a consistent habitation model strictly oriented to tell settlement occupation on plains with direct access to water resources. Even though the archaeological sample is limited, it can, however, be suggested that during the LN period the prevailing intra-site spatial model represents cooking facilities in private contexts inside buildings (Map 7.10). This model indicates that at a particular chronological phase of habitation in the region a commonly accepted and systematized way of living was identified and formed. This pattern reflects the needs, traditions and habits of the active community groups in Western Thrace and represents regional social identities in the area. At the same time, local diversity in the region is indicated by the dissimilar organisation of social space in Paradimi Komotinis (Map 7.10).

Further west, in Eastern Macedonia, although tell settlements constituted the dominant habitation type diverse forms of spatial organisation and community lifeways developed. Unlike the spatial model in Western Trace, in Eastern Macedonia the organisation of space is represented by a pair of settlements that reflect common regional social identities. The model of complex spatial configuration in both private and public kitchen spaces within the settlement initiated during the MN and continued in the LN period at Arkadikos in Drama became a standardized form of habitation in the region during the LN period. The contemporary LN tell settlement of Dikili Tash in Kavala demonstrated similar intra-site distribution of kitchen spaces. The model of blurred domestic boundaries shifting between private and public space reflects a common characteristic that contributed to the formation of

regional social identities (Map 7.5; 7.9). Local variability and diverse cultural and social identities are once more indicated by the presence of the flat-extended site Promachonas-Topolnitsa in Serres. Cooking facilities are recorded in private contexts inside buildings throughout its LN habitation levels.

Central Macedonia has been repeatedly discussed throughout this study as an area of particular archaeological interest that demonstrates locality, diversity and complexity of social lifeways within broader regional patterning. The archaeological evidence shows an area of dense inhabitation from the EN to the LN period (Map 7.1; 7.3; 7.7). During the EN, four tell settlements distributed in pairs at the northern and western periphery of the Yiannitsa plain, near higher ground, reflect distinct group habitation choices and possibly common social identities. In the MN, the centre of intensive human activity shifted to the eastern area of the Thermaic Gulf on the plains of Thessaloniki and Langadas, where two village clusters of respectively three and two sites are recorded (Map 7.3). On the Langadas plain, the sites Lete I and Lete III demonstrate systematized distribution of kitchen spaces and reveal the formation of privatised and individualised domestic performances that contributed to the formation of a distinct group of shared social identity characteristics. On the plain of Thessaloniki, on the other hand, diverse distribution of kitchen spaces suggests the formation of more varied social identities. During the LN, the centres of human activities were scattered in the landscape forming three clusters of villages, two of which with similar and one with dissimilar spatial arrangements in the Yiannitsa and Thessaloniki plains respectively. I argue that the inter-site and the intra-site spatial distribution of these settlements suggest the development of two distinctive social traditions; one in the Yiannitsa plain that incorporates the two village groups at the periphery of the plain, and another one in the Thessaloniki plain close to the sea (Map 7.7).

Western Macedonia was characterised by both scattered free-standing nuclear settlements and clusters of villages. Therefore, varied and diverse social identities were present in the region during the Neolithic. Whereas clusters of settlements in other regions tend to comprise similar types, here there is an unusual cluster of three diverse villages close to Orestida Lake which are of differing types. The cluster is present in the MN and persists through the LN (Map 7.5). During the LN the cluster of the flat-extended site Avgi, the lake-side site Dispilio and Kolokynthou clearly demonstrate spatial diversification of cooking facilities that suggested dissimilar developed socialities around cooking and consumption practices that

may have resulted in and/or reflect unlike community organisation, daily routines and lifeways (Map 7.9). On the other hand, two settlements of different habitation type, the flat-extended site Kleitos and the tell site Servia in Kozani showed similar intra-site spatial configuration and support the argument of this dissertation that social identities were formed around geographical sequences rather than developed in similar settlement types.

It has been suggested that evidence for social organisation in Neolithic Northern Greece is limited because of the lack of an excavation that reveals a settlement together with its associated burial ground (Triantaphyllou 2001). My research advocates that burial customs are neither the only, nor the principal source of social understanding and that the study of everyday life routine practices can reveal some ways in which communities were organised. I have emphasised the socialities that developed around cooking traditions practiced in the context of small-scale domestic consumption. Within this analytical framework, sequences of social structures are evidenced in the ways social space was organised in private and public contexts. Given that the preparation of daily meals is a vital, recurrent procedure, the experience of food processing and cooking became a fertile ground for advanced sociality, a central area for interaction and exchange of ideas around the fire, which contributed to the formation of social identities and community ideologies. Based on the location where food processing, cooking and consumption took place, similar or dissimilar socialities were produced.

The intra-site spatial distribution of kitchen spaces in Neolithic Northern Greece reveals three major spatial patterns that correspondingly reflect three different community *habiti.* Cooking facilities were located in private contexts inside the houses of a settlement, in public contexts in the open-air spaces and in complex formations combining both inside and outside features. In this study I repeatedly argued that the spatial distribution of hearths and ovens inside buildings, the reserved use of tools and household equipment along with secluded house storage suggests privatised household routines and individualised lifeways in socially restricted house units (Chapman 1990; Byrd 1994; Halstead 1999b; Kotsakis 1999; Kuijt 2000; Valamoti 2005). This spatial compartmentalisation decreases the degree of daily sharing and interchange of domestic practices and consolidates the affiliations developed separately within each building. Moreover, such a spatial arrangement indicates that social coherency was not enhanced with the mechanisms of daily domestic routines but it was

achieved in other fields of social life, such as in hunting, in daily subsistence practices, in communal gatherings and rituals.

The spatial distribution of cooking facilities in open-air spaces, on the other hand, suggests potential sharing of household equipments and indicates communality and conviviality in social life (Bailey and Whittle 2008; Hodder 2005; 2011; 2012). Domestic routine activities were practiced in public view of the inhabitants of the community and constituted the social glue that entangled communal characteristics and enhanced social coherency through daily interaction and exchange in the domestic sphere. In these social contexts, where domestic activities took place in public view, I do not mean to suggest egalitarian sharing of food, but rather that cooking was a visible social performance in which the members of these communities participated, actively (by cooking, food processing, consuming) and/or passively (by observing, being there, passing by), forming distinct lifeways and social identities. Finally, I argue that the combination of thermal structures both in private contexts inside buildings and in public contexts in open-air spaces demonstrates the complexity of human communities and the variability of social structures. This spatial model extends and blurs the physical boundaries of the household by creating links between inside and outside spaces, reducing the separation between private and public spheres through daily cooking performances. It also reflects variations through different settlements, which indicates various social identities.

The question of the causes that produced dissimilar settlement types and habitation lifeways has been discussed within the limits of this study. One of my principal aims has been to argue that contextual intra-site spatial analysis can enable more effective archaeological examination of human variability. Moreover, I have argued that different habitation forms were the result of chronological and geographical sequences, and diverse social structures. Different spatial arrangements reflect dissimilar community organisation, varied traditions, diverse lifeways, ideologies and beliefs. Identifying patterning in material culture and unfolding social identities, however, cannot directly answer the *causes* of habitation variability and varied social identities. My explanation is that societies are formed, transformed, produced and reproduced in a series of complex, various and diverse choices. Therefore, in order to be able to archaeologically track some of these choices we need to examine the material culture/social remains in synthesis, combining diverse evidence from architecture, tools, artefacts, symbolic evidence, environmental factors and connections with

other groups. I assert that there is not a single reason that explains one or another way of inhabiting and that these various and complex causes need to be examined in the context of each settlement separately. The present inter- and intra-site regional analysis can be the vantage point for future systematic research that will explore further the interaction and exchange networks among local cultural and social groups on a wider geographical scale that includes other regions in Greece, South-east Europe and Western Turkey. My research has contributed to a more rigorous methodology, which can be applied in further studies incorporating other aspects of archaeological remains to build richer models of past human behaviour, including settlement development and interactions.

Bibliography

Adamidou, A. 2006. *Vlimata sfentonas sti Neolithiki Epochi: i periptosi tou Dispiliou*. Unpublished Thessis: Aristoteleion University of Thessaloniki. (Projectile slings in Neolithic period: the case of Dispilio).

Anagnostou, I. and Vargas-Escobar, A. 1991. Anaskafi Arkadikou 1991: protasi proseggisis enos anaskafikou provlimatos me paradeigma tis passalotrupes. *Archeologiko Ergo Makedonias kai Thrakis* 5, 371–81. (Excavation at Arkadiko, 1991: the example of postholes as a suggestion for approaching an excavation problem).

Andreou, S. 2005. The landscape of modern Greek Aegean Prehistory. In J.F. Cherry, D. Margomenou and L.E. Talalay (eds.), *Prehistorians round the pond. Reflections on Aegean prehistory as a discipline. Papers presented at a workshop held in the Kelsey Museum of Archaeology, University of Michigan, March 14-16, 2003*, 73–92. Ann Arbor, Michigan: Kelsey Museum.

Andreou, S. and Kotsakis, K. 1987. Diastaseis tou chorou stin kentriki Makedonia: apotuposi tis endokoinotikis kai diakoiontikis choroorganosis. In: *Άμητος. Timitikos tomos gia ton kathigiti M. Androniko,* 57–88. Thessaloniki, Aristotelian University. (Spatial dimensions at Central Macedonia: mapping intra-site and inter-site organization of space).

Andreou, S. and Kotsakis, K. 1994. Prehistoric rural communities in perspective: the Langadas survey project. In P.N. Doukelis and L.G. Mendoni (eds.), *Structures rurales et sociétés antiques. Actes di colloque di Corfu (14-16 Mai 1992)*, 17–25. Paris: Annales Littéraires de l'Université de Besançon.

Andreou, S., Fotiadis, M. and Kotsakis, K. 1996. Review of Aegean prehistory V: the Neolithic and Bronze Age of Northern Greece. *American Journal of Archaeology* 100, 537–97.

Aslanis, I. 1992. *H proistoria tis Makedonias I. H Neolithiki Epoxi*. Athens: Kardamitsa Publications. (The prehistory of Macedonia I: Neolithic Period).

Asouti, E. 2005. Group identity and the politics of dwelling at Neolithic Çatalhöyük. In I. Hodder (ed.), *Çatalhöyük perspectives: reports from the 1995-99 seasons*, 75-91. Cambridge: McDonald Institute for Archaeological Research.

Atalay, S. 2005. Domesticating clay: the role of clay balls, mini balls and geometric objects in daily life at Çatalhöyük. In I. Hodder (ed.), *Changing materialities at Çatalhöyük: reports from the 1995-1999* seasons, 139–68. Cambridge: McDonald Institute for Archaeological Research.

Atalay, S. and Hastorf, C. A. 2005. Foodways at Çatalhöyük. In I. Hodder (ed.), *Çatalhöyük perspectives: reports from the 1995-99seasons*, 109-24. Cambridge and London: McDonald Institute for Archaeological Research/British Institute of Archaeology at Ankara Monograph.

Atalay, S. and Hastorf, C. 2006. Food, meals and daily activities: food *habitu*s at Neolithic Çatalöyük. *American Antiquity* 71, 283–319.

Bailey, D.W. 1990. The living house: signifying continuity. In R. Samson (ed.), *The social archaeology of houses*, 19–48. Edinburgh: Edinburgh University Press.

Bailey, D.W. 1996. The life, times and works of House 59 from the Ovcharovo tell, Bulgaria. In T. Darvill and J. Thomas *(eds.)*, *Neolithic Houses in Northwest Europe and Beyond*, 143-56. Oxford: Oxbow.

Bailey, D.W. 1999a. What is a tell? Settlement in fifth millennium Burgaria. In J. Brück and M. Goodman (eds.), *Making places in the prehistoric world: themes in settlement archaeology*, 94–111. London: Routledge.

Bailey, D.W. 1999b. The built environment: pit-huts and houses in the Neolithic. *Documenta Prehistorica* 26, 153–62.

Bailey, D.W. 2000. *Balkan prehistory. Exclusion, incorporation and identity*. London and New York: Routledge.

Bailey, D.W. 2005. Beyond the meaning of the Neolithic houses: specific objects and serial repetition. In D.W. Bailey, A. Whittle and V. Cumming (eds.), *(Un)settling the Neolithic,* 90-7. Oxford: Oxbow Books.

Bailey, D.W., Thrigham, R., Bass, J., Stevanović, M., Hamilton, M., Neumann, H., Angelova, I. and Raduncheva, A. 1998. Expanding the dimensions of early agricultural tells: the Podgoritsa archaeological project, Bulgaria. *Journal of Field Archaeology* 25: 375-96.

Bailey, D. and Whittle, A. 2008. Living well together? Questions of definition and scale in the Neolithic of South-east and central Europe. In D. Bailey, A. Whittle and D. Hofmann (eds.), *Living well together? Settlement and materiality in the Neolithic of South-east and Central Europe*, 1–7. Oxford: Oxbow Books.

Bakalakis, G. and Sakellariou, A. 1981. *Paradimi*. Mainz am Rhein: Phillip von Zabern.

Barrett, J.C. 1987. Contextual archaeological. *Antiquity* 61, 468–73.

Barrett, J.C. 1994. *Fragments from antiquity: an archaeology of social life in Britain 2900-1200 BC*. Oxford: Blackwell.

Barrett, J. C. 2001. Agency, the duality of structure, and the problem of the archaeological record. In I. Hodder (ed.), *Archaeological theory today*, 141-64. Cambridge: Polity Press.

Barrett, J. C. 2006. Archaeology as the investigation of the contexts of humanity. In D. Papaconstantinou (ed.), *Deconstructing context. A critical approach to archaeological practice*, 194–211. Oxford: Oxbow Books.

Beck, R.A.Jr. 2007. The durable house: material, metaphor, and structure. In R.A.Jr. Beck (ed.), *The durable house: house society models in archaeology*, 3–24. Southern Illinois University Carbondale: Center for Archaeological Investigation Press. Occasional Papers No. 35.

Bessios, M. and Pappa, M. 1993. Neolithikos oikismos Makriyalou, 1993. *Archeologiko Ergo Makedonias kai Thrakis* 7, 215–22. (Neolithic settlement of Makriyalos, 1993).

Bessios, M. and Pappa, M. 1994. Neolithikos oikismos Makriyalou, 1994. *Archeologiko Ergo Makedonias kai Thrakis* 8, 237–246. (Neolithic settlement of Makriyalos, 1994).

Bessios, M. and Pappa, M., 1995. Neolithikos oikismos Makriyalou, 1995. *Archeologiko Ergo Makedonias kai Thrakis* 9, 173–178. (Neolithic settlement of Makriyalos, 1995).

Bickle, P. 2013. Of time and the house: the Early Neolithic communities of the Paris Basin and their domestic architecture. In D. Hofmann and J. Smyth (eds.), *Tracking the Neolithic house in Europe*, 151-82. New York: Springer.

Binford, L.R. 1964. A consideration of archaeological research design. *American Antiquity* 29, 425–41.

Binford, L.R. 1965. Archaeological systemic and the study of culture process. *American Antiquity* 31, 203–10.

Bintliff, J. 1977. *Natural environment and human settlement in Prehistoric Greece. Based on original fieldwork*. Oxford: BAR Supplementary Series 28 (ii).

Binford, L.R. 1978. Dimensional analysis at behaviour and site structure: learning from an Eskimo hunting stand. *American Antiquity* 43, 330–61.

Binford, L.R. 1983. Behavioral archaeology and the 'Pompeii Premise'. In L.R. Binford (ed.), *Working at archaeology*, 229–41. London: Academic Press.

Binford, L. 1989. *Debating archaeology*. San Diego: Academy Press.

Binford, L.R. and Sabloff, J.A. 1982. Paradigms, systematics and archaeology. *Journal of Anthropological Research* 38, 137–53.

Blackman, D. 2001. Archaeology in Greece 2000-2001. *Archaeological Reports* 47, 1–144.

Blackman, D. 2002. Archaeology in Greece, 2001-2002. *Archaeological Reports* 48, 1–115.

Bogaard, A. 2005. 'Garden agriculture' and the nature of early farming in Europe and the Near East. *World Archaeology* 37, 177–96.

Bogaard, A., Charles, M., Twiss, K.C., Fairbairn, A., Yalman, N., Filipović, D., Demirergi, G. A., Ertuğ, F., Russel, N. and Henecke, J. 2009. Private pantries and celebrated surplus: storing and sharing food at Neolithic Çatalhöyük, Central Anatolia. *Antiquity* 83, 649-68.

Boivin, N. 2000. Life rhythms and floor sequences: excavating time in rural Rajasthan and Neolithic Çatalhöyük. *World Archaeology* 31, 367–88.

Borić, D. 2007. The house between grand narrative and microhistory: a house society in the Balkans In R.A.Jr. Beck (ed.), *The durable house: house society models in archaeology,* 97–129. Southern Illinois University Carbondale: Center for Archaeological Investigation Press. Occasional Papers No. 35.

Borić, D. 2008. First households and 'house societies' in European prehistory. In A. Jones (ed.), *Prehistoric Europe. Theory and practice*, 109–42. Oxford: Wiley-Blackwell Publication.

Borić, D. (ed.) 2010a. *Archaeology and memory*. Oxford: Oxbow Books.

Borić, D. 2010b. Happy forgetting? Remembering and dismembering dead bodies at Vlasac. In D. Borić (ed.), *Archaeology and memory*, 48-67 Oxford: Oxbow Books.

Bottema, S. 1974. *Late Quaternary vegetation history of Northwestern Greece*. Groningen: University of Groningen.

Bottema, S. 1982. Palynological investigations in Greece with special reference to pollen as an indicator of human activity. *Palaeohistoria* 24, 257–89.

Bottema, S. 1994. The prehistoric environment of Greece: a review of the palynological record. In P.N. Kardulias (ed.), *Beyond the site: regional studies in the Aegean area*, 45–68. Lanham: University Press of America.

Bourdieu, P. 1977. *Outline of a theory of practice.* Cambridge: Cambridge University Press.

Broodbank, C. 2000. *An island archaeology of the early Cyclades*. Cambridge: Cambridge University Press.

Brück, J. 1999. What's in a settlement? Domestic practice and residential mobility in Early Bronze Age southern England. In J. Brück and M. Goodman (eds.), *Making places*

in the prehistoric world: themes in settlement archaeology, 52–75. London: Routledge Press.

Brück, J. 2005. *Experiencing the past? The development of a phenomenological archaeology in British prehistory* in *Archaeological Dialogues*12, 45–72.

Brück, J. and Goodman, M. (eds.) 1999a. *Making places in the prehistoric world: themes in settlement archaeology*. London: Routledge Press.

Brück, J. and Goodman, M. 1999b. Introduction: theme for a critical archaeology of prehistoric settlement. In J. Brück and M. Goodman (eds.), *Making places in the prehistoric world: themes in settlement archaeology*, 1–19. London: Routledge Press.

Byrd, B.F. 1994. Public and private, domestic and corporate: the emergence of the South Asian village. *American Antiquity* 14, 251–87.

Byrd, B.F. 2000. Households in transition: Neolithic social organization within Southwest Asia. In I. Kuijt (ed.), *Life in Neolithic farming communities: social organization, identity and differentiation*, 63–98. New York: Kluwer Academic/Plenum.

Carman, J. 1999. Settling on sites: constraining concepts. In J. Brück and M. Goodman (eds.), *Making places in the prehistoric world: themes in settlement archaeology*, 20–9. London: Routledge Press.

Carsten, J. 1995. House in Langkawi: stable structure or mobile homes? In J. Carsten and S. Hugh-Jones (eds.), *About the house: Lévi-Strauss and beyond,* 105–28. Cambridge: Cambridge University Press.

Carsten, J. and Hugh-Jones, H. (eds.) 1995a. *About the house: Lévi-Strauss and beyond.* Cambridge: Cambridge University Press.

Carsten, J. and Hugh-Jones, S. 1995b. Introduction: about the house Lévi-Strauss and beyond. In J. Carsten and S. Hugh-Jones (eds.), *About the house: Lévi-Strauss and beyond*, 1–46. Cambridge: Cambridge University Press.

Casson, S. 1918-19. Macedonia: notes. *Annual of the British School at Athens* 23, 60–3.

Casson, S. 1919-21. Excavations in Macedonia. *Annual of the British School at Athens* 24, 1–33.

Cavanagh, W. 2007. Food preservation in Greece during the Late and Final Neolithic periods. In C. Mee and J. Ronard (eds.), *Cooking up the past: food and culinary practices in the Neolithic and Bronze Age Aegean*, 109–22. Oxford: Oxbow Books.

Cessford, C. and Near, J. 2005. Fire, burning and pyrotechnology at Çatalhöyük. In, I. Hodder (ed.), *Çatalhöyük perspectives: reports from the 1995-99 seasons. Çatalhöyük research project volume 6*, 171–82. Cambridge and London: McDonald Institute for Archaeological Research/British Institute of Archaeology at Ankara Monograph.

Chapman, J.C. 1989. The early Balkan village. *Varia Archaeologica Hungarica* 2, 33–52.

Chapman, J.C. 1990. Social inequality on Bulgarian tells and the Varna problem. In R. Samson (ed.), *Making places in the prehistoric world: themes in settlement archaeology,* 49–92. Edinburgh: Edinburgh University Press.

Chapman, J.C. 1994. The origins of farming in south east Europe. *Préhistoire Européenne* 6, 133–56.

Chapman, J.C. 2008. Meet the ancestors: settlement histories in the Neolithic. In D.W. Bailey, A. Whittle and D. Hofmann (eds.), *Living well together? Settlement and materiality in the Neolithic of south-east and central Europe*, 68–80. Oxford: Oxbow Books.

Cherry, J.F. 1981. Pattern and process in the earliest colonization of the Mediterranean islands. *Proceedings of Prehistoric Society* 47, 41–68.

Cherry, J.F. 1983. Frogs around the pond: perspectives on current archaeological survey projects in the Mediterranean region. In D. Keller and D. Rupp (eds.), *Archaeological Survey in the Mediterranean*, 375–416. Oxford: British Archaeological Reports, International Series 155.

Cherry, J.F. 1985. Islands out of the stream: isolation and interaction in early Mediterranean insular prehistory. In A.B. Knapp and T. Stech (eds), *Prehistory and exchange: the Aegean Eastern Mediterranean,* 12–29. L.Angeles: UCLA Monograph 25.

Cherry, J.F., Margomenou, D. and Talalay, L.E. (eds.) 2005. *Prehistorians round the pond: reflections on Aegean prehistory as a discipline. Papers presented at a workshop held in the Kelsey Museum of Archaeology, University of Michigan, March 14-16, 2003.* Ann Arbor, Michigan: Kelsey Museum.

Childe, V.G. 1951. *Man makes himself*. London: Watts.

Childe, V.G. 2003. *The dawn of European civilization*. (6th edition; originally printed in 1925). London: Kegan Paul.

Chrysostomou, P. 1989. O Neolithikos oikismos ton Yiannitson B. *Archeologiko Ergo Makedonias kai Thrakis* 3, 119–34. (The Neolithic settlement of Yiannitsa B).

Chrysostomou, P. 1991. Oi Neolithikes erevnes stin poli kai tin eparchia ton Yiannitson kata to 1991. *Archeologiko Ergo Makedonias kai Thrakis* 5, 111–25. (Neolithic researches at the city and province of Yiannitsa in 1991).

Chrysostomou, P. 1993. O Neolithikos oikismos Yiannitson B: nea anaskafika dedomena (1991–93). *Archeologiko Ergo Makedonias kai Thrakis* 7, 135–46. (The Neolithic settlement of Yiannitsa B: new excavation data 1991-93).

Chrysostomou, P. 1996. H Neolithiki katoikisi sti Boreia paraktia zoni tou allote Thermaikou kolpou (eparchia Yiannitson). *Archeologiko Ergo Makedonias kai Thrakis* 10, 159–72. (Neolithic habitation at the North coastline zone of past Thermaic gulf, Yiannitsa county).

Chrysostomou, P. 2003. Yiannitsa B. *Achaeologikon Deltion* 52, 721–4.

Chrysostomou, P. and Chrysostomou, P. 1990. Neolithikes erevnes sta Yiannitsa kais tin periochi tous. *Archeologiko Ergo Makedonias kai Thrakis* 4, 169–85. (Neolithic researches at Yiannitsa and its vicinity).

Chrysostomou, A. Georgiadou, A, Polakidou, Ch. and Prokopidou, A. 2000. Anaskafikes erevnes stin eparhiaki odo Apsalou-Aridaias kata to 2000. *Archeologiko Ergo Makedonias kai Thrakis* 14, 491–504. (Excavation works at the rural road Apsalos-Aridaia in 2000).

Chrysostomou, A., Poloukidou, Ch. and Prokopidou, A. 2001. Eparxiaki odos Apsalou-Aridaias: i anaskafi tou Neolithikou oikismou sti thesi Grammi, *Archeologiko Ergo Makedonias kai Thrakis* 15, 513–24. (Rural road Apsalos-Aridaia: excavation at the Neolithic settlement Grammi).

Clarke, D. L. 1968. *Analytical archaeology*. London: Methuen.

Clarke, D. L. 1972. *Models in archaeology*. London: Methuen.

Clarke, D.L. 1977. Spatial information in archaeology. In D.L. Clarke (ed.), *Spatial archaeology*, 1–32. London: Academic Press.

Coleman, J.E. 1977. *Keos I. Kephala, a Late Neolithic settlement and cemetery*. Princeton, N.J.: American School of Classical Studies.

Collins, P. and Halstead, P. 1999. Faunal remains and animal exploitation at Late Neolithic Makriyalos: preliminary results. In P. Halstead (ed.), *Neolithic society in Greece*, 139–41. Sheffield: Sheffield Academic Press.

Curtin, D. 1992. Food/body/person. In D. Curtin and L. Heldke (eds.), Cooking, *eating, thinking: transformative philosophies of food*, 3–22. Bloomington: Indiana University Press.

Cutting, M. 2005. The architecture of Çatalhöyük: continuity, household and settlement. In I. Hodder (ed.), *Çatalhöyük perspectives: reports from the 1995-99 seasons*, 151–69. Cambridge and London: McDonald Institute for Archaeological Research/British Institute of Archaeology at Ankara Monograph.

Cutting, M. 2006. More than one way to study the building: approaches to prehistoric household and settlement space. *Oxford Journal of Archaeology* 25, 225–46.

Darcque, P., Koukouli-Chrysanthaki, H., Malamidou, D., Treuil, R. and Tsirtsoni, Z., 2007. Recent researches at the Neolithic settlement of Dikili Tash, Eastern Macedonia, Greece: an overview. In H. Todorova, M. Stefanovich and G. Ivanov (eds.), *The Struma/Strymon river valley in prehistory. Proceedings of the International Symposium Strymon Kjustendil-Blagoevgrad-Serres-Amphipolis, 27, 09-11.10.2004*, 247–56. Sofia: Gerda Henkel Stiftung and Museum of History, Kyustendil.

Darcque P., Koukouli-Chryssanthaki Ch., Malamidou D., Tsirtsoni Z. 2011 (forthcoming). Rapport sur les travaux de l'École d'Athènes en 2010. Dikili Tash. *Bulletin de Correspondance Hellénique*135.

Darcque, P., Koukouli-Chrysanthaki, H., Malamidou, D.Tsirtsoni, Z. 2009 (forthcoming). Proistorikos oikismos Dikili Tash (Filippoi N. Kavalas). *Praktika tis en Athinais Archailogikis Etaireias*. (Dikili Tahs prehistoric settlement (Filippoi in Kavala County).

Davidson, D.A. 1976. Processes of tell formation and erosion. In A.D. Davidson and M.L. Shackley (eds.), *Geoarchaeology: earth science and the past*, 255–66. London: Gerald Duckworth and Co.

Demoule, J.-P., Gallis, K. and Manolakakis, L. 1988. Transition entre les culture néolithiques de Sesklo et de Dimini: les categories céramiques. *Bulletin de Correspondance Hellénique* 112, 1-58.

Demoule, J.-P. and Perlès, C. 1993. The Greek Neolithic: a new review. *Journal of Wold Prehistory* 7, 355–416.

Deshayes J. 1961. Anaskafai Dikili Tash (gallikos tomeas). *Praktika tis en Athinais Archeologikis Etaireias* 116, 88-89. (Excavation at Dikili Tash: the French section).

Deshayes J. 1973. Fouilles franco-helléniques en 1972 : Dikili Tash. *Bulletin de Correspondance Hellénique* 97, 464–473.

Diaz-Andreu, M. and Champion, T. 1996. Nationalism and archaeology in Europe: an introduction. In M. Diaz-Andreu and T. Champion (eds.), *Nationalism and archaeology in Europe*, 1–23. London: ULC Press.

Donley, L. 1982. House power: Swahili space and symbolic markers. In I. Hodder (ed.), *Symbolic and structural archaeology,* 63–73. Cambridge: Cambridge University Press.

Douglas, M., 1972. Deciphering a meal. *Deadalus* 1972, 61–81.

Doulkeridou, S. 2009. Orismenes paratiriseis gia ti lithotexnia laxeumenou lithou apo to Dispilio Kastorias. *Anaskamma* 4, 27–36. (Some observations on the chipped stone industry in Dispilio, Kastoria).

Edmonds, M. 1999. *Ancestral geographies of the Neolithic: landscape, monuments, memory*. London: Routledge.

Efstratiou, N. 1989. Anaskafi Makris: anaskafiki periodos 1989. *Archeologiko Ergo Makedonias kai Thrakis* 3, 595–605. (Excavation at Makri: season 1989).

Efstratiou, N. 1993a. Neoteres ereunes sto neolithico oikismo tis Makris: anaskafiki periodos 1990. *Archeologiko Ergo Makedonias kai Thrakis.* 4, 595–612. (Recent researches at the neolithic settlement of Makri: excavation season 1990).

Efstratiou, N. 1993b. New prehistoric finds from Western Thrace, Greece. *Anatolica* XIX, 33–46.

Efstratiou, N. 2002. *Ethnoarchaeological anazitiseis sta Pomakochoria tis Phodopes.* Thessaloniki: Vanias Publications. (Ethno-archaeological research at Pomakohoria, Rhodope)

Efstratiou, N. 2007. Neolithic households in Greece. In R. Westgate, N. Fisher and J. Whitley (eds.), *Building communities: house, settlement and society in the Aegean and beyond,* 29–35. Proceedings of a conference held at Cardiff University, 17-21 April 2001. Athens: British School at Athens Studies 15.

Efstratiou, N., Urem-Kotsos, D. and Kallintzi, D. 1995. Makri 1995: anaskafikes ereunes kai archaeologikes anazitiseis. *Archeologiko Ergo Makedonias kai Thrakis* 9, 463–71. (Makri 1995: excavation researches and archaeological quests).

Efstratiou, N. and Kallintzi, D., 1997. Archaeologikes ereunes sti Makri, Evrou. Ektimiseis kai problimata. *Archeologiko Ergo Makedonias kai Thrakis* 10, 881–916. (Archaeological researches at Makri, Evros: assessment and problems).

Efstratiou, N., Fumanal, M.P., Ferre, D., Urem-Kotsos, D., Curci, A., Tagliacozzo, A., Stratouli, G., Valamoti, S.-M., Dinou, M., Madella, M. and Skourtopoulou, K. 1998. Excavations at the Neolithic settlement of Makri, Thrace, Greece (1988–1996): a preliminary report. *Saguntum* 31, 11–62.

Elster, E.S. and Renfrew C. (eds.) 2003. *Prehistoric Sitagroi: excavations in Northeast Greece, 1968–1970. Volume 2: the final report*. Los Angeles: UCLA Institute of Archaeology.

Evans, J.D. 2005. Memory and ordination: environmental archaeology in tells. In D. Bailey, A. Whittle and V. Cummings (eds.), *(Un)settling the Neolithic*, 112–25. Oxford: Oxbow Books.

Fabian, J. 1983. *Time and the other: how anthropology makes its object.* New York: Columbia University Press.

Facorellis, G. and Maniatis, I. 2002. Apotelesmata hronologisis deigmaton me ti method ^{14}C. In G.H. Hourmouziadis (ed.), *Dispilio 7500 hronia meta*, 289–94. Thessaloniki: University Press. (Samples' dating results with the method of ^{14}C).

Fairbairn, A., Asouti, E., Russel, N. and Swogger, J.G. 2005. Seasonality. In I. Hodder (ed.), *Çatalhöyük perspectives: reports from the 1995-99 seasons*, 93–108. Cambridge and London: McDonald Institute for Archaeological Research/British Institute of Archaeology at Ankara Monograph.

Finlayson, B. 2004. Island colonization: insularity or mainstream? In E. Peltenburg and A. Wasse (eds), *Neolithic revolution: new perspectives on southwest Asia in light of recent discoveries in Cyprus. Levant Suppl*. 1, 15–22. Oxford: Oxbow Books.

Flannery K..V. 1972. The origins of the village as settlement type in Mesoamerica and the Near East: a comparative study. In P.J. Ucko, R. Tringham and G.W. Dimbleby (eds.), *Man, settlement and urbanism,* 23–53. London: Duckworth.

Flannery, K.V. 2002. The origins of the village revisited: from nuclear to extended households. *American Antiquity* 67, 417–33.

Fletcher, R. 1984. Identifying spatial disorder: a case study of a Mongol fort. In H.J. Hietala (ed.), *Intrasite spatial analysis in archaeology*, 63–73. Cambridge: Cambridge University Press.

Fotiadis, M. 1987. Kitrini Limni, Nomou Kozanis, 1978: proistoriki erevna. *Archeologiko Ergo Makedonias kai Thrakis* 1, 51–61. (Kitrini Limni in Kozani County, 1987: prehistoric research).

Fotiadis, M. 1988. Proistoriki erevna stin Kitrini Limni N. Kozanis, 1988: mia syntomi ekthesi. *Archeologiko Ergo Makedonias kai Thrakis* 2, 41-53. (Prehistoric research at Kitrini Limni in Kozani County, 1988: short report).

Fotiadis, M. 2001. Imagining Macedonia in Prehistory, ca. 1900-1930. *Journal of Mediterranean Archaeology* 14, 115–35.

Fotiadis, M. 2005. On our political relevance? In J. F. Cherry, D. Margonenou and L. E. Talalay (eds.), *Prehistorians round the pond. Reflections on Aegean prehistory as a discipline*, 161–68. Ann Arbor, Michigan: Kelsey Museum Publication 2.

Fotiadis, M. and Hondroyianni-Metoki, A. 1993. Kitrini Limni: diachroniki synopsi, radiohronologiseis kai I anaskafi tou 1993. *Archeologiko Ergo Makedonias kai Thrakis* 7, 19–31. (Kitrini Limni: historical synopsis, radiocarbon dates and the excavation in 1993).

French, D.H. 1967. *Index of prehistoric sites in central Macedonia*. Athens: British School at Athens (cyclostyled).

Galanidou, N. 1997. *'Home is where the hearth is'. The spatial organisation of the Upper Palaeolithic rockshelter occupations at Klithi and Kastritsa in northwest Greece.* Oxford: BAR International Series 687.

Gallis, K.J. 1985. A late Neolithic offering from Thessaly. *Antiquity* 59, 20–24.

Gallis, K. 1996. The Neolithic world. In G. Papathanassopoulos (ed.), *Neolithic civilization in Greece*, 23–37. Athens: N. P. Goulandri Foundation.

Gamble, C.S. 2009. Human display and dispersal: a case study from biotidal Britain in the Middle and Upper Pleistocene. *Evolutionary Anthropology* 18, 144–56.

Gé, T. County, M.-A., Mathews, W. and Watter, J. 1993. Sedimentary formation processes of occupation surfaces. In P. Golberg, D. T. Nash and M. D. Petraglia (eds.), *Formation processes in archaeological context*, 149–63. Madison, Wisconsin: Prehistoric Press.

Giddens, A. 1984. *The constitution of society: outline of a theory of structuration*. Cambridge: Polity Press.

Gillespie, S.D. 2000. Lévi-Strauss. Maison and société à maisons. In R.A. Joyce and S.D. Gillespie (eds.), *Beyond kinship. Social and material reproduction in house societies,* 22–52. Philadelphia: University of Pennsylvania Press.

Gillespie, S.D. 2007. When is a house? In R.A. Beck Jr. (ed.), *The durable house: house society models in archaeology,* 25–50. Carbondale: Center for Archaeological Investigation Press.

Gimbutas, M., Winn, S. and Shimabuku, D. (eds.) 1989. *Achilleion, a Neolithic settlement in Thessaly, Greece, 6400*-5600 BC. Los Angeles: Institute of Archaeology, Monumenta Archaeologica 14, University of California.

Goldberg, P., Nash, D.T. and Petraglia, M.D. (eds.), 1993. *Formation processes in archaeological context*. Monographs in World Archaeology No.17. Madison, WI: Prehistoric Press.

Goody, J. 1982. *Cooking, cuisine and class: a study in comparative sociology*. Cambridge: Cambridge University Press.

Grammenos D. 1991. *Neolithikes erevnes stin kentriki kai tin anatoliki Makedonia*. Athens: The Archaeological Society at Athens. (Neolithic researches at central and east Macedonia).

Grammenos, D. 1996. Neolithic settlements in Macedonia and Thrace. In G. Papathanassopoulos (ed.), *Neolithic civilization in Greece*, 41–5. Athens: N. P. Goulandri Foundation.

Grammenos, D. 1997. *Neolithiki Macedonia*. Athens: Archaeological Resources Fund Receipts. (Neolithic Macedonia).

Grammenos, D. 2006. Conclusions from the rescue excavations at the Neolithic settlement of Stavroupoli, Thessaloniki. *Analele Banatului* 14, 113–25.

Grammenos, D., Pappa, M., Urem-Kotsou, D., Skourtopoulou, K., Yiannouli, E. and Tsigarida, M. 1990. Anaskafi neolithikou oikismou Thermis: anaskafiki periodos 1987. *Makedonika* 27, 223–88. (Excavation at the Neolithic settlement of Thermi: excavation season 1987).

Grammenos, D., Pappa, M., Urem-Kotsou, D., Skourtopoulou, K., Yiannouli, E., Maragkou, Ch., Valamoti, S.-M., Suridis, G., Makri, E. and Christidou, R. 1992. Anaskafi neolithikou oikismou Thermi B kai Byzantinis egkatastasis para ton proistoriko oikismo Thermi A: anaskafiki periodos 1989. *Makedonika* 28, 381–501. (Excavation at the Neolithic settlement Thermi B and the Byzantine settlement by the prehistoric site Thermi A: excavation season 1989).

Grammenos, D. and Kotsos, S. 2002. *Sostikes anaskafes sto Neolithiko oikismo Stavroupolis Thessalonikis*. Thessaloniki: Archaeological Institute of Northern Greece. (Rescue Excavations at the Neolithic settlement of Stavroupoli, Thessaloniki).

Grammenos, D. and Kotsos, S. 2004. *Sostikes anaskafes sto Neolithiko oikismo Stavroupolis Thessalonikis, meros II (1998–2003)*. Thessaloniki: Archaeological Institute of Northern Greece. (Rescue Excavations at the Neolithic settlement of Stavroupoli, Thessaloniki, Part II (1998–2003).

Halstead, P. 1981. Counting sheep in Neolithic and Bronze Age Greece. In I. Hodder, G. Isaac and N. Hammond (eds.), *Pattern of the past: studies in Honor of David Clarke*, 307–39. Cambridge: Cambridge University Press.

Halstead, P. 1987. Man and other animals in later Greek prehistory. *Annual of the British School at Athens* 82, 71–83.

Halstead, P. 1994. The north-south divide: regional paths to complexity in prehistoric Greece. In C. Mathers and S. Stoddart (eds.), *Development and decline in the Mediterranean Bronze Age* (Sheffield Archaeological Monograph 8), 195–219. Sheffield: J.R. Collis Publication.

Halstead, P. 1995. From sharing to hoarding: the Neolithic foundations of Aegean Bronze Age society. In R. Laffineur and W.D. Niemeier (eds.), *POLITEIA: society and state in Aegean Bronze Age I* [AEGAEUM 12], 11–22. Liège: University of Liège.

Halstead, P. 1996. Pastoralism or household herding? Problems of scale and specialization in early Greek animal husbandry. *World Archaeology* 28, 20–42.

Halstead P. (ed.) 1999a. *Neolithic society in Greece*. Sheffield: Sheffield Academic Press.

Halstead, P. 1999b. Neighbours from hell? The household in Neolithic Greece. In P. Halstead (ed.), *Neolithic society in Greece*, 77–95. Sheffield: Sheffield Academic Press.

Halstead, P. 2000. Land use in postglacial Greece: cultural causes and environmental effects. In P. Halstead and C. Federick (eds.), *Landscape and land use in postglacial Greece*, 110-28. Sheffield: Sheffield Academic Press.

Halstead, P. 2004. Farming and feasting in the Neolithic of Greece: the ecological context of fighting with food. *Documenta Prehistorica* 31, 151–61.

Halstead, P. 2005. Resettling the Neolithic: faunal evidence for seasons of consumption and residence at Neolithic sites in Greece. In D.W. Bailey, A. Whittle and V. Cumming (eds.), *(Un)settling the Neolithic,* 38–50. Oxford: Oxbow Books.

Hamilakis, Y. 2000. The anthropology of food and drink consumption and Aegean archaeology. In S.J. Vaughan and W.D.E. Coulson (eds.), *Palaeodiet in the Aegean*, 55-63. Oxford: Oxbow Books.

Hamilakis, Y. 2005. Whither Aegean Prehistory? In J. F. Cherry, D. Margomenou and L. E. Talalay (eds.), *Prehistorians round the pond. Reflection on Aegean prehistory as a discipline*, 169–79. Michigan: Kelsey Museum Publication 2.

Hamilakis, Y. and Yalouri, E. 1996. Antiquities as symbolic capital in modern Greek society. *Antiquity* 70, 117–29.

Hammen, T. Vander, Wijmstra, T.A. and Molen, W.H. Vander 1965. Palynological study of a very thick peat section in Greece and the Würm-glacial vegetation in the Mediterranean region. *Geologi en Mijnbouw* 44, 37–9.

Hansen, S., Toderaş, M., Reingruber, A. and Wenderlich, J. 2011. The Copper Age settlement on the Lower Danube. *Stratum* 2, 17–86.

Hatzitoulousis, S.I. 2006. *To xilo os archaiologiko uliko stin Proistoria: to paradeigma tou Neolithikou limnaiou oikismou sto Dispilio Kastorias*. Unpublished Ph.D. Dissertation: Aristoteleion University of Thessaloniki. (Wood as archaeological material in Prehistory: the case of Neolithic lake-side settlement in Dsipilio Kastorias).

Hayden, C. 1999. Houses and monuments: two aspects of settlements in Neolithic and Cooper Age Sardinia. In J. Brück and M. Goodman (eds.), *Making places in the prehistoric world: themes in settlement archaeology*, 112–28. London: Routledge Press.

Hellström, P. (ed.) 1987. *Paradeisos: a Late Neolithic settlement in Aegean Thrace*. Stockholm: Medelhavsmuseet, Memoir 7.

Heurtley, W.A. 1939. *Prehistoric Macedonia: an archaeological reconnaissance of Greek Macedonia (West of the Struma) in the Neolithic, Bronze, and Early Iron Age*. Cambridge: Cambridge University Press.

Hietala H.J. (ed.), 1984. *Intrasite spatial analysis.* Cambridge: Cambridge University Press.

Higgins, M.D. and Higgins, R. 1996. *A geological companion to Greece and the Aegean*. London: Duckworth.

Hillier B. and Hanson J. 1984. *The Social Logic of Space*. Cambridge: Cambridge University Press.

Hillier, B., Hanson, J., and Graham, H. 1987. Ideas are in things: an application of the space syntax method to discovering house genotypes. *Environment and Planning B: Planning and Design*14, 368–85.

Hitsiou, E. 2003. *Production and circulation of the Late Neolithic pottery from Makriyalos (Phase II), Macedonia, Northern Greece*. Unpublished Ph.D. Thesis: University of Sheffield.

Hodder, I. 1982. *Symbols in action. Ethnoarchaeological studies of material culture.* Cambridge: Cambridge University Press.

Hodder, I. 1987. The contextual analysis of symbolic meanings. In I. Hodder (ed.), *The contextual analysis of symbolic meanings*, 1–10. Cambridge: Cambridge University Press.

Hodder, I. 1990. *The domestication of Europe. Structure and contingency in Neolithic societies*. Oxford: Basil Blackwell.

Hodder, I. 1998. The domus: some problems reconsidered. In M. Edmonds and C. Richards (eds.), *Understanding the Neolithic of north-western Europe,* 84-101. Glasgow: Cruithne Press.

Hodder, I. 2004. Neo-thingness. In J. Cherry, C. Scarre and S. Shennan (eds.), *Explaining social change: studies in honour of Colin Renfrew*, 45-52. Oxford: Oxbow Books.

Hodder, I. 2005. Changing entanglements and temporalities. In I. Hodder (ed.), *Changing materialities at Çatalhöyük: reports from the 1995-99 seasons*. Cambridge and London: McDonald Institute for Archaeological Research/British Institute of Archaeology at Ankara Monograph.

Hodder, I. 2006. *Çatalhöyük. The leopard's tale: revealing the mysteries of Turkey's ancient town*. London: Thames and Hudson.

Hodder, I. 2011. Human–thing entanglement: towards an integrated archaeological perspective. *Journal of the Royal Anthropological Institute* 17, 154–77.

Hodder, I. 2012. *Entangled: an archaeology of the relationships between humans and things*. Malden, MA: Wiley-Blackwell.

Hodder, I. 2013. From diffusion to structural transformation: the changing roles of the Neolithic house in the Middle East Turkey and Europe. In D. Hofmann and J. Smyth (eds.), *Tracking the Neolithic house in Europe*, 349–62. New York: Springer.

Hodder, I. and Cessford, C. 2004. Daily practice and social memory at Çatalhöyük. *American Antiquity* 69, 17–40.

Hodder, I. and Hutson, S. 2003. *Reading the past: current approaches to interpretation of archaeology* [3rd edition]. Cambridge: Cambridge University Press.

Hodder, I. and Orton, C. 1976. *Spatial analysis in archaeology.* Cambridge: Cambridge University Press.

Hofmann, D. 2013. Living by the lake. Domestic architecture in the Alpine Foreland. In D. Hofmann and J. Smyth (eds.), *Tracking the Neolithic house in Europe*, 197–228. New York: Springer.

Hofmann, D. and Smyth, J. (eds.) 2013a. *Tracking the Neolithic house in Europe*. New York: Springer.

Hofmann, D. and Smyth, J. 2013b. Introduction: dwelling, materials, cosmology—transforming houses in the Neolithic. In D. Hofmann and J. Smyth (eds.), *Tracking the Neolithic house in the Neolithic*, 1–17. New York: Springer.

Hondroyianni-Metoki, A. 1990. Apo tin ereuna stin parapotamia-paralimnia perioxi tou Aliakmona. *Archeologiko Ergo Makedonias kai Thrakis* 4, 105–19. (Research at the ricerine-lacustrine area of Aliakmona).

Hondroyianni-Metoki, A. 1992. Aliakmon 1992, proistoriki anaskafi sta Kranidia. *Archeologiko Ergo Makedonias kai Thrakis* 6, 35–43. (Aliakmon 1992, prehistoric excavation at Kranidia).

Hondroyianni-Metoki, A. 1999a. Egnatia Odos, anaskafi stin Proistoriki thesi 'Toumba Kremastis-Koiladas', Nomou Kozanis. *Arcaheologiko Ergo Makedonias kai Thrakis* 13, 399–413. (Egnatia Motorway, excavation of the Prehistoric site 'Toumba Kremastis-Koiladas', Kozani County).

Hondroyianni-Metoki, A. 1999b.Thesi Toumba Kremastis Koiladas (Egnatia Odos). *Archaeologikon Deltion* 54, 639–640. (Toumba Kremasti Koilada site, Egnatia Motorway).

Hondroyianni-Metoki, A. 2012. Architectural forms of Prehistory in the valley along the middle reaches of Aliakmon river. 1912–2012 a century of research in prehistoric Macedonia. International Conference 22–24 November, Archaeological Museum of Thessaloniki, Greece. (Oral Presentation).

Hourmouziadis, G.H. 1978. Eisagogi stis ideologies tis Ellinikis Proistorias. *Politis* 17, 30–51. (Introduction at the ideologies of Greek Prehistory).

Hourmouziadis, G.H. 1979. *To neolithiko Dimini. Prospatheia gia mia nea prossegisi tou neolithicou ulikou.* Volos: Etaireia Thessalikon Ereunon. (Neolithic Dimini: attempt for a new approach of the Neolithic material).

Hourmouziadis, G.H. 1995a. Eisagogi sto Neolithiko tropo paragogis. In G.H. Hourmouziadis (ed.), *Analogies*, 111–65. Thessaloniki: Vanias Publications. (Introduction in the Neolithic mode of production).

Hourmouziadis, G.H. 1995b. Eisagogi stis ideologies tis Ellinikis proistorias. In G.H. Hourmouziadis (ed.), *Analogies*, 167–204. Thessaloniki: Vanias Publications. (Introduction in ideologies of Greek prehistory).

Hourmouziadis, G.H. 1996. *To Dispilio Kastorias: enas limnaios proistorikos oikismos*. Thessaloniki: Kodikas. (Dispilio in Kastoria: a lake-side prehistoric settlement).

Hourmouziadis, G.H. (ed.) 2002a. *Dispilio 7500 hronia meta*. Thessaloniki: University Press. (Dispilio 7500 years later).

Hourmouziadis, G.H. 2002b. Oi anaskafes sto Dispilio. In G.H. Hourmouziadis (ed.), *Dispilio 7500 hronia meta*, 11–24. Thessaloniki: University Press. (Excavations in Dispilio).

Hourmouziadis, G.H. 2002c. Pera apo to horafi, ti limni kai to stavlo. In G.H. Hourmouziadis (ed.), *Dispilio 7500 hronia meta*, 37–74. Thessaloniki: University Press. (Beyond the river, the lake and the barn).

Hourmouziadis, G.H. 2009. Archaeologiki ermineia kai anaskafiki methodologia. In Chr. Loukos, N. Xifaras and K. Pateraki (ed.), *Ubi dubium ibi libertas: studies in honour of Professor Nikola Farakla,* 29–33. Rethymno: Crete University Press. (Archaeological interpretation and excavation methodology).

Hourmouziadi, A. and Yiagkoulis, T. 2002. Provlimata kai methodoi proseggisis tou horou. In G.H. Hourmouziadis (ed.), *Dispilio 7500 hronia meta*, 37–74. Thessaloniki: University Press. (Problems and methods of approaching space).

Hunter-Anderson, R.L. 1977. A theoretical approach to the study of house form. In L.R. Binford (ed.), *For theory building in archaeology. Essays on faunal remains aquatic resources, spatial analysis and systemic modeling,* 287–315. New York & London: Academic Press.

Ifantidis, F. 2006. *Ta kosmimata tou Neolithikou oikismou Dispiliou Kastorias: paragogi kai hrisi mias 'aisthitikis ergaleiothikis'*. Unpublished MA Dissertation: Aristoteleion University of Thessaloniki. (Ornaments of the Neolithic settlement Dispilio Kastorias: production and use of an 'aesthetic toolkit').

Ingold, T. 1983. The architect and the bee: reflections on the work of animals and men. *Man* 18, 1–20.

Ingold, T. 1993. The temporality of the landscape. *World Archaeology* 25, 152–74.

Ingold, T. 2000. Building, dwelling, living: how animals and people make themselves at home in the world. In T. Ingold, (ed.), *The perception of the environment: essays on livelihood, dwelling and skill,* 172–88. London and New York: Routledge.

Janowski, M. 1995. The hearth-group, the conjugal couple and the symbolism of the rice meal among the Kelabit of Sarawak. In J. Carsten and S. Hugh-Jones (eds.), *About the house: Lévi-Strauss and beyond,* 84–104. Cambridge: Cambridge University Press.

Jones, A. 2007. *Memory and material culture*. Cambridge: Cambridge University Press.

Jones, G. 2005. Garden cultivation of staple crops and its implications for settlement location and continuity. *World Archaeology* 37, 164–76.

Jones, G., Valamoti, S. and Charles, M. 2000. Early crop diversity: a 'new' glume wheat from northern Greece. *Vegetation History and Archaeobotany* 9, 133–46.

Johnson, M. 1999. *Archaeological theory. An introduction.* Oxford: Blackwell publishers.

Joyce A.R. and Gillespie, S.D. (eds.) 2000. *Beyond kinship. Social and material reproduction in house societies.* Philadelphia: University of Pennsylvania press.

Joyner, L. 2008. A Petrographic study of the Late Neolithic clay-based construction material from Makriyalos, Macedonia, Greece. Paper presented at the Conference *Petrography of archaeological materials*, Department of Archaeology, University of Sheffield 15–17 February 2008.

Kahn, M. 1986. *Always hungry, never greedy*. Cambridge: Cambridge University Press.

Kallitzi, D. and Efstratiou, N. 1988. Anaskafi sti Makri Evrou. *Archeologiko Ergo Makedonias kai Thrakis* 2, 499–509. (Excavation of Makri in Evros County).

Karkanas, P. 2001. Site formation processes in Theopetra cave: a record of climatic change during the Late Pleistocene and Early Holocene in Thessaly, Greece. *Geoarchaeology* 6, 373–99.

Karkanas, P. and Efstratiou, N. 2001. Anazitontas ton kathimerino choro sti Neolithiki Makri: mikro-domi kai mikro-stromatografia dapedon, epifaneion chrisis kai exoterikon choron. *Archeologiko Ergo Makedonias kai Thrakis* 15, 1–8. (Searching for daily space in Neolithic Makri: floors' micro-structure and micro-stratigraphy, activity areas and open-air spaces).

Karkanas, P. and Efstratiou, N. 2009. Floor sequences in Neolithic Makri, Greece: micromorphology reveals cycles of renovation. *Antiquity* 83, 1–13.

Karkanas, P., Koumouzelis, M., Kozlowski, J.K., Sitlivy, V., Sobczyk, K., Berna, F. and Weiner, S. 2004. The earliest evidence for clay hearths: Aurignacian features in Klisoura Cave 1, southern Greece. *Antiquity* 78, 513–25.

Karkanas, P., Pavlopoulos, K., Kouli, K., Ntinou, M., Tsartsidou, G., Facorellis, Y. and Tsourou, T. 2011. Palaeoenvironments and site formation processes at the Neolithic lake-side settlement of Dispilio, Kastoria, Northern Greece. *Geoarchaeology* 26, 83–117.

Katsianis, M. and Tsipidis, S. 2005. Trends and problems in archaeological GIS applications. In D. Triantis & F. Vallianatos (eds.), *WSEAS International Conference on Engineering Education* CD-Rom Proceedings.

Kent, S. 1990. Activity areas and architecture: an interdisciplinary view of the relationship between use of space and domestic built environments. In S. Kent, *Domestic architecture and the use of* space, 1–8. Cambridge: Cambridge University Press.

Keramopoulos, A.D. 1932. Anaskafai kai ereunai en ti Makedonia. *Archaeologiki Ephimeris*, 48–133. (Excavations and researches in Macedonia).

Keramopoulos, A.D. 1938. Ereunai en ti Dutiki Makedonia. *Praktika tis en Athinais Archaiologikis Etaireias*, 53–66. (Researches in Western Macedonia).

Keramopoulos, A.D. 1940. Anaskafi en Kastoria. *Praktika tis en Athinais Archailogikis Etaireias*, 22–3. (Excavation in Kastoria).

Koetje, T. A. 1993. Site formation processes and behavioral deposition episodes: the view from Le Flageolet II. In P. Goldberg, D.T. Nash and M.D. Petraglia (eds.), *Formation processes in archaeological context*, 113–23. Madison, Wisconsin: Prehistoric Press.

Kontogiorgos, D. 2007. *Geoarchaeological and microartifact analysis of archaeological sediments: a case study from a Neolithic tell site in Greece*. New York: Nova Science.

Kopaka K. (ed.) 2009. *H aigaiaki proistoriki ereva stis arhes toy 21ou aiona*. Heraklion: Crete University Press. (*Aegean prehistoric research at the beginning of the 21st century*).

Kotsakis, K. 1981. Tria oikimata tou oikismou tou Sesklou. Anaskafiki ereuna. *Anthropologika* 1, 87–107. (Three dwellings at the settlement of Sesklo: the excavation).

Kotsakis, K. 1983. Kerameiki technologia kai kerameiki diaforopoisi: provlimata tis graptis kerameikis tis Mesis Neolithikis epohis tou Sesklou. Unpublished Ph.D. Dissertation: Aristoteleion University of Thessaloniki. (Pottery technology and pottery diversification: problems of Middle Neolithic decorated pottery at Sesklo).

Kotsakis, K. 1987. Apokatastasi katopseon passalopikton oikimaton me ti voitheia ilektronikou upologisti stin anaskafi Mandalou, D. Makedonias. *Eilapini*, Papers presented to Professor N. Platon, 117–24. Herakleio: Vikelaia Library. (Plan restoration of post-framed dwellings by the use of personal computer at Mandalo excavation).

Kotsakis, K. 1989. The Langadas basin intensive survey. First preliminary report, the 1989 season. *Egnatia* 1, 3–14.

Kotsakis, K. 1990. To programma edatikis epifaneiakis erevnas Langada: deuteri periodos, 1987. *Egatia* 2, 175–84. (Intensive survey project at Langadas: second research season, 1987).

Kotsakis, K. 1991. The powerful past: theoretical trends in Greek archaeology. In I. Hodder (ed.), *Archaeological theory in Europe*, 65–90. London and New York: Routledge.

Kotsakis, K. 1994. The use of habitational space in Neolithic Sesklo. In *La Thessalie: quinze années de researches archéologiques, 1975-1990, Proceedings of the Lyon Conference* (1991) 125–30. Athens: Archaeological Receipts Fund.

Kotsakis, K. 1999. What tells can tell: social space and the settlement in the Greek Neolithic. In P. Halstead (ed.), *Neolithic society in Greece*, 66–76. Sheffield: Sheffield Academic Press.

Kotsakis, K. 2004. O Neolithicos oikismos [The Neolithic Settlement]. In A.F. Lagopoulos (ed.), *I istoria tis ellinikis polis [The history of Greek city]*, 55–68. Athens: Ermis-Archaeology and Technes.

Kotsakis, K. 2005. Across the border: unstable dwelling and fluid landscapes in the earliest Neolithic of Greece. In D.W. Bailey, A. Whittle and V. Cumming (eds.), *(Un)settling the Neolithic*, 8–15. Oxford: Oxbow Books.

Kotsakis, K. 2006. Settlement of discord: Sesklo and the emerging household. In N. Tasić and C. Grozdanov (eds.), *Homage to Milutin Garašanin*, 207–20. Belgrade: Serbian Academy of Sciences and Arts Publications.

Kotsakis, K. and Andreou, S. 1992. Epifaneiaki erevna Langada: periodos 1992. *Archeologiko Ergo Makedonias kai Thrakis* 6, 349–56. (Survey at Langadas: research season 1992).

Kotsakis, K. and Halstead, P. 2002. Anaskafi sta Neolithika Paliambela Kolindrou. *Archeologiko Ergo Makedonias kai Thrakis* 16, 407–15. (Excavation at the Neolithic site Paliambela in Kolindros).

Kotsakis, K., Katsianis, M. and Tsipidis, S. 2005. Psifiaki teknmiriosi archaeologikon dedomenon me ti hrisi geografikon systimaton pliroforion (GIS) sta Paliabela Kolindrou. *Archeologiko Ergo Makedonias kai Thrakis* 19, 309–16. (Digital documentation of archaeological data with the application of Geographical Information System (GIS) at Paliabela Kolindros).

Kotsos, S. 1992. Anaskafi Neolithikou oikismou sti biomichaniki perioxi Drosias Edessas. *Archeologiko Ergo Makedonias kai Thrakis* 6, 195–201. (Excavation of Neolithic settlement at the industrial area Drossia, Edessa).

Koukouli-Chrysanthaki, Ch., Aslanis, I. and Konstantopoulou, F. 1993. Promachonas-Topolnitsa: ellinoboulgariikes erevnes ston proistoriko oikismo. *Archeologiko Ergo Makedonias kai Thrakis* 7, 505–11. (Promachonas-Topolnitsa: greek-bulgarian researches at the prehistoric settlement).

Koukouli-Chrysanthaki, Ch., Aslanis, I., Konstantopoulou, F. and Valla, M. 1995. Anaskafi ston proistoriko oikismo Promachonas-Topolnitsa kata to 1995. *Archeologiko Ergo Makedonias kai Thrakis* 9, 435–40. (Excavation at the prehistoric settlement Promachonas-Topolnitsa in 1995).

Koukouli-Chrysanthaki, Ch., Todorova, H., Aslanis, I., Bojadziev, J., Konstantopoulou, F., Vajsov, I. and Valla, M. 1996. Promachonas-Topolnitsa: Neolithikos oikismos ellinoboulgarikon sunoron. *Archeologiko Ergo Makedonias kai Thrakis* 10, 745–63. (Promachonas-Topolnitsa: Neolithic settlement at the greek-bulgarian borders).

Koukouli-Chrysanthaki, Ch., Treuil., R. and Malamidou, D. 1997a. Proistorikos oikismos Filippon «Dikili Tash»: deka chronia anaskafikis ereunas. *Archeologiko Ergo Makedonias kai Thrakis* 11, 681–704. (Prehistoric settlement "Dikili Tash": ten years of archaeological research).

Koukouli-Chrysanthaki, Ch., Aslanis, I., Konstantopoulou, F. and Valla, M. 1997b. Promachonas-Topolnitsa 1997: anaskafi enos proistorikou oikismou sta ellinoboulgarika sunora. *Archeologiko Ergo Makedonias kai Thrakis* 11, 549–55. (Promachonas-Topolnitsa 1997: excavation of a prehistoric settlement at the Greek-Bulgarian borders).

Koukouli-Chrysanthaki, Ch., Valla, M., Aslanis, I., and Konstantopoulou, F. 1998. Anaskafi Neolithikou oikismou Promachonas-Topolnitsa, 1998. *Archeologiko Ergo Makedonias kai Thrakis*12, 67–76. (Excavation at the Neolithic settlement Promachonas-Topolnitsa, 1998).

Koukouli-Chrysanthaki, Ch., Aslanis, I., Ch., Konstantopoulou, F., and Valla, M. 1999. Anaskafi sto Neolithiko oikismo Promachona-Topolnitsa kata to 1999. *Archeologiko Ergo Makedonias kai Thrakis* 13, 111–6. (Excavation at the Neolithic settlement Promachonas-Topolnitsa, 1999).

Koukouli-Chrysanthaki, Ch., Aslanis, I. and Valla, M. 2000. Promachona-Topolnitsa 2000. *Archeologiko Ergo Makedonias kai Thrakis* 14, 87–98. (Promachonas-Topolnitsa 2000).

Koukouli-Chrysanthaki, Ch., Todorova, H., Aslanis, I., Vajsov, I. and Valla, M. 2007. Promachona-Topolnitsa: a Greek-Bulgarian archaeological project. In H. Todorova, M. Stefanovich and G. Ivanov (eds.), *The Struma/Strymon river valley in prehistory. Proceedings of the International Symposium Strymon Kjustendil-Blagoevgrad-*

Serres-Amphipolis, *27*, *09-11.10.2004*, 43–78. Sofia: Gerda Henkel Stiftung and Museum of History, Kyustendil.

Koukouli-Chrysanthaki, H. and Treuil, R. (eds.). 2008. *Dikili Tash, village préhistorique de Macedoine Orientale. Recherches Franco-Helléniques dirigées par la Société Archéologiques d'Athènes et l'École Française d' Athènes (1986–2001)*. Athens: The Archaeological Society at Athens and L'École Française d'Athènes.

Kouli, K. 2002. Dispilio kai palynologia: proseggizontas to palaioperiballon. In G.H. Hourmouziadis (ed.), *Dispilio 7500 hronia meta*, 303–15. Thessaloniki: University Press. (Dispilio and palynology: approaching palaeoenvironment).

Krachtopoulou, A. 2008. The geoarchaeological research in the Neolithic settlement Avgi, Kastoria. http://www.neolithicavgi.gr/?page_id=118 (accessed 01/05/2013)

Krachtopoulou, A. 2010. *The geoarchaeology of Northern Pieria, Macedonia, Greece*. Katerini: Mati Publications.

Kramer, C. 1979. An archaeological view of a contemporary Kurdish village: domestic architecture, household size and wealth. In C. Kramer (ed.), *Ethnoarchaeology: implication of ethnography for archaeology*, 139–63. New York: Columbia University Press.

Kuijt, I. 2000. Life in Neolithic farming communities: an introduction. In I. Kuijt (ed.), *Life in Neolithic farming communities. Social organization, identity and differentiation*, 3–17. New York: Kluwer Academic/Plenum Publishers.

Latour, B. 1993. *We have never been modern*. Cambridge, Massachusetts: Harvard University Press.

Lawrence, D. L and Low, S.M. 1990. The built environment and spatial form. *Annual Review of Anthropology* 19, 453–505.

Lefebvre, H. 1974. *The production of space*. Oxford: Blackwell.

Lespez, L., Tsirtsoni, Z., Darcque, P., Koukouli-Chrysanthaki, H., Malamidou, D., Treuil, R., Davidson, R., Kourtessi-Philippakis, G. And Oberlin, C. 2013. The lowest levels at Dikili Tash, northern Greece: a missing link in the Early Neolithic of Europe. *Antiquity* 87, 30–45

Lévi-Strauss, C. 1969. *The raw and the cooked: introduction to a science of mythology*. New York: Harper Colophon Books.

Lévi-Strauss, C. 1982. *The way of the masks.* Seattle: University of Washington Press.

Lévi-Strauss, C. 1997. The culinary triangle. In C. Couniham and P. Van Esteric (eds.), *Food and culture*, 28–35. New York & London: Routledge.

Mac Sweeney, N. 2009. Beyond ethnicity: the overlooked diversity of group identity. *Journal of Mediterranean Archaeology* 22, 101–26.

Mac Sweeney, N. 2011. *Community identity and archaeology: dynamic communities at Aphrodisias and Beycesultan*. Michigan: University of Michigan Press.

Magafa, M. 2002. H arhaiovotanologiki meleti tou oikismou. In G.H. Hourmouziadis (ed.), *Dispilio 7500 hronia meta*, 115–134. Thessaloniki: University Press. (Archaeolobotanical study of the settlement).

Makridis, T. 1937. Halka Makedonika tou Museiou Benaki. *Archaeoloyiki Efimeris* 1937, 512–21. (Macedonian bronze objects from Benaki Museum).

Maniatis, G. and Facorellis, G. 1998. Diereunisi tis purotechnologias se pelokataskeues tou Archontikou Giannitson (arxaiometriki meleti). *Archeologiko Ergo Makedonias kai Thrakis* 12, 315–26. (Probe of the pyrotechnology of thermal structures at Archontiko Giannitson: archaeometry study).

Marangou, C. 1996. Figurines and models. In G.A. Papathanassopoulos (ed.), *Neolithic culture in Greece*, 146–51. Athens: N.P. Goulandris Foundation, Museum of Cycladic Art.

Margomenou, D. Cherry, J. F. and Talalay, E. 2005. Reflection on the Aegean and its Prehistory: present routes and future destinations. In J. F. Cherry, D. Margomenou and L. E. Talalay (eds.), *Prehistorians round the pond. Reflections as a discipline*, 1–21. Ann Arbor, Michigan: Kelsey Museum Publication 2.

Martinez, S. 1999. A new look at the house construction techniques current research at Dikili Tash, Neolithic site of Eastern Macedonia. *Archeologiko Ergo Makedonias kai Thrakis* 13, 63–8.

Matthews, W. 2005a. Micromorphological and microstratigraphic traces of uses and concepts of space. In I. Hodder (ed.) *Inhabiting Çatalhöyük: reports from the 1995-1999 seasons*, 355–98. Cambridge and London: McDonald Institute for Archaeological Research/British Institute of Archaeology at Ankara Monograph.

Matthews 2005b. Life-cycle and life-course of buildings. In Hodder, I. (ed.), *Çatalhöyük perspectives: reports from the 1995-99 seasons*, 125–50. Cambridge and London: McDonald Institute for Archaeological Research/British Institute of Archaeology at Ankara Monograph.

Matthews, W., French, C.A.I., Lawrence, T., Cutler, D.F. and Jones, M.K. 1997. Microstratigraphic traces of site formation processes and human activities. *World Archaeology* 29, 281–308.

Mc Netting, R. 1982. Some home truths on household size and wealth. *American Behavioral Scientist* 25, 641–62.

McGuire, R.H. and Schiffer, M.B. 1983. A theory of architectural design. *Journal of Anthropological Archaeology* 2, 227–303.

McPherron, A. and Strejovic, D. 1988. *Divostin and the Neolithic in Central Serbia*. Pittsburg: Departments of Anthropology, University of Pittsburgh, Ethnology Monographs 10.

Meigs, A.S. 1984. *Food, sex, and pollution: a New Guinea religion*. New Brunswick: Rutgers University Press.

Mennell, S., Murcott, A. and van Otterloo, A.H. 1992. *The sociology of food: eating, diet and culture*. London: Sage Publications.

Merousis, N. and Stefani, L. 1998. H anaskafi ston Neolithiko oikismo Polyplatanou Imathias. *Archeologiko Ergo Makedonias kai Thrakis* 12, 383–93. (Excavation at the Neolithic settlement Polyplatanos Imathias).

Merousis, N and Stefani, L. 1999. Katoikisi kai fusiko periballon stin proistoriki Imathia: suberasmata kai prooptikes apo tin epifaneiaki erevna ton eton 1993–1996. In *Ancient Macedonia IV: papers at the International Symposium in Thessaloniki, 15-19 October 1996*, 735–51.Thessaloniki: Institution for Balkan Studies. (Habitation and natural environment at prehistoric Imathia: results and perspectives from the survey project in 1993-1996).

Merousis, N. and Stefani, L. 2000. O Neolithikos oikismos ston Polyplatano Imathias: i anaskafiki erevna kata to 2000. *Archeologiko Ergo Makedonias kai Thrakis* 14, 555–62. (Neolithic settlement at Polyplatano Imathias: excavational research in 2000).

Meskell, L. 2001. Archaeologies of identity. In I. Hodder (ed.), *Archaeological theory today*, 187–213. Cambridge: Polity Press.

Mills, J. 2006. *Modes of movement: Neolithic and Bronze Age human mobility in the Great Ouse, Nene and Welland river valleys*. Unpublished Ph.D. Dissertation. School of History and Archaeology. Cardiff University.

Milojčič, V., Boessneck, J. und Hopf, M. 1962. *Die deutschen Ausgrabungen auf Argissa-Magula in Thessalien*. Bonn: Rudolf Habelt.

Milojčič-v.Zumbush, von J. und Milojčič, V. 1971. *Die Deutschen Ausgrabungen auf der Otzaki-Magula in Thessallien. I. Das Frühe Neolithikum*. Bonn: Rudolf Habelt Verlac GMBH.

Moore, H. 1982. The interpretation of spatial patterning in settlement residues. In I. Hodder (ed.), *Symbolic and structural archaeology*, 74–9. Cambridge: Cambridge University Press.

Moore, H. L. 1996. *Space, text and gender: an anthropological study of the Marakwet of Kenya*. New York and London: The Guilford Press.

Moudrea-Agrafioti, A. 1996. Tools. In G. A. Papathanassopoulos (ed.), *Neolithic culture in Greece*, 103–06. Athens: N. P. Goulandris Foundation, Museum of Cycladic Art.

Murray, T. 1999. A return to the 'Pompeii premise'. In T. Murray (ed.), *Time and archaeology*, 8–27. London & New York: Routledge.

Mylonas, G.E. 1929. *Excavations at Olynthus. Part 1: Neolithic settlement*. Baltimore: The Johns Hopkins Press. London: Humphrey Milford.

Nanoglou, S. 2001. Social and monumental space in Neolithic Thessaly. *European Journal of Archaeology* 4, 303–22.

Nanoglou, S. 2004. *Ypokeimena kai ulikos politismos sti Neolithiki tis voreias Elladas: ta paradeigmata tis anthropomorfis eidoloplastikis tis kedrikis Makedonias kai tis Thessalias*. Unpiblished Ph.D. Thesis: Aristoteleion University of Thessaloniki. (Subjects and material culture in Neolithic Northern Greece: examples of anthropomorphic figurines in central Macedonia and Thessaly).

Nanoglou, S. 2008. Building biographies and households. Aspects of community life in Neolithic Northern Greece. *Journal of Social Archaeology* 8, 139–60.

Nanoglou, S. 2009a. Animal bodies and ontological discourse in the Greek Neolithic. *Journal of Archaeological Method and Theory* 16, 184–204.

Nanoglou, S. 2009b. Representing people, constituting worlds: multiple 'Neolithics' in the Southern Balkans. *Documenta Praehistorica* 36, 283–97.

Ntinou, M. 2002a. *El paisaje en el norte de Grecia desde et Tardiglaciar al Antlantico: formociones vegetales, recursos y usos*. Oxford: British Archaeological Reports.

Ntinou, M. 2002b. H palaiovlastisi guro apo ton oikismo kai i hrisi tis. In G.H. Hourmouziadis (ed.), *Dispilio 7500 hronia meta*, 317–30. Thessaloniki: University Press. (Palaeoflora around the settlement and its use).

Ntinou, M. 2008. The application of anthracological research at the Neolithic settlement Avgi. http://www.neolithicavgi.gr/?page_id=116 (accessed 01/05/21013)

Ntinou, M. 2010. Palaioperivallon kai anthropines drastiriotites: i anthrakologia sto limnaio Neolithiko oikismo sto Dispilio Kastorias. *Anaskamma* 4, 45–60. (Palaeoenvironment and human activities: charcoal analysis in the Neolithic lake-side settlement Dispilio, Kastoria).

Ntinou, M. and Badal, E. 2000. Local vegetation and charcoal analysis: an example from two Late Neolithic sites in Northern Greece. In P. Halstead and C. Frederic (eds.), *Landscape and land use in postglacial Greece*, 38–51. Sheffield: Sheffield Acedemic Press.

Overing, J. 2003. In praise of the everyday life: trust and the art of social living in Amazonian community. *Ethnos* 68, 293–316.

Özbaşaran, M. 1998. The heart of a house: the hearth. Aşikli Höyük, a Pre-pottery Neolithic site in Central Anatolia. In G. Arsebük, M.J. Mellink, W. Schirmer (eds.), *Light on top of the Black Hill: studies presented to Halet Gambel*, 555–66. Instunbul: Ege Yaginlari.

Pappa, M. 1993a. Neolithiki egkatastasi sto horo tis Diethnous Ekthesis Thessalonikis. *Archeologiko Ergo Makedonias kai Thrakis* 7, 303–10. (Neolithic settlement in the area of International Fair of Thessaloniki).

Pappa, M. 1993b. Stoiheia gia tin organosi tou horou stin koilada ton Vasilikon. In *Ancient Macedonia V: papers of the 5th International Symposium of Thessaloniki, 10 –15 October 1989*, 1225–38. Thessaloniki: Institute for Balkan Studies. (Evidence of spatial organization at the Vasilikon valley).

Pappa, M. 1997. Neolithikos oikismos Makriyalou Pierias. Prota apotelesmata tis meletis. *Archeologiko Ergo Makedonias kai Thrakis* 10, 259–77. (Neolithic settlement of Makriyalos Pierias: preliminary results).

Pappa, M. 1999. H organosi tou horou stous Neolithikous oikismous tis Boreias Pierias. In *Ancient Macedonia VI: papers of the International Symposium of Thessaloniki, 15 - 19 October 1989*, 873–86. Thessaloniki: Institute for Balkan Studies. (Spatial organisation of Neolithic settlement in Northern Pieria).

Pappa, M. 2007. Neolithic societies: recent evidence from Northern Greece. In H. Todorova, M. Stefanovich and G. Ivanov (eds.), *The Struma/Strymon river valley in prehistory. Proceedings of the International Symposium Strymon Kjustendil-Blagoevgrad-Serres-Amphipolis, 27, 09-11.10.2004*, 257–72. Sofia: Gerda Henkel Stiftung and Museum of History, Kyustendil.

Pappa, M. 2008. *Organosi tou chorou kai oikistika stoicheia stous neolithikous oikismous tis Kentrikis Makedonias. D.E.Th.–Thermi–Makriyalos*. Unpublished Ph.D. Dissertation: Aristoteleion University of Thessaloniki. (Spatial organisation and residential evidence at the Neolithic settlements of Central Macedonia: I.F.Th.–Thermi–Makriyalos).

Pappa,M., Adaktulou, F. and Gerousi, S. 1998. Neolithikos oikismos Makriyalou: sympliromatikes ereunes 1997-1998. *Archeologiko Ergo Makedonias kai Thrakis* 12, 283–89. (Makriyalos Neolithic settlement: supplementary research 1997-1998).

Pappa, M. and Bessios, M. 1999a. The Neolithic settlement at Makriyalos, Northern Greece: preliminary report on the 1992-1995 excavations. *Journal of Field Archaeology* 26, 177–95.

Pappa, M. and Bessios, M. 1999b. The Makriyalos project: rescue excavations at the Neolithic site of Makriyalos, Pieria, Northern Greece. In P. Halstead (ed.), *Neolithic society in Greece*, 108–20. Sheffield: Sheffield University Press.

Pappa, M., Nanoglou, Str. and Nitsiou, A. 2000. Anaskafi Neolithikou oikismou Thermis. *Archeologiko Ergo Makedonias kai Thrakis* 14, 179–86. (Excavation of the Neolithic settlement of Thermi).

Pappa, M., Halstead, P., Kotsakis, K. and Urem-Kotsou, D. 2004. Evidence for large-scale feasting at Late Neolithic Makriyalos, Northern Greece. In P. Halstead and J. Barrett (eds.), *Food, cuisine and society in prehistoric Greece*, 16–44. Oxford: Oxbow Books.

Pappa, M., Avgeros, H. and Nanoglou, S. 2007. Anaskafi ston neolithiko oikismo tis Thermis, 2007. *Archeologiko Ergo Makedonias kai Thrakis* 21, 277–83. (Excavation at the Neolithic settlement of Thermi, 2007).

Papaconstantinou, D. 2006a (ed.). *Deconstructing context. A critical approach to archaeological practice.* Oxford: Oxbow Books.

Papaconstantinou, D. 2006b. Archaeological context as a unifying process: an introduction. In D. Papaconstantinou (ed.), *Deconstructing context. A critical approach to archaeological practice*, 1–21. Oxford: Oxbow Books.

Papadopoulou, E. and Prévost-Dermarkar, S. 2007. 'Il n'y a pas de cuisine sans feu'. Une approche des techniques culinaires au Néolithique et à l'Âge du Bronze Ancien à travers les structures de combustion en Grèce du Nord. In C. Mee and J. Renard (eds), *Cooking up the past. Food and culinary practices in the Neolithic and Bronze Age Aegean*, 123–35. Oxford: Oxbow Books.

Papaeuthimiou-Papanthimou, A. and Pilali-Papasteriou, A. 1987. Anaskafes sto Mandalo. *Archeologiko Ergo Makedonias kai Thrakis* 1, 173–80. (Excavations at Mandalo).

Papaeuthimiou-Papanthimou, A. and Pilali-Papasteriou, A. 1988. Anaskafi sto Mandalo (1988). *Archeologiko Ergo Makedonias kai Thrakis* 2, 127–35. (Excavation at Mandalo, 1988).

Papaeuthimiou-Papanthimou, A. and Pilali-Papasteriou, A. 1990. H anaskafiki ereuna sto Mandalo (1987–1990). *Egnatia* 2, 411–21. (Excavation at Mandalo, 1987-1990).

Papaeuthimiou-Papanthimou, K., Pillali-Papastergiou, A., Bossogiannis, D., Papadopoulou, E., Tsagkaraki, E. and Fappas, I. 2000. Archontiko 2000: typologiki parousiasi kai ereunitika problimata ton pilokataskeuon. *Archeologiko Ergo Makedonias kai Thrakis* 14, 421–33. (Archontiko 2000: typological presentation and research constraints of thermal structures).

Papaeuthymiou, A., Pilali, A. and Papadopoulou, E. 2007. Les installations culinaires dans un village du Bronze Ancien en Grèce du Nord: Archontiko Giannitsa. In C. Mee and J. Renard (eds.), *Cooking up the past: food and culinary practices in the Neolithic and Bronze Age Aegean*, 136–47. Oxford: Oxbow Books.

Papathanassopoulos, G. (ed.) 1996. *Neolithic culture in Greece.* Athens: N.P. Goulandri Foundation, Museum of Cycladic Art.

Parker, B. J. 2011. Bread ovens, social networking and gendered space: an ethnoarchaeological study of *Tandir* ovens in southeastern Anatolia. *American Antiquity* 76, 603–627.

Parker Pearson, M. 1999. *The archaeology of death and burial*. Stroud: Sutton.

Parker Pearson, M. and Richards C. 1994. Ordering the world: perceptions of architecture, space and time. In M. Parker Pearson and C. Richards (eds.), *Architecture and order: approaches to social space*, 1–37. London & New York: Routledge.

Patton, M. 1996. *Islands in Time. Island sociogeography and Mediterranean prehistory.* London and New York: Routledge Press.

Peristeri, K. 2002. Anaskafiki ereuna 2002 ston proistoriko oikismo tou Arkadikou Dramas. *Archeologiko Ergo Makedonias kai Thrakis*16, 131–6. (Excavation research 2002 at the prehistoric settlement Arkadikos at Drama).

Perlès, C. 2001. *The Early Neolithic in Greece: the first farming communities in Europe.* Cambridge: Cambridge University Press.

Pilali-Papasteriou, A. and Papaeuthimiou-Papanthimou, A. 1989. Nees anaskafikes erevnes sto Mandalo D. Macedonia. *Egnatia* 1, 361–70. (New excavation works at Mandalo W. Macedonia).

Prévost-Dermarkar, S. 2002. Les foyers et les fours domestiques en Égée au Neolithique et à l'Âge du Bronze. *Civilisations* 49, 223–37.

Price, M.F. 1999. All in the family: the impact of gender and family constructs on the study of prehistoric settlement. In J. Brück and M. Goodman (eds.), *Making places in the prehistoric world: themes in settlement archaeology*, 30–51. London: Routledge Press.

Psychoyos, O. 1988. *Déplacements de la ligne de ravage et sites archéologiques dans les regions côtières de la Mer Egée, au Néolithique et à l'âge du Bronze*. Jonsered: Paul Aströms Förlag.

Rapoport, A. 1990. Systems of activities and systems of settings. In S. Kent (ed.), *Domestic architecture and the use of space*, 9–20. Cambridge: Cambridge University Press.

Renaudin, L. 1920. Chroniques des foulles et découvertes archéologiques dans l'Orient Hellénique (Novembre 1919-Novembre 1920). *Bulletin de Correspondance Hellénique* 44, 407.

Renaudin, L. 1921. Chroniques des foulles et découvertes archéologiques dans l'Orient Hellénique (Novembre 1920-Novembre 1921). *Bulletin de Correspondance Hellénique* 45, 543–4.

Renaudin, L. 1922. Chroniques des foulles et découvertes archéologiques dans l'Orient Hellénique (Novembre 1921-Novembre 1922). *Bulletin de Correspondance Hellénique* 46, 527–8.

Renfrew, C. 1970. The burnt house at Sitagroi. *Antiquity* 44, 131–4.

Renfrew, C. 1971. Sitagroi, radiocarbon and the prehistory of south-east Europe. *Antiquity* 45, 275–81.

Renfrew, C. 1972. *The emergence of civilization: the Cyclades and the Aegean in the Third Millennium B.C.* London: Methuen.

Renfrew, C., Gimbutas M. and Elster, E.S. (eds.) 1986. *Excavations at Sitagroi, a prehistoric village in northeast Greece.* vol.1. Los Angeles: UCLA Institute of Archaeology.

Rey, L. 1917. Observations sur les premiers habitats de la Macédoine. *Bulletin de Correspondance Hellénique* 41–43 (1917-19).

Ricoeur, P. 2004. *Memory, history, forgetting*. Chicago & London: The University of Chicago Press.

Ridley C. and Wardle, K.A. 1979. Rescue excavation at Servia 1971-1973: a preliminary report. *Annual of the British School at Athens* 74, 185–230.

Ridley, C., Wardle, K.A. and Mould C.A. (eds.) 2000. *Servia I. Anglo-Hellenic rescue excavations 1971–73 directed by Katerina Rhomiopoulou and Cressida Ridley.* Supplementary Volume no. 32. Oxford: The British School at Athens.

Robbins, M.C. 1966. House types and settlement patterns: an application of ethnological interpretation. *Minnesota Archaeologist* 28, 3–26.

Roberts, N., Boyer, P. and Merrick, J. 2007. The KOPAL on-site and off-site excavations and sampling. In Hodder, I. (ed.), *Excavating Çatalhöyük south, north and KOPAL area reports from the 1995-99 seasons*, 553–72. Cambridge and London: McDonald Institute for Archaeological Research/British Institute of Archaeology at Ankara Monograph.

Rodden, R.J. 1962. Excavation at the Early Neolithic site at Nea Nikomedeia, Greek Macedonia. *Proceedings of Prehistoric Society* 28, 267–88.

Rodden, R.J 1964. Recent discoveries from Prehistoric Macedonia. *Balkan Studies* 5, 110–24.

Rodden, R. J. 1965. An Early Neolithic village in Greece. *Scientific American* 212, 82–8.

Rosen, A. M. 1986. *Cities of clay: the geology of tells*. Chicago & London: The University of Chicago Press.

Sampson, A. 1988. *I Neolithiki katoikisi sto Giali tis Nisirou*. Athens: Euboiki Arhaiofilos Etaireia. (Neolithic habitation at Giali, Nisiros).

Samson, R. 1990. Introduction. In R. Samson (ed.), *The social archaeology of house*, 1–18. Edinburgh: Edinburgh University Press.

Schiffer, M.B. 1972. Archaeological context and systemic context. *American Antiquity* 37, 156–65.

Schiffer, M.B. 1983. Toward the identification of formation processes. *American Antiquity* 48, 675–706.

Schiffer, M.B. 1987. *Formation processes on the archaeological record*. Albuquerque, NM: University of New Mexico Press.

Shanks, M. and Tilley, C. 1987. *Social theory and archaeology*. Cambridge: Polity Press.

Shennan, St. 1989. Introduction: archaeological approaches to cultural identity. In St. Shennan (ed.), *Archaeological approaches to cultural identity*, 1–32. London: Unwin Hyman Ltd.

Skourtopoulou, K. 1999. The chipped stone from Makriyalos: a preliminary report. In P. Halstead (ed.), *Neolithic society in Greece*, 121–7. Sheffield: Sheffield Academic Press.

Skourtopoulou, K. 2006. Questioning spatial context: the contribution of lithic studies as analytical and interpretative bodies of data. In D. Papaconstantinou (ed.), *Deconstructing context: a critical approach to archaeological practice*, 50–78. Oxford: Oxbow Books.

Smyth, J. 2010. The house and the group identity in the Irish Neolithic. *Proceedings of the Royal Irish Academy* 111, 1–31.

Sofronidou, M. 2008. O proistorikos limnaios oikismos tou Dispiliou Kastorias: mia proti eisagogi. *Anaskamma* 1, 9–26. (The prehistory lacustrine settlement at Dispilio, Kastoria: a first introduction).

Sørensen, M. L. S. 2000. *Gender archaeology*. Cambridge: Polity Press.

Souvatzi, S. 2000. *The archaeology of the household: examples from the Greek Neolithic*. Ph.D. Dissertation: Department of Archaeology. University of Cambridge.

Souvatzi, S. 2007. The identification of Neolithic households: unfeasible or disregarded? In R. Westgate, N. Fisher and J. Whitley (eds.), *Building communities: house, settlement and society in the Aegean and beyond*, 19–28. Proceedings of a Conference held at Cardiff University, 17-21 April 2001. Athens: British School at Athens Studies 15.

Souvatzi, S. 2008a. *A social archaeology of households in Neolithic Greece: an anthropological approach.* Cambridge: Cambridge University Press.

Souvatzi, S. 2008b. Household dynamics and variability in the Neolithic of Greece: the case for a bottom-up approach. In D. W. Bailey, A. Whittle and D. Hofmann (eds.), *Living well together? Settlement and materiality in the Neolithic of south-east and central Europe*, 17–27. Oxford: Oxbow Books.

Stavridopoulos, Y. and Sianos, T. 2009. O lithinos perivolos tou Dispiliou. *Anaskamma* 3, 53–66.

Stevanović, M. 1996. *The Age of clay: the social dynamics of house destruction*. Unpublished Ph.D. Thesis: Department of Anthropology, University of California, Berkeley.

Stevanović, M. 1997. The Age of Clay: the social dynamics of house destruction. *Journal of Anthropological Archaeology* 16, 334–95.

Stratouli, G. 202. Ta ergaleia apo leiasmeno litho, osto kai kerato. In G.H. Hourmouziadis (ed.), *Dispilio 7500 hronia meta*, 155–74. Thessaloniki: University Press. (Polished stone tools, bone tools and antler tines).

Stratouli, G. 2004. Neolithiki Avgi Kastorias 2003-2004: ta prota vimata enos ereunitikou programmatos. *Archeologiko Ergo Makedonias kai Thrakis* 18, 661–67. (Avgi Kastorias: first steps of a research project).

Stratouli, G. 2005. Metaxi pilon, plithion kai passalon, magnitikon simaton kai archaiologikon evrimaton: tafroi oriothetisis kai themeliosis ston neolithiko oikismo tis Avgis Kastorias. *Archeologiko Ergo Makedonias kai Thrakis* 19, 596–603. (Between daub, mud-bricks and posts, magnetic spots and archaeological finds: boundary ditches at the neolithic settlement of Avgi Kastoria).

Stratouli, G. 2007. Neolithikos oikismos Avgi Kastorias 2006-2007: choro-organotikes praktikes 6^{is} kai 5^{is} hilietias. *Archeologiko Ergo Makedonias kai Thrakis* 21, 7–14. (Neolithic settlement Avgi Kastorias 2006–2007: spatial practices in the 6th and 5th millennia).

Stratouli, G., Triantaphyllou, S., Bekiaris, T. and Katsikaridis, N. 2010. The manipulation of death: a burial area at the Neolithic settlement of Avgi, NW Greece. *Documenta Praehistorica* 37, 95–104.

Theocharis, D. R. 1967. *H Avgi tis Thessalikis proistorias: archi kai proimi exelixi tis Neolithikis*. Volos : Filarchos Etaireia. (The dawn of Thessalian prehistory: beginning and early development of the Neolithic).

Theocharis, D. 1971. *Prehistory of Eastern Macedonia and Thrace. Ancient Greek Cities 9*. Athens: Athens Technological Organization.

Theocharis, D. and Romiopoulou, A. 1961. Anaskafai Dikili Tash (ellinikos tomeas). *Praktika tis en Athinais Archailogikis Etaireia*116, 81–87. (Excavation at Dikili Tash: the Greek section).

Theodoropoulou, T. 2007. *L'exploitation des faunes aquatiques en Égée septentionale aux periods pré-et protohistoriques*. Unpublished Ph.D. Dissertation: Université de Sorbonne I Panthépn-Sorbonne of Paris.

Tilley, C. 1982. Social formation, social structures and social change. In I. Hodder (ed.), *Symbolic and structural archaeology*, 26–38. Cambridge: Cambridge University Press.

Tilley, C. 1994. *A phenomenology of landscape: people, paths and monuments*. Oxford: Berg.

Touloumis, K. 2002. H oikonomia enos neolithikou oikismou. In G.H. Hourmouziadis (ed.), *Dispilio 7500 hronia meta*, 89–114. Thessaloniki: University Press. (The economy of a Neolithic settlement).

Touloumis, K. and Peristeri, K. 1991. Anaskafi ston Arkadiko Dramas 1991: prokatartikes paratiriseis gia tin organosi kai ti hrisi tou horou me vasi ti diakrisi esoterikon kai exoterikon horon. *Archeologiko Ergo Makedonias kai Thrakis* 5, 359–69. (Excavation at Arkadiko in Drama, 1991: preliminary observations of the organization and the use of space based on the distinction of internal and external spaces).

Touloumis, K. and Hatzitoulousis, S. 2002. Meta ti Neolithiki: stoixeia xoroorganosis. In G.H. Hourmousiazis (eds.), *Dispilio: 7500 hronia meta*, 37–74. Thessaloniki: University Studio Press. (After the Neolithic: evidence of spatial organisation).

Treuil, R. (ed.), 1992. *Dikili Tash: Village préhistorique de Macédoine orientale I : Fouilles de Jean Deshays (1961–1975). Bulletin de Correspondance Hellénique* Supplément 24. Athens : École Française d'Athènes.

Treuil, R. 1996. Dikili Tash. *Bulletin de Correspondance Hellénique* 120, 865–74.

Treuil, R., Darcque, P., Poursat, J.-CL. and Touchais, G. 1989. *Les civilizations égéennes du Néolithique et de l' Age du Bronze*. Paris: Presses Universitaires de France, Nouvelle Clio.

Triantaphyllou, S. 1999. Prehistoric Makriyalos: a story from the fragments. In P. Halstead (ed.), *Neolithic society in Greece*, 128-35. Sheffield: Sheffield Academic Press.

Triantaphyllou, S. 2001. *A bioarchaeological approach to prehistoric cemetery populations from central and western Greek Macedonia*. Oxford: BAR International Series 976.

Trigger, B. 1967. Settlement archaeology: its goals and promise. *American Antiquity* 32, 149–60.

Trigger, B.G. 1989. *A history of archaeological thought.* Cambridge: Cambridge University Press.

Tringham, R. 1991. Households with faces: the challenge in prehistoric architectural remains. In J.M. Gero and M.W. Conkey (eds.), *Engendering archaeology. Women and prehistory*, 93–131. Oxford: Basil Blackwell.

Tringham, R., 2000. The continuous house: a view from a deep past. In A. Joyce and D. Gillespie (eds.), *Beyond kinship: social and material reproduction in house societies*, 115–34. Philadelphia: University of Pennsylvania Press.

Tringham, R. 2005. Weaving house life and death into places: a blueprint for a hypermedia narrative. In D.W. Bailey, A. Whittle and V. Cumming (eds.), *(Un)settling the Neolithic,* 98–111. Oxford: Oxbow Books.

Tringham, R., Brukner, B. and Voytek, B. 1985. The Opovo project: a study of socioeconomic change in the Balkan Neolithic. *Journal of Field Archaeology* 12, 425–44.

Tringham, R. and Krstić, D. (eds.) 1990. *Selevac: a Neolithic village in Yugoslavia*. Los Angeles: UCLA Institute of Archaeology Press.

Tringham, R., Brukner, R., Kaiser, T., Borojević, K., Bukvić, L., Šteli, P., Russel, N., Stavanović, M. and Voytek, B. 1992. Excavations at Opovo, 1985-1987: socioeconomic change in the Balkan Neolithic. *Journal of Field Archaeology* 19, 351–86.

Tsartsidou, G. 2010. Analusi phytolithon apo ta izimata tou Dispiliou: anazitontas tis praktikes diaviosis tou proistorikou oikismou. *Anaskamma* 4, 77–88. Analylis of phytoliths from Dispilio sediments: in search of subsistence practices of a prehistoric settlement).

Tsartsidou, G., Lev-Yadun, S., Efstratiou, N. and Weiner, S. 2009. Use of space in a Neolithic village in Greece (Makri) : phytolith analysis and comparison of phytolith assemblages from an ethnographic setting. *Journal of Archaeological Science* 36, 2342–52.

Tsokas, G., Vargemezis, G., Stabolidis, A. and Stratouli, G., 2005. Prota sumberasmata tis geophysikis diaskopisis sto Neolithiko oikismo tis Avgis Kastorias. *Archeologiko Ergo Makedonias kai Thrakis* 19, 323–31. (Preliminary results of the geophysical investigation at the Neolithic settlement of Avgi Kastorias).

Tsoraki, C. 2007. Unraveling ground stone life histories: the spatial organization of stone tools and human activities at LN Makriyalos Greece. *Documenta Prehistorica* 24, 289–97.

Tsouggaris, Ch., Salonidis, Th., Douma, A. and Sarriyiannidou, Ch. 2002. Kolokynthou: enas neos parapotamios Neolithikos oikismos tou N. Kastorias. *Archeologiko Ergo Makedonias kai Thrakis* 16, 625–39. (Kolokynthou: a new Neolithic riverside settlement in Kastoria County).

Tsountas, Ch. 1908. *Ai proistorikai akropoleis Diminiou kai Sesklou*. Athens: En Athinais Arxaiologiki Etaireia 14 (reprint 2000). (Prehistoric citadels at Dimini and Sesklo).

Twiss, K.C. 2007a. We are what we eat. In K.C. Twiss (ed.), *The archaeology of food and identity*, 1–15. Carbondale: Center for Archaeological Investigations, Southern Illinois University Carbondale.

Twiss, K.C. 2007b. Home is where the hearth is: food and identity in the Neolithic Levant. In K.C. Twiss (ed.), *The archaeology of food and identity*, 50–68. Carbondale: Center for Archaeological Investigations, Southern Illinois University Carbondale.

Tzanavariss, K. and Filis, K. 2002. Lete I: prosdiorismos tis pithanis thesis tou Neolithikou oikismou. *Archeologiko Ergo Makedonias kai Thrakis* 16, 197–210. (Lete I: designation of the possible location of the Neolithic settlement).

Tzanavari, K., Kotsos, S. and Gkioura, E. 2002. Lete III: mia neolithiki thesi sti lekani tou Langada. *Archeologiko Ergo Makedonias kai Thrakis* 16, 211-22. (Lete III: Neolithic site at the Langadas basin).

Urem-Kotsou D. 2006. Neolithiki keramiki tou Makriyalou: diatrofikes sunitheies kai oi koinonikes diastaseis tis keramikis. Unpublished Ph.D. Dissertation: Aristoteleion University of Thessaloniki. (Neolithic pottery from Makriyalos site: culinary traditions and social perspectives of pottery).

Urem-Kotsou, D. and Efstratiou, N. 1993. H sumvoli tis keramikis typologias tis Makris sti meleti tis proistorikis exelixis sti Thraki. *Archeologiko Ergo Makedonias kai Thrakis* 7, 619–25. (Contribution of the ceramic typology of Makri in the study of prehistoric development in Thrace).

Urem-Kotsou, D. and Kotsakis, K. 2007. Pottery, cuisine and community in the Neolithic of North Greece. In C. Mee and J. Renard (eds.), *Cooking up the past. Food and culinary practices in the Neolithic and Bronze Age Aegean*, 225–46. Oxford: Oxbow Books.

Valamoti, S.-M. 2002. Investigating the Prehistoric bread of Northern Greece: the archaeobotanical evidence for the Neolithic and the Bronze Age. *Civilisations* 49, 2–14.

Valamoti, S.M. 2004. *Plants and People in Late Neolithic and Early Bronze Age in Northern Greece. An archaebotanical investigation.* Oxford: BAR International Series 1258.

Valamoti, S.-M., 2005. Grain versus chaff: identifying a contrast between grain-rich and chaff-rich sites in the Neolithic of Northern Greece. *Vegetation History and Archaeobotany* 14, 259–67.

Valamoti, S.-M. 2007. Traditional foods and culinary novelties in Neolithic and Bronze Age Northern Greece: an overview of the archaeobotanical evidence. In C. Mee and J. Renard (eds.), *Cooking up the past: food and culinary practices in the Neolithic and Bronze Age Aegean*, 89–108. Oxford: Oxbow Books.

Valamoti, M.V. 2009. Plant food ingredients and 'recipes' from Prehistoric Greece: the archaeobotanical evidence. *Plants and Culture: seeds of the cultural heritage of Europe*, 25–38. Edipuglias.r.l.-www.epiduglia.it

Vaquero, M. and Pastó, I. 2001. The definition of spatial units in Middle Paleolithic sites: the hearths-related assemblages. *Journal of Archaeological Science* 28, 1209–20.

Vargas, A., Touloumis, K., Anagnostou, I., Valamoti, S. and Christidou, R. 1992. Anaskafes stin proistoriki toumba tou Arkadikou Dramas. *Archeologiko Ergo Makedonias kai Thrakis* 6, 577–85. (Excavation at the prehistoric tell of Arkadikos, Drama).

Vierra, R.K. and Taylor, R.L. 1977. Dummy data distributions and quantitative methods: an example applied to overlapping spatial distributions. In L.R. Binford (ed.), *For theory building in archaeology. Essays on faunal remains, aquatic resources, spatial analysis, and systemic modeling*, 317–24. New York & London: Academic Press.

Voutsaki, S. 2002. The 'Greekness' of the Greek Prehistory: an investigation of the debate 1976-1900. *Pharos, Journals of the Netherlands Institute in Athens* 10, 105–22.

Voutsakis, S. 2003. Archaeology and the construction of the past in Nineteenth century Greece. In H. Hokwerda (ed.), *Construction of the Greek past: identity and historical consciousness from antiquity to present*, 231–55. Groningen: Egbert Forsten.

Wace, A.J.B. and Thompson, M.S. 1912. *Prehistoric Thessaly*. Cambridge: Cambridge University Press.

Wardle, K.A. (ed.) 1996. *Nea Nikomedeia I: the excavation of an Early Neolithic village in Northern Greece 1961-1964. The excavation and the ceramic assemblage.* Oxford: The British School at Athens. Supplementary Volume no. 25.

Wardle, K.A. and Vlachodimitropoulou, V. 1998. Anaskafi Servion Kozanis 1971-73: apotelesmata. *Archeologiko Ergo Makedonias kai Thrakis* 12, 543–55. (Excavation at Servia in Kozani 1971-73: results).

Weninger, B. and Jöris, O. 2004. Glacial radiocarbon calibration: the CalPal program. In T. Higham, C.B. Ramsey and C. Owen (eds.), *Radiocarbon and archaeology: proceedings of the fourth international symposium*, 9–15. St Catherine's College, Oxford 9–14 April 2002. Oxford: Oxbow Books.

Westgate, R., Fisher, N. and Whitley, J. (eds.) 2007. *Building communities: house, settlement and society in the Aegean and beyond.* Proceedings of a conference held at Cardiff University, 17-21 April 2001. Athens: British School at Athens Studies 15.

Whallon, R.J. 1973. Spatial analysis of occupation floors I: application of dimensional analysis of variance. *American Antiquity* 38, 266–78.

Whallon, R.J. 1974. Spatial analysis of occupation floors II: the application of nearest neighbor analysis. *American Antiquity* 39, 16–34.

Wheatley, D. and Gilling, M. 2002. *Spatial technology and archaeology. The archaeological application of GIS*. London: Taylor & Francis Group.

Whiting, J.W.M. and Ayres, B. 1968. Inferences from the shape of dwellings. In K.C. Chang (ed.), *Settlement archaeology,* 117–33. Palo Alto, California: National Academic Press.

Whitley, J. 2002. Too many ancestors. *Antiquity* 76, 119–26.

Whitley, J. 2004. Archaeology in Greece 2003-2004. *Archaeological Reports* 50, 1–92.

Whittle, A. 1996a. *Europe in the Neolithic. The creation of new worlds*. Cambridge: Cambridge University Press.

Whittle, A. 1996b. House in context: building as process. In T. Darvill and J. Thomas, *Neolithic houses in Northwest Europe and beyond,* 13-26. Oxford: Oxbow Books.

Whittle, A. 1997. Moving on and moving around: Neolithic settlement mobility. In P. Topping (ed.), *Neolithic landscapes*, 15–22. Neolithic Studies Group Seminar Papers 2. Oxford: Oxbow Books.

Whittle, A. 2003. *The archaeology of people: dimensions of Neolithic life.* London and New York: Routledge.

Whittle, A. 2010. The diversity and duration of memory. In D. Borić (ed.), *Archaeology and memory*, 35-47. Oxford: Oxbow Books.

Whittle, A.W.R., Healy, F.M.A. and Bayliss, A. 2011. *Gathering time: dating the Early Neolithic enclosures of southern Britain and Ireland*. Oxford: Oxbow Books.

Whittle, A.W.R. and Bickle, P. (eds.) 2013. *The first farmers of central Europe: diversity in LBK lifeways*. Oxford: Oxbow Books.

Wilk, R.R. 1983. Little house in the jungle: the causes of variation in house size among modern Kekchi Maya. *Journal of Anthropological Archaeology* 2, 99–116.

Willey, G.R. and Sabloff, J.A. 1980. *History of American archaeology*. London: Thames and Hudson.

Willis, K.J. 1994. The vegetational history of the Balkans. *Quaternary Science Review* 13, 769–88.

Willis, K.J. and Bennett, K.D. 1994. The Neolithic transition or fiction? Palaeological evidence from the Balkans. *The Holocene* 4, 326–30.

Wright, K. I. 2000. The social origins of cooking and dining in Early villages of western Asia. *Proceedings of the Prehistoric Society* 66, 89–121.

Yellen, J., 1977. *Archaeological approaches to the present - models for reconstructing the past*. Academic Press: New York.

Zachos, K. 1987. *Ayios Dhimitrios, a prehistoric settlement in the southwestern Peloponnesos: the Neolithic and Early Helladic periods*. Unpublished Ph.D. dissertation: Boston University, Boston.

Ziota, Ch. 1995. Kitrini Limni 1995: nees ereunitikes drastiriotites. *Archeologiko Ergo Makedonias kai Thrakis* 9, 47–57. (Kitrini Limni 1995: new research activities).

Ziota Ch. 2008 (forthcoming). Kitrini Limni Kozanis: proistorikos oikismos Kleitos. *Archaiologiko Deltion* 63. (Kitrini Limni, Kozani: Kleitos prehistoric settlement).

Ziota, Ch. 2009 (forthcoming). Kitrini Limni Kozanis: proistorikoi oikismoi Kleitou. *Archaeologiko Deltion* 64, (Kitrini Limni, Kozani: prehistoric settlements of Kleitos).

Ziota, Ch., Kalogirou, A., Fotiadis, M. and Hondroyianni, A. 1990. Kitrini Limni, tessera chronia erevnas. *Archeologiko Ergo Makedonias kai Thrakis* 4, 93–103. (Kitrini Limni: four years of research).

Ziota, Ch. and Hondroyianni-Metoki, A. 1993. Aliakmon 1993, proistoriki erevna. *Archeologiko Ergo Makedonias kai Thrakis* 7, 33–41. (Aliakmon 1993, prehistoric research).

Ziota, Ch., Chondrogianni-Metoki, A. and Maggouretsou, E 2009 (forthcoming). I archaeologiki erevna ston Kleito Kozanis 2009. *Archeologiko Ergo Makedonias kai Thrakis* 23. (Archaeological research at Kleitos Kozanis).