Food Sharing during the Transition to Agriculture at Neolithic Çatalhöyük, Central Anatolia

A Dissertation Presented

by

Gürcü Arzu Demirergi

to

The Graduate School

in Partial Fulfillment of the

Requirements

for the Degree of

Doctor of Philosophy

in

Anthropology

(Archaeology)

Stony Brook University

December 2015

Stony Brook University

The Graduate School

Gürcü Arzu Demirergi

We, the dissertation committee for the above candidate for the Doctor of Philosophy degree, hereby recommend acceptance of this dissertation.

Katheryn C. Twiss – Dissertation Advisor
Associate Professor, Department of Anthropology

Elisabeth Hildebrand - Chairperson of Defense
Associate Professor, Department of Anthropology

Elizabeth Terese Newman
Associate Professor, Department of History

Elizabeth C. Stone
Professor, Department of Anthropology

Douglas Baird
Professor, Department of Archaeology, Classics and Egyptology
University of Liverpool

This dissertation is accepted by the Graduate School

Charles Taber
Dean of the Graduate School

Abstract of the Dissertation

Food Sharing during the Transition to Agriculture at Neolithic Çatalhöyük, Central Anatolia

by

Gürcü Arzu Demirergi

Doctor of Philosophy

in

Anthropology

(Archaeology)

Stony Brook University

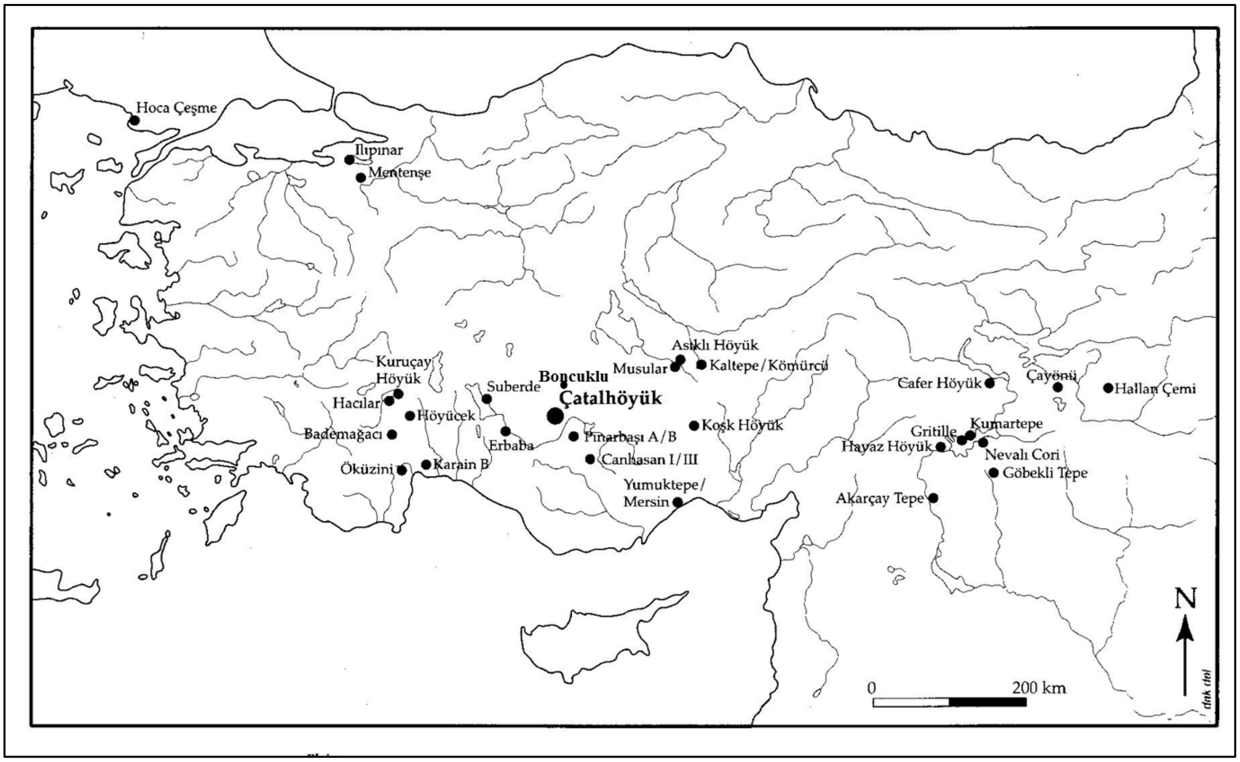
2015

All human societies share food. Investigation of food sharing in a society can provide great insights into social relations. Food sharing practices have been anthropologically explored in many cultures, especially in small scale societies such as hunter-gatherers and subsistence agriculturalists. According to the findings of these studies, it can be generalized that hunter gatherers tend to share food relatively widely and often beyond the kin level, while agriculturalists tend to share more restrictedly and often within the household. Although this general statement sheds light on how food is shared in different subsistence systems, it does not provide information on how food was shared during the transition from hunting and gathering to agriculture. Therefore, this thesis investigated the role of food sharing in early agricultural village Neolithic Çatalhöyük (7100 - 6000 cal. BC), in Central Anatolia. The research was primarily based on zooarchaeological analysis; but other lines of evidence were also discussed in

relation to the main findings. The results suggested that quotidian food sharing at both interhousehold and household levels were practiced at Çatalhöyük and that interhousehold food sharing was a significant habitual social practice. It is probable that the most common wild and domestic animals were shared at a suprahousehold level, while plant foods were not shared as widely. The results also showed that there was not any significant differentiation in meat access between households, suggesting that food sharing practices ensured equal access to meat. In addition to quotidian food sharing, this thesis provided information on food sharing in feasts. The analysis of bone clusters suggested that most feasts were small-scale events, involving a few families, and that these events emphasized food sharing and integration at a suprahousehold level. Overall, evidence from Çatalhöyük suggested that interhousehold food sharing contributed greatly to the long lifespan of this community. Furthermore, the exploration of interhousehold food sharing, a practice typically associated with hunter-gatherers, in an agricultural society emphasized the similarities and continuities between hunting-gathering and agriculture in this transitional period. Hence, this thesis highlighted the gradual and slow-paced nature of transition to agriculture.

To my husband

Tom Berlijn



Map 1 Central Anatolia, Turkey: Neolithic Çatalhöyük and contemporary sites (Hodder 2005:2)

Table of Contents

List of Tables

List of Figures

List of Maps

Acknowledgments

During my doctoral training, I've been lucky to have the help and support of many people.

My dissertation committee members have been tremendously helpful. I thank Professor Elizabeth Newman for joining my dissertation committee despite the late stage. I thank her for her questions and advice that led me to think about the broader aspects of my research. I thank Professor Douglas Baird for his valuable insights. It was a great opportunity for me to have someone with such expertise in Anatolian archaeology. I thank him for making me think about the dataset I had not considered extensively. I appreciate his input. I thank Professor Lisa Hildebrand for her comments on my writing, and on the general set-up of the dissertation. These comments improved the text greatly, and they will help me with my future research. I also thank her for her mentorship over the years. I feel lucky to have attended her classes as a TA; I have observed and learned so much from her amazing teaching ability. I also appreciate her open encouragement. Her positive feedback has helped me during the first few years of my graduate degree, and it has helped me again, during the past few months. I thank Professor Elizabeth Stone for her mentorship over the years, and her urging me to think about the broader aspects of my research, its relevance to the areas and time periods outside of my case study. I have always enjoyed archaeological discussions with her. I thank my dissertation advisor Professor Kathy Twiss for her extensive feedback and valuable perspective on archaeology and anthropology. My writing has improved beyond recognition thanks to her comments and corrections. I have appreciated and enjoyed our regular meetings and discussion. She always had time for me. I also thank her for treating me like a colleague from the moment she met me, even though I did not feel like a colleague or a scholar at the time. I thank her for her openness and for sharing all her resources when I needed help. And the bonus of it all has been the friendship we have developed over time. I am deeply grateful.

Other IDPAS faculty members have also made a difference in my training. I thank Professor John Shea for his mentorship about research and teaching during the first years of graduate school. I have also learned a lot from him about animal butchery and cut marks. I also thank Professors David Bernstein, Karen Kramer and Carola Borries for their support over the past years.

I thank Professor Nerissa Russell for her supervision in Çatalhöyük faunal lab. I have learned a tremendous amount from her about zooarchaeology. I owe her a huge deal! It was a great pleasure working with her.

I thank Amy Bogaard for the support and encouragement she has given me. I have been extremely lucky to have her input and to collaborate with her.

I thank Çatalhöyük Research Project for making it possible for me to conduct field research and for funding parts of my field work. This project not only provided an amazing research avenue, but also led me to have invaluable discussions with other scholars about my research. I especially thank everybody in the excavation team and the faunal remains team for directly contributing to the recording of the datasets I have used for this thesis. I thank Ian Hodder for all his encouragement, support and feedback on my research over the years. I have benefited greatly from his suggestions. Tristan Carter provided input on my cut mark analysis; his comments proved very useful. I thank Camilla Mazzucato for her great help with the GIS maps. Katy Killackey's detailed illustrations helped me a great deal in imagining and visualizing ancient food practices, her contribution was crucial. I thank Shahina Farid, Sheelagh Frame and Professors Katherine Wright, Sonya Atalay, Mihriban Özbaşaran, Louise Martin, Peter Biehl, Eleni Asouti, Arkadiusz Marciniak and Jacqui Mulville for supporting me and giving me feedback on my research. I also thank Professor Ian Kujt, whom I've met through the Catal project, for his feedback on my work as well as his encouraging words over the years.

My analysis has also been partly supported by a grant by co-PIs Kathy Twiss and Amy Bogaard through the National Science Foundation (grant # 0647131).

I thank my undergraduate advisor Professor Stephen Silliman for being a role model and his positive influence over me. I had the opportunity to learn from him both in the field and in coursework. I am grateful for his support, efforts and attention.

Sincere friendship goes a long way in the field: I thank Nurcan Yalman, Duygu Çamurcuoğlu, Duygu Tarkan, Başak Boz and Burcu Tung for their companionship as well as the invaluable discussions we have had on Çatal data. Christina Tsoraki, Lilian Dogiama, Kamilla Pawlowska, Liz Henton, Roddy Regan, Flip Ryan, Laura Greene, Erin Baxter, Dan Eddisford, Sheena Ketchum, Colleen Morgan, Muge Ergun, Lisa Yeomans, Hilal Gultekin and Patrycja

Filipowicz also provided friendship as well as scholarly feedback. I thank David Orton for many archaeological discussions as well as our friendship. I thank Gulay Sert for her support and friendship as well. I am very glad to have met all of these Catal friends, and I apologize if I missed anyone. Their friendship and collegiality has made a tremendous difference in my life.

Many IDPAS graduate students offered support and friendship, especially Roberta Salmi, David Fernandez, Mat Sisk, Thad Nelson and Jesse Wolfhagen. Three IDPASers in particular have made the biggest difference in my life: Helen Malko, Stephie Rost and Jenni Henecke. These three people have made me a better person and a better academic. I have the liberty to be exactly myself when I am with them. This is the most valuable friendship I could ever hope for.

I also thank my dear friend and housemate Irem Incekoy, with whom I have great memories of Stony Brook University. She helped make the campus home for me. I also thank my high school friends Zeynep Aktuna, Özge Nazlıoğlu and Aslı Belen for their support over the past few years. Their emails made me feel less isolated during the writing stage of my dissertation.

I thank my parents Enver & Sevgi Demirergi for always reminding me I am going to finish this program eventually! I thank my father for inspiring intellectual curiosity in me. I thank my mother for making it possible for me to work on my dissertation with a newborn. I thank my brother Doruk Demirergi for being supportive and caring. I thank my sister, Nalan Ward, for her tremendous support, particularly during the first years when I started my training in the US. I would not have become an adult without her help. I also thank my brother-in-law Andy Ward and their children Nora and Desi Ward for bringing love and joy to my life. My father-in-law, Aad Berlijn, helped me in many ways during the last year of writing, and I thank him for his efforts. His support means a lot to me.

Above all, I am indebted to my nuclear family. I thank my precious son, for being in my life and opening my eyes to an amazing world of infancy and toddlerhood. I thank my wonderful husband for never ever doubting that I can get my degree. He helped me get through my darkest hours. Tom, thank you for loving me for who I am. You mean the world to me.

Chapter 1

Introduction

Food sharing is a universal human practice, ranging from a mother nibbling off her child's plate to friends, relatives, colleagues, and mere acquaintances enjoying a holiday feast together. Humans share food to nurture themselves and others both physically and socially. They integrate themselves and others into, and exclude people out of, important social groups through food sharing. They carefully decide when, with whom, how much and what kinds of foods to share.

Humans share food in a wide range of groupings. In some cultures, food is shared daily within a nuclear family, in others it is shared within an extended family, a residential group, a neighborhood or the whole community on a daily basis, and yet in others food is shared regularly in groups separated according to gender. These commensal groupings do not form randomly; they develop through social connections. Hence, food sharing is practiced along social relationship lines and it reflects social organization. Cultural norms of food sharing provide an understanding of how everyday practices of commensality and food distribution relate to larger social organization. Everyday decisions about food sharing elucidate how social relations are created, maintained or undermined. Food sharing also relates to ideology; for example, a cultural group's perception of nature and food resources can greatly affect how they share food. In addition to sharing food on a daily basis, food can be shared in feasts. Feasts entail a special type of food sharing. Although they reflect daily food sharing practices in many ways, they also involve unique or special characteristics. Combining daily practices with special rituals make feasts powerful in reflecting and influencing social relations.

The social significance of food sharing has been anthropologically explored in small scale societies such as hunter-gatherers as well as among subsistence agriculturalists. Studies explore food sharing at various scales, such as nuclear family, residential unit, socioeconomic unit, neighborhood, task groups, gender groups, community, and society as a whole.

In general, hunter-gatherers share food widely, with all members of their band or analogous social group. However, there are differences between immediate-return and delayed-return hunter gatherers in terms of the degree of sharing. Immediate-return hunting and gathering means that humans have direct and immediate results in their efforts to get food (i.e. hunt animals and collect plants); food acquisition relies on relatively simple technology and not too much labor (although it certainly requires skill). Immediate-return hunter gatherers are often quite mobile and do not rely on food storage. Consequently food that is obtained gets distributed as quickly and as widely as possible before it spoils. Society members are typically expected to share all or most foodstuffs that they procured with everybody and food-sharing rarely entails formal expectations of reciprocity in return. Food sharing rules also relate to resource sharing; individuals in these societies usually do not claim ownership of natural resources. Although individuals/families may have some use rights over certain resources, these rights are flexible and changing. Therefore, individuals who want to use a resource associated with a particular person can often do so. In addition to daily food sharing, feasts may be held for celebrations and other special occasions in these societies. These events often involve the whole community and focus on social identity and communal solidarity.

Delayed-return hunter-gatherers may share food in more restricted ways than do immediate-return hunter-gatherers. They often spend a considerable amount of time and labor on food procurement, for example by building facilities such as nets, boats, and traps and by tending wild plants (Woodburn 1982: 432-433). These hunter-gatherers are often less mobile than immediate-return hunter-gatherers and they tend to rely on food storage. The energy-costly food procurement often practiced in delayed-return economies can inhibit generalized food sharing. Also, if physical food storage is available, it may not be necessary to share as quickly and widely as possible. Individuals or groups in these societies may also have use rights over resources, for example long-term use rights over cultivation areas. Consequently, these societies may share less widely and focus on sharing within relatively smaller groups. Feasts may signal inequality and competition to some extent between individuals. Storable foods may allow for lavish feasts.

There are also significant ideological factors that influence food sharing in hunter-gatherer societies. Both immediate and delayed-return hunter-gatherers commonly believe that the animals and plants are part of the social world just like humans, and that there is not a sharp distinction between nature and culture. In particular, animals are believed to share themselves with humans by letting themselves to be hunted, on the condition that the resultant food is shared as widely as possible. Consequently, both immediate and delayed-return hunter-gatherers make sure to share out the procured food equally and widely within a society and maintain good relations with the animals (e.g. Bodenhorn, 2000: 33-34; Ingold, 2005: 173). Therefore, even though delayed-return hunter-gatherers have a number of practical reasons (as outlined above) for not sharing food widely, there are many delayed-return societies that share food relatively equally among community members, possibly due to this ideology.

Small scale agriculturalists, which also depend on delayed-return subsistence, tend to share food most often within the household. They often spend even more time than the delayed hunter-gatherers in subsistence tasks like cultivation, herding and processing domestic crops. They rely on long- term physical storage of food, and individuals or social groups tend to own or claim use rights over resources. These economic practices imply that they typically do not share all food quickly and equally within a community. In addition, the fact that agriculturalists rely on domesticated rather than wild resources may mean that agriculturalists perceive nature differently than hunter-gatherers. Rather than viewing nature as part of the social world, agriculturalists may view nature as something to be controlled and this may further undermine generalized food sharing customs.

Hence, a rough generalization is that hunter gatherers tend to share food relatively widely and often beyond the kin level, while agricultural societies tend to share more restrictedly and often within the household. Although this general statement sheds light on how food is shared in different subsistence systems, it does not provide information on food sharing practices during the *transition* from hunting and gathering to agriculture. Was there actually a significant change in food sharing during this transition? If so how? If not, why ethnographically documented small scale agriculturalists share food differently than hunter-gatherers?

An investigation of food sharing practices in the time periods when societies first transitioned from hunting and gathering to agriculture can shed light onto social organization during this time period. It can help explain why hunter-gatherers and agriculturalists share food in such different ways. Therefore we need a deeper understanding of food sharing during this time period.

In this thesis, I investigate the role of habitual and festive food sharing in early agricultural village Neolithic Çatalhöyük, in Central Anatolia. I analyze zooarchaeological data to explore how food was shared in this settlement. I also discuss food sharing evidence available from other lines of evidence, such as botanical remains, pottery and ground stones.

Thesis Overview

Following this first chapter, Chapter 2 presents anthropological perspectives on how food sharing relates to social and economic organization in a society. I specifically explore how restricted interhousehold food sharing practices and suprahousehold feasting in early agricultural societies might have related to increasing household independence, reconceptualized rights to/control over resources and ideological factors of domestication.

Chapter 3 explores food sharing and its social and economic implications in the context of the Neolithic of SW Asia and, more specifically, of Central Anatolia. This chapter discusses how social differentiation, household independence and continued hunting and gathering practices relate to food sharing in Central Anatolian Neolithic.

Chapter 4 explores archaeological data relevant to food sharing and social organization from Neolithic Çatalhöyük. Chapter 5 uses zooarchaeological analyses of middens to investigate social differentiation and food sharing. Chapter 6 reports on faunal analyses of feasting remains and offers suggestions about the scale and nature of feasts at Çatalhöyük. It explores how big feasts were and what kinds of integrative and competitive elements were used in feasts. Chapter 7 analyzes cut marks found on Çatalhöyük animal bones and discusses these data in the context of cooking practices at Çatalhöyük. This chapter investigates the scale of quotidian consumption practices at this site. Chapter 8 provides a synthesis of the thesis, discusses the main results and conclusions, and pinpoints broader implications of this study.

Chapter 2

Anthropology of Food Sharing

2.1 Introduction

All human societies share food. Investigation of food sharing in a society can provide great insights into social organization. Therefore, food sharing has been anthropologically explored in different kinds of societies. As a rough generalization, hunter-gatherers tend to share widely and extend this practice beyond the household and in some cases beyond the kin level (e.g. Bodenhorn 2000: 47; Kishigami 2000: 178; Wenzel 2000: 63; Hovelsrud-Broda 2000: 206; Ziker 2005: 204; Damas 1972: 224; Kaplan & Hill 1985; Kitanishi 2000:160; Binford 1991:128). Sharing in these societies is part of daily consumption. Conversely, in hierarchical societies, food is not shared beyond kin on a daily basis. Instead, it is usually shared through large feasts or redistribution lines. What about food sharing in early agricultural societies? Given the social significance of food sharing, this topic of research can tell us much about social structures during the transition to agriculture. Unfortunately, food sharing patterns in early agricultural societies are underexplored. So far, three main lines of archaeological inquiry have been developed on this topic: First, the economic cost-benefit analyses of food sharing on a regular basis between early agricultural households. Second, inferences made on food sharing in early agricultural villages based on theoretical models of domestication and possible ideological differences between hunting-gathering and agriculture on. Third, the investigation of social and political aspects of feasting in transition to agriculture. There are important shortcomings in each of these lines of research: First, material correlates of daily suprahousehold sharing are not always present archaeologically; therefore the economic analyses often rely on ethnographic data from traditional agricultural villages. Second, inferences based on domestication models and ideological changes during transition to agriculture are too generalized to investigate the nature of food sharing in early agriculture. Third, although feasting is a significant social phenomenon, it may not be the only food sharing practice that is socially valuable in transition to agriculture. Quotidian food sharing can be just as important and is a key social practice in many societies. In this chapter, I first investigate suprahousehold food sharing in different kinds of societies, and then focus on agricultural food sharing and feasting models, discuss their limitations and offer new alternatives of food sharing during transition to agriculture.

Food sharing models for ancient hunter gatherers are mostly based on modern hunter-gatherer ethnography. These data suggest that food sharing beyond the household is a universal characteristic of modern hunter-gatherers (Enloe 2003: 1). Regardless of environment, subsistence strategy, absence or presence of storage, degree of mobility and involvement in cash economy, many modern hunter gatherers, both in immediate and delayed return subsistence patterns, regularly share food beyond the immediate family (e.g. Hovelsrud-Broda 2000; Wiessner 1980; Lee 1979; Hunt 2000; Kaplan and Hill 1985; Macdonald 2000). In addition to the ethnographic food sharing models, food sharing has also been archaeologically and ethnoarchaeologically researched to shed light on the food sharing practices of prehistoric hunter gatherers (e.g. Enloe and David 1992, Binford 1978; Marshall 1993; O'Connell, Hawkes & Blurton Jones 1988; Waguespack 2001; Yellen 1977; Hudson 1990; Gargett and Hayden 1991).

These studies have often concluded that archaeological evidence for food sharing may be severely underrepresented.

In hunter-gatherer ethnographies, food sharing is often studied from a functional or biological approach, focusing on the energetic and nutritional coasts and benefits of sharing vs not sharing beyond the immediate household or kin (Kaplan and Hill 1985; Bliege Brid et al 2002; Bliege Bird and Bird 1997; Ziker and Schnegg 2005; Betzig and Turke 1986). However, there are also a large number of studies on the social and political aspects of food sharing among modern hunter gatherers (Benz 2010: 2; Ichikawa 2005: 155; Fortier 2000; Macdonald 2000, Wenzel 2000; Bodenhorn 2005, Hovelsrod-Broda 2000; Peterson 1993). Especially, in cases where sharing does not seem to be economically advantageous, such as when storage technology is available or when sharing is practiced nonreciprocally, anthropologists investigated why people share food beyond their immediate family and pointed out the immense social prominence of food sharing and its key role in social integration (e.g. Wenzel et al 2000 ed?). In fact, many scholars have argued that food sharing customs have been vital in the survival of modern hunter-gatherer communities, provided them with flexibility and acted as social glue in times of conflict caused by poverty. Food sharing has also been argued to be crucial in expressing personhood and identity (Macdonald 2000). Additionally, in many hunter-gatherer societies, a person can achieve or maintain social status by his/her generosity and skills in distributing food equally (e.g. Whitehead 2000: 169).

Food sharing analogies based on modern hunter-gatherer ethnographies have to be applied carefully to the ancient hunter-gatherer societies as most modern hunter-gatherers live in marginal environments and they do not directly reflect ancient hunter-gatherer behavior. That said, most studies on food sharing among modern hunter-gatherer ethnographies conclude that this practice is a long term tradition that persisted through time despite drastic effects of sedentarization, colonialization, religionization and engagement in market economy, and that it was likely to have been prominent among ancient hunter-gatherers (Wenzel et al 2000, Gurven 2015).

The ethnographic studies attest to immense diversity in modern food sharing customs (Kaplan and Hill 1985: 223). There may be as many sharing systems as there are modern hunter-gatherer societies. This practice was probably just as diverse among ancient hunter-gatherers as it is among modern hunter-gatherers, even though archaeological evidence is too limited to show the whole range of food sharing patterns in the past. Further, given the diversity of food sharing patterns in the limited number of modern hunter gatherer populations, it is possible that this behavior was even more diverse in the past than it is now (also see Finlayson 2010: 20).

While many hunter-gatherers share food daily beyond the immediate family, ancient hierarchical societies did not do so frquently. Food sharing in these societies was often practiced through feasts and redistribution. Feasts are an important channel for manipulation of political and social relations in any society. Especially in early complex societies, feasts have been argued to have played an important role in the emergence of social hierarchies (Bray 2003: 1). In particular, overtly competitive feasting supported the public acknowledgment and legitimization of status differences in state societies as well as complex hunter-gatherers such as those of northwest coast North America (Bray 2003: 1; Mauss 1990: 74).

Although manipulation of power, competition and the exclusiveness of food sharing in feasts are often emphasized in complex societies, it has been also pointed out that these are important events for generating solidarity and ensuring cooperation in any society (e.g. Hayden and Villeneuve 2011: 436, Potter 2000: 472) These events played an important role in resolving conflicts, maintaining cohesion and alleviating wealth and status differences.

While food sharing as a daily practice among hunter-gatherers and food sharing as feasting in ancient hierarchical societies have been studied extensively, food sharing in early agricultural societies has not yet been explored sufficiently. This is partly due to the limitations of archaeological preservation. Although the food sharing inquiry in some archaeological sites of complex societies benefit from the ubiquity of material culture and available textual data (e.g. Cook 2005; Killen 1994; Palaima 2004), early agricultural sites offer limited material evidence for absence, presence or the nature of food sharing. Especially pottery remains, which have proved to be a very rich line of data for feasting in ancient complex societies (see Bray 2003), are found in much smaller quantities in early agricultural societies.

Despite the archaeological limitations, there are a number of important studies that discuss food sharing in early agricultural societies. Two main topics are prominent in these studies:

A. The first is the role of food sharing in the economic dependence or independence of agricultural households.
B. The second is the inferences of food sharing based on domestication models
C. The third is the role of feasts in social and political organization during the transition to agricultural villages.

2.2 Household Independence and Sharing as Risk Reduction

The first line of research in early agricultural food sharing depicts a picture where households are relatively independent units that share food between them mostly when it is economically necessary (Halstead 2004, Halstead 1999; Hegmon 313). According to this model, agriculturalists usually share less frequently than hunter-gatherers and sharing scope is more limited than in hunter-gatherer societies. Food sharing in this model is a method of risk reduction, buffering against risks such as disease, disability and crop failure (Halstead 1989; 2007; 2004; Benz 2010: 7 & 13, Hegmon 1991: 309-310).

Flannery (1972, 2002) proposed that early agricultural villages were made up of households that produced and stored food for their own use. Based on archaeological data from Mesoamerica and SW Asia, Flannery argued that the agricultural households were relatively independent and the risks were taken at the level of the household (2002: 424). This model implies that interhousehold food sharing was restricted.

Similarly, Halstead argued that ancient agricultural households were independent and shared food to a limited extent (Halstead 1999: 80-81, Pappa et al 2010: 81). Using traditional Greek villages as a model, he added that the limited and reciprocal food sharing between households was crucial for the survival of the households (Halstead 1999: 83 & 89).

Hegmon proposed a somewhat parallel model for the Hopi, Pueblo agriculturalists in southwest North America (1991). She suggested that the most advantageous strategy for a Hopi agricultural village was to practice restricted interhousehold sharing (1991: 319; 1996: 240). She ran a number of computer simulations with different food sharing scenarios and concluded that more households survived in the restricted sharing model, compared to the 'no sharing' and 'sharing all' (pooling) models (1991: 319). Hegmon also made an important point: There had to be variation between household supplies for this model to work (1991:312). If interhousehold variation did not exist, sharing would not be an effective buffering mechanism. This implies that that the households should be relatively independent so that the household resources such as indoor storage capacity, labor and surplus can vary from one household to another (although household demographic and life-cycle also contributes to this). In terms of interhousehold variation, Halstead's model implicitly depicted a similar picture to the one by Hegmon. Although Halstead did not discuss variation *per se*, he likely implied that some variability existed since the holds controlled their own resources (Halstead 1999: 90-91; Halstead 2007: 27).

Hegmon's argument about the necessity of variation appears logical. For restricted interhousehold sharing to be useful, some households should have larger amounts of surplus while others have smaller amounts. This would mean that the households should have some control over how much harvest they can collect and/or how many animals they can keep. In other words, the households should have some independence over use of resources. However, these models do not clearly discuss the issue of access to resources. What does household independence entail? Did each household have its own agricultural fields and herds? The current arguments in this topic and the limitations of the relevant archeological record will be explored in section 2.2.4 'Exclusive rights to resources'.

Although these models of household independence with restricted food sharing may be plausible, based on ethnographic data some of the underlying arguments are equivocal and need further investigation. These can be summarized as follows:

1. The presence of private storage (either outdoor storage associated with domestic buildings or indoor storage) has been suggested to contradict nonreciprocal suprahousehold sharing (e.g. Testart 1982: 523).
2. It has been argued that agriculture as a delayed return system involves harvesting in bulk, storing food and consuming throughout the year as opposed to collecting or hunting food, sharing extensively and consuming immediately. Hence, this implies a clear shift from sharing to storing with transition to delayed-return systems (e.g. Woodburn 1982: 431).

3. It has been argued that the presence of domestic equipment and evidence for small-scale food processing and tool making in houses point to self-sufficiency and household independence in consumption, processing and/or production.
4. It has been argued that household independence in early agricultural societies may have also entailed ownership or exclusive rights over land and animals. Hence households would have collected their own harvest and/or tended their own animals.

The current archaeological data is not substantial enough to support these arguments. Therefore scholars often rely on ethnographic data from traditional agricultural villages and theoretical models of origins of agriculture. I will now discuss and contradict these arguments by providing ethnographic data from societies that are traditionally known as 'hunter-gatherers' (i.e. former hunter-gatherers) but whose livelihood cover a range of subsistence strategies.

2.2.1 Private storage

Private storage does not necessarily have to eliminate frequent interhousehold food sharing. Ingold argued that the mere *practice* of storage does not automatically "introduce the possibility of hoarding and accumulation" in any society (Testart et al 1982 Ingold 1982: 532). Storage can be a practical solution for many hunter-gatherers (Testart et al 1982 Ingold 1982: 532) as well as agriculturalists without leading to hoarding and wealth accumulation. Sahlins argued that the main goal of a household in traditional farmers and hunter-gatherers is to maintain and reproduce itself rather than accumulating wealth (1972: 101). Families of the Inuit Nunavut community in Clyde River, Canada, who mostly live on hunting, fishing and wage employment, share stored meat between households frequently (Wenzel 2000: 66). Sharing often occurs within the extended family, of individual houses often not in close proximity to each other. There are also (commensal and non-commensal) food sharing events that involve the whole community (Wenzel 2000: 66-67). Food sharing rules among Nunavut can be extended to monetary transfers and equipment, and sharing can involve significant sums (Wenzel 2000: 76). Therefore, sharing is practiced extensively despite dependence on storage. Among the Inupiat hunter-gatherers of Alaska who rely heavily on hunting and fishing, the hunted animals are shared widely and generously even though individual households can store meat (Bodenhorn 2000: 30). Bodenhorn reported that to ensure a good whaling season, the Inupiat boat-owner "must have redistributed all of his previous year's share before setting out in the ice in the spring" (Bodenhorn 2000: 36). The whaling captain and his wife are obliged to share out all of their stores of whale meat "at several points during the year" (Bodenhorn 2000: 36). Wiessner argued that among the San hunter-gatherers in Southern Africa, storage existed alongside the traditional sharing system of hxaro. Some materials and foods could be stored while others were shared (Wiessner 1982: 82).

2.2.2 Delayed return systems

In immediate return economies, hunted game or collected food is typically distributed among the camp members, and consumed completely within a few days if not the same day. The wide distribution of food is seen as the most practical way of consuming food that can spoil quickly without refrigeration. These subsistence conditions have been contrasted with the delayed return system of agricultural practices to argue that generalized sharing and nonreciprocal sharing are not compatible with farming (Woodburn 1982: 431; Testart 1982: 526). The argument is that agriculture entails a shift from sharing extensively between households and consuming immediately to harvesting staple crops in bulk, and storing and consuming within the household throughout the year. However, in this argument, the contrast between delayed and immediate return systems is overstated. There might not have been a clear switch between sharing food immediately vs. sharing stored food throughout the year.

Alternatively, a change might have occurred incrementally without a clear cut-off point where generalized sharing ends and restricted sharing begins.

Peterson has argued that extensive food sharing persists long after hunting gathering stops among indigenous communities (2013: 166). According to Macdonald, Aboriginal Australian Wiradjuri people who depended on agriculture, pastoralism, market economy and government welfare and who have not been hunter-gatherers for at least a hundred years share food extensively and nonreciprocally beyond the immediate household (Macdonald 2000:88-89). Nunavut community in Clyde River hamlet in Canada share meat widely although their dependence on long-term meat storage and wage employment echoes a delayed-return system. Elders of the community get regular food shares from different households without any expectation of return. The Nunavik Inuits in Akulivik village Canada, who also rely on long-term meat storage and wage employment, share food widely, and direct requests of food and other necessities based on need are usually granted (Kishigami 2000: 179).

2.2.3 Domestic self-sufficiency

Archaeological data suggesting that a house has its own equipment for cooking and consumption often leads to the assumption that the house members mostly ate together and shared meals among themselves. However, architectural boundaries of a house do not necessarily correspond to the social groupings of food consumption.

The Nunavik community, in Akulivik village in Canada, who live on hunting, fishing and a significant degree of wage employment, live as nuclear families in separate houses. However, according to Kishigami's ethnographic work, the house members did not make up an exclusive unit of consumption (Kishigami 2000: 178). Meals typically involved unrelated neighbors and/or extended kin who did not necessarily live in the neighboring houses (Kishigami 2000: 178 & 186). One of the households observed by Kishigami consisted of a husband, wife and two daughters. At almost all meals observed over the course of a few weeks (17 lunches or dinners in total), several guests joined the family, some invited by the wife, others just appeared at meal times. The guests included extended family, friends, immediate neighbors and distant kinsmen (Kishigami 2000: 178). In another observation month in winter, Kishigami observed 28 meals, all of which, except two, involved guests. In another observation month in summer, only four out of 34 meals observed occurred without any guests. In sum, 90% of all meals observed included kinsmen and/or unrelated but immediate neighbors (Kishigami 2000: 178).

Similarly, in the Inupiat community in Alaska, who rely heavily on hunting and fishing, members of the commensal unit are different than the members of the architectural house (Bodenhorn 2000: 36). For example, unmarried children may sleep in one house and eat in another house (Bodenhorn 2000: 36). Barbara Bodenhorn observed a middle-aged couple and reported that about ten children other than the couple's own kids were fed and/or sheltered by them over the course of a year (Bodenhorn 2000: 40). Bodenhorn also pointed out that households she observed received food from an average of three sources from two or more communities, in addition to their own household members (Bodenhorn 2000: 42).

Likewise, in the sealing community of Isertoq, Greenland, food is shared between households regularly even though the household is a central unit (Hovelsrud-Broda 2000: 196). "The production, distribution and consumption activities in the village are all integrated in the household" (Hovelsrud-Broda 2000: 196), but individual members of the households constantly create sharing relationships with other individuals, and ultimately the household as a whole benefits from these relationships (Hovelsrud-Broda 2000: 196-197).

Gaynor Macdonald reported that among the Australian Aboriginal community, Wiradjuri, who depended on agriculture, pastoralism, market economy and government welfare, family meals commonly involved kinsmen who did not live in the same house (Macdonald 2000:94). Also, related children who did not share the same house appeared at meal times in households that had been cooking (Macdonald 2000:94).

Additionally, in an agricultural village, farming tasks in the fields may necessitate that those who stay in the village share meals in groups including people other than their co-residents. Those who labor in the fields may also share meals with members of different households. Renate Ebesbach documented that both N'dembu cultivators of Zambia, and the Kel Ewey Tuareg in Niger often ate in groups that combine members of different households (Ebersbach 2010:167-174). In the case of N'dembu cultivators of Zambia, households consisted of nuclear families. Men from different households ate together on a daily basis. Each man brought his own contribution of cassava to a common meal that was consumed together (Ebersbach 2010: 167). This suggests that men shared food daily and ate more or less equally in terms of food amount and quality despite the fact that they were from different households.

In the case of Kel Ewey Toureg in Niger who lived on a mixed economy of garden cultivation, pastoralism and trading, the households were large (about 10 people), involving both nuclear and extended family structures. In the main village, the household owned a compound with a house and a granary (Ebersbach: 173). The members of households were often divided up between the main village and the grazing camps. In the main village, food was often consumed by groups that combined members of different households. In the camps, every family brought their own supplies, and these were cooked and consumed together (Ebersbach 2010: 174).

Therefore, communal cooking among Kel Ewey Tuareg ensured that food is shared regularly between members of different households.

Although a substantial amount of food may be shared between households through daily sharing practices, it is rarely possible to detect these practices archaeologically because they would either not be preserved or look like quotidian small-scale meals cooked in houses or in the field. Therefore, architectural evidence does not reflect all sharing possibilities. Sharing of food can easily crosscut the residential boundaries without leaving substantial archaeological evidence. Food consumption and sharing activities throughout the day can be so spatially widespread that it is inadequate to limit their context to the boundaries of houses.

2.2.4 Exclusive rights to resources

Although architectural data on domestic equipment and small-scale domestic work may point to a *degree* of self-sustainment in early agricultural societies, it identifies nothing about ownership or right of use of fields and animals. Mainly, it is not clear from the archaeological data whether households held separate fields or not, whether these fields were permanently owned by them or rotated between households, and whether the households had full control over their harvests or not, and whether they owned their animals/herds or not.

Due to the limitations in the material evidence, only a few insights have been provided so far. For example, Halstead, partly based on data from rural modern Greece, suggested that independent households likely owned their own animals, but that any animal larger than a suckling lamb/kid would have been shared beyond the household due to practical problems of storing meat without refrigeration (Halstead 2007: 29; 2004: 157). According to Halstead, this is not only a practical solution but also the best possible way to convert meat that would be spoiled otherwise into a reciprocal expectation in the future. Hence, exclusive rights would lead to a system of reciprocal interhousehold sharing for risk reduction.

Hegmon used Eggan's (1950) ethnographic data on Hopi socioeconomic organization to refer to land rights and interhousehold variation in surplus. She pointed out that the household was the basic unit of economic activity in Hopi society, but the land was controlled by the lineage (Hegmon 1991: 314; Eggan 1950: 29). The household members worked the land and claimed the harvest they collected (Hegmon 1991: 314). This arrangement implied that there may have developed variations in surpluses according to how much a household can harvest as well as according to the size and productivity of the land controlled by the lineage. Hence, exclusive rigths to resources would have resulted in interhousehold variation, and this variation would have made interhousehold food sharing for risk reduction effective.

In another study dealing with *large* early agricultural settlements with agglomerated agriculture, Bogaard and Isaakidou suggested that land might have been owned communally and plots redistributed among lineages or households to avoid disparities in production between plots that are nearby versus those distant from the settlement (Bogaard and Isaakidou 2010: 197). The implication is that there might have been interhousehold variation in surplus in these villages, but the variation would be dampened to some extent through land redistribution. This might even have made sharing for risk reduction ineffective or unnecessary. Hence, redistribution of resources might have been an alternative to exclusive rights and sharing for risk reduction.

Tomkins suggested an alternative scenario to challenge the model of independent households with exclusive rights in the context of Neolithic Greece. In this model, "people lived in separate households, but constituted themselves communally" (Tomkins 2007: 192). Tomkins argued that the power of individual households to produce, store and hoard would be restricted because of the ‘dominant socio-economic position of supra-household or communal groupings” (Tomkins 2007: 192). Land would be held in common and the harvest would be distributed equally.

Ethnographic evidence attests to a range of possibilities of rights over resources. For example, among the Australian aboriginal community Walpiri, who live as nuclear family units and depend on several sources of income including welfare, employment, owning a cattle farm and making traditional artwork, rights to certain sites and landscapes are acknowledged as long as people keep caring for that site, otherwise the rights can be denied or taken over by someone else (Dussart 2000: 87-90). Similarly, among N’Dembu cutivators in Zambia, every household have its own garden plots, house and supplies, but the garden plots belong to the household as long as its members clear and use the land. Otherwise, “there is no concept of land owning rights” (Ebersbach 2010: 167). Among the San hunter-gatherers in Southern Africa, who live as nuclear families, ‘ownership’ refers to having first access to a site, but others who demand access are rarely refused (Lee 1979: 93).

In addition, rights over animals and secondary products can be partial and livestock may often be loaned from one household to another. Ethnographic evidence suggests that agricultural households may often borrow animals from each other and share the secondary products and offspring. For example, both Hutu farmers in Rwanda and farmers in Yasin Valley Pakistan could often borrow an animal from other families to use its milk, dung and traction power and to keep some of the offspring. This practice helped poorer families start their own herd or enabled them to become part of a larger social network (Ebersbach 2010: 173).

Therefore, in early agricultural societies, several scenarios of use rights would have been possible. Households might have had communal ownership of some resources and not others, or rights might have been based on use, care or labor investment rather than being permanent.

In terms of ownership of fields and crops, each household might have had more or less the same degree of access to the agricultural fields. This would be the case if all the land was owned collectively, or if all households had plots that were comparable in size and quality or if the households rotated the plots between them to eliminate long term differences in field size and soil quality. This would minimize the differences between households in terms of access to fields and crops. If so, the harvest size of a household would depend largely on how much labor it can contribute to the farming activities (see Gurven 2010: 55). Gurven suggested that households that can provide more labor to the communally owned lands can harvest more produce (2010: 55). Therefore household demographics would play a great role in harvesting success of a household. For example, if a family member is sick, this would affect the volume of the harvest surplus that a household can collect. Alternatively, if children or elderly members were recently added to the households, this would require a larger harvest amount than before. In these cases, the household might have demanded a share of surplus from other households. This may fit the models of 'demand sharing' described in some former hunter-gatherers (e.g. Peterson 2013, Macdonald 2000; Wenzel 2000: 3). Demand sharing can be described as "an obligation to give on demand" without an expectation of return (Macdonald 2000:91). The demand is made based on need, but giver does not oblige with the anticipation that the favor will be returned when he/she is in need (Macdonald 2000:97). By making a demand, a person maintains his/her autonomy while at the same time asserting him/herself as a member of that community (Macdonald 2000:97). By obliging to the demand, the giver expresses belongingness to that community, maintains his/her social status and may gain *some* prestige through giving rather than accumulating (Macdonald 2000:97). However, not demanding anything, demanding without need, giving too much and giving without a demand are all disapproved on the basis that they encourage inequality, too much independence (Macdonald 2000: 98 & 100). Demand sharing might have helped early agricultural households without creating a long-term balanced reciprocity.

Alternative to the above scenario where each household had comparable degrees of access to land and harvests, there might have been a communal arrangement for harvest distribution. This arrangement would mean that all households had common access to the land, collected the harvest communally and divided it equally between families, regardless of labor contribution of each household. This is a sharing system similar to the generalized meat sharing patterns observed among hunter-gatherers. In this sharing pattern, there would not have been much variation in surplus between households due to differences in labor contribution. In this case, sharing for risk reduction might have been unnecessary or pointless because there would not have been many houses that have extra surplus to share. Archaeologically, all houses would show evidence for private storage and domestic food practices, there probably would not have been much interhousehold variation in surplus. However, this may not be detectable if houses do not reveal any surplus remains in the first place.

In terms of animal ownership, if animals were owned by households (regardless of whether these animals were herded communally or separately) there might have been variation between families in terms of access to meat and opportunities to share meat. This might have resulted in restricted interhousehold sharing. However, if animals were owned communally or by large subsections of the village community, and equal sharing of meat took place, then, the restricted interhousehold sharing model would not have been as useful since there would have not been much variation between households. Assuming that household discard is archaeologically detectable, the archaeological signature of the household ownership scenario may reveal some evidence for interhousehold variation in the distribution of animals or animal parts. Whereas the archaeological signature for the communal ownership scenario may only reveal separate houses with indoor storage and domestic equipment without substantial interhousehold variation in faunal distribution.

In sum, domestic self-sufficiency does not necessarily lead to exclusive rights over resources and communal ownership does not always have to be reflected in the architectural evidence. Further, in economic terms, it is not entirely clear why early agricultural households would own their own stock and/or fields. While Halstead suggested that animals were owned by individual houses, and those larger than a suckling lamb were usually shared out in Greek Neolithic villages, Nanoglou justifiably questioned why the households would own the animals in the first place if they were going to share out most of them (2008: 152). In addition, Halstead himself pointed out that agricultural tasks would have been too extensive for an individual household to handle, and that interhousehold cooperation was necessary (Halstead 1992: 23; 1999: 83 & 89). If so, it might have been more practical to own resources communally to begin with (Nanoglou 2008: 152).

So far, I have focused on the economic approaches to food sharing in transition to agriculture. However, ethnographic data suggest that daily food sharing cannot be understood on purely economic terms. In fact, Peterson (1993) argued that the social significance of sharing is much more important than any cost-benefit analysis of functional models. Macdonald argued that among the Australian Aboriginal Wiradjuri community, food sharing is first and foremost an expression of personhood, sociality and power (Macdonald 2000:89). She suggested that the food sharing system among the Wiradjuri people is a “system of social relationships within which goods and services are circulated” (Macdonald 2000:90). This brings me to the second line of research on food sharing: the potential ideological impact of domestication on food sharing.

2.3 Food Sharing and Ideology

There are two general arguments that relate ideological changes in domestication to food sharing in early agricultural villages.

1. It has been argued that domestication of plants and animals entailed different ideologies than subsistence on wild species. Some domestication theories imply that while foragers carefully maintain good relations with animals by sharing out the hunted meat equally and extensively, farmers’ relationship to nature is based on human control, and there are not any obligations to share out.
2. Extensive sharing practices of hunter-gatherers is generally related to an egalitarian ideology (e.g. Wenzel et al 2000: 2; Hunt 2000: 10 & 21, Woodburn 1982: 432, Rowley-Conwy 2001: 65). This has been contrasted with possible non-egalitarian ideologies that the early agricultural societies might have developed and the ways in which these ideologies resulted in the restriction of food sharing (Woodburn 431-432).

Concerning the domestication of plants and animals, although there may be many kinds of ideological differences between subsisting on wild species and subsisting on domesticates, an overemphasis on the differences results in a dichotomy between the ideological aspects of procuring/sharing wild species and those of producing/storing domestic species. However, we do not know whether these dichotomies existed during the transition to agriculture.

According to ethnographic studies, many hunter-gatherer societies believed that plants and animals were gifts of nature, they shared themselves with people and they allowed themselves to be consumed by people with the condition that they are shared extensively (Ingold 2005: 169, 2000: 44). According to Bodenhorn, the members of the Inupiat community in Alaska believed that whales do not return unless the whale meat is distributed fairly and all the stored meat is shared out.

Ingold argued that the act of sharing food widely is connected to a worldview in which humans think of themselves as living alongside and in cooperation with plants and animals. In this view, hunter-gatherers do not see a difference between humans and other species or a difference between nature and culture (Ingold 2005: 169). Non-human species are active participants of the social world (Ingold 2005: 169), whether they are wild or cultivated. Therefore, when nonhuman species share themselves with humans, humans should also share the species amongst each other (Ingold 2000: 44). This worldview is in contrast with the possible worldviews proposed for early agriculturalists. It has been suggested that subsisting on domesticates entail a focus on human intent to transform the environment (Cauvin 2000: 128?) or human control over it (Hodder 1990: 12). For example, while Ingold (2000) argued that hunter-gatherers do not see a difference between humans and other species, Cauvin (2000) argued that farmers make a conceptual difference between themselves and other species. Further, Cauvin argued that this change in conception was an ideological revolution that led to the domestication of plants and animals (2000). Deriving from his thesis, Hodder suggested that the Neolithic cultures in Europe developed the concept of 'domus' which represented sedentary life with domesticated animals, plants and cultivated land (1990). According to Hodder, this was juxtaposed with the concept of 'agrios' which represented the uncontrolled world, hunting, wild life, that is, the world outside of domestication and sedentary life (1990). The domestication model of Hodder emphasized that there was a conceptual shift in how domesticates were viewed and a strong separation between them and the wild species: The domesticates were considered part of human's world whereas the wild beings made up a separate realm. Although this model is useful, it also leads to strong dichotomies such as domestic-wild, sedentary-mobile and collector-producer and understates the possibly gradual nature of the changes that occurred in early agricultural life (see Verhoeven 2004: 211). Further, the juxtaposition of hunting and gathering vs domesticating have led to a dichotomy between sharing wild species and storing domesticates (e.g. Halstead 1999: 86).

While models of transition to agriculture make simple contrasts to explain complex and long-term processes, they evidently understate the potential *similarities* between hunting-gathering and agriculture. Many scholars also emphasized the gradual nature of this transition (e.g. Helmer 2008; Verhoeven 2004; Willcox 2001; Hodder 2003; Rindos 1984; Ammerman and Cavalli-Sforza 1984; Kuijt 2009), but the main focus is still on the changes that developed with domestication. I believe an overemphasis on the differences between the two subsistence systems is partly responsible for the proposition that food sharing beyond the household changed significantly in early agricultural societies. The underlying assumption is that if domestication is such a revolutionary change, then food sharing beyond households which is so prevalent among hunter-gatherers must also have been turned on its head during this transition.

However, it is not clear how quickly after domestication a society would have become dependent on agricultural lifestyle and experience drastic changes. In addition, the degree of dependency might have related to the scale of the community. For example small scale horticulturalists have been observed to engage in substantial hunting and fishing rather than depending fully on agriculture (Gurven 2010: 50). Further, different species were domesticated in different places at different times (see Pinhasi and Pluciennik 2004: 74?; Willcox 2001). Therefore it is just as difficult to define a starting point for the restricted sharing practices as it is to define a beginning point for fully agricultural villages. If the domestication of species affected food sharing between households, then it possibly led to small, rather than significant, changes in food sharing, and these changes were of different character in different settlements.

Exploring the role of long lasting practices that connected hunting-gathering to agriculture may be crucial in understanding food sharing in early agricultural societies. Ethnographic data refers to the important role of food sharing in maintaining cohesion and communal identity at times of change and uncertainty. These studies suggest that food sharing is as a fundamental daily practice ensured cohesion, provided flexibility and allowed former hunter-gatherers to survive through changes such as sedentarization, colonialization and engagement in market economy (Wenzel et al 2000: 77-79, Gurven 2015; Fortier 2000: 119). Macdonald argued that among the Australian Aboriginal Wiradjuri community, who depended on agriculture, pastoralism, market economy and government welfare, the mode of circulation did not change even though the mode of production has changed significantly (Macdonald 2000:90-91).

Verhoeven focused on the prolonged nature of the domestication process (Verhoeven 2004: 218-219 & 222). He refused the wild vs. domestic dichotomy and questioned the assumed differentiation between nature and culture, mobility and sedentism, and sharing and storing (2004: 206-207 & 210). He proposed that the main changes that occurred with domestication were ritual rather than economic 2004: 211). He suggested that rituals were used heavily to deal with the changes that occurred in the dynamic relationship between humans, animals and plants and argued that the changes developed gradually through quotidian ritual practices (2004).

Ingold had also challenged the traditional dichotomy between gathering and cultivation, arguing that the difference between the two is in the extent of human effort put into "establishing the conditions for growth" (2000:86-87). Among hunter-gatherers, the natural and the social worlds is usually perceived as one and the same, and the act of sharing food widely is connected to the worldview in which humans think of themselves as living alongside and in cooperation with plants and animals (2000). If the difference between gathering and cultivation is a matter of *degree*, than it is possible that agriculturalists also carried these beliefs to some degree. If so, early agricultural worldviews may not necessarily be completely opposite to the hunter-gatherer worldviews on nature's cooperation and active participation. Further, domesticated and wild species might not have been considered completely different from each other. Hence, they might have been viewed as active and social agents not just in hunting and gathering, but also in cultivation and domestication. If this worldview was the basis for a strong sharing ethos among many hunter-gatherers, then it is possible that early farmers also believed in some of these views and practiced frequent suprahousehold food sharing. Gurven and colleagues have provided quantitative data from horticulturalist populations on criteria such as status differentiation to suggest that "domestication alone does not transform social structure" (Gurven et al 2010: 49).

Another ideological approach to food sharing during transition to agriculture relates to egalitarianism. According to Ingold, egalitarianism has to do with the hunter-gatherer worldviews of sharing (described above). Many hunter-gatherer communities assert egalitarianism by disengaging people from possessions (Woodburn 1982: 445), which is partly accomplished by extensive food sharing. However, this does not mean that hunter-gatherer individuals have no possessions at all. Among the Inupiat of Alaska, individuals are allowed to hoard, but “a lot of food travels from hunting families to non-related, non-productive members of the community” (Bodenhorn 2000: 43). Among the San people, sharing and hoarding are practiced side by side (Wiessner 1982: 82). Therefore, hoarding and egalitarianism are not necessarily incompatible (see Speth 1990).

In early agricultural societies, inhabitants might have hoarded many possessions as well as food in houses, but there might also have been pressure to share and limits to how much a household could possess or store due to an egalitarian worldview.

2.4. Food Sharing and Feasts

So far I have explored the restricted suprahousehold sharing model for early agriculturalists through practical, economic and ideological approches. Now, I will discuss the social and political motivations for interhousehold food sharing in early agriculturalist societies. The social and political aspects of food sharing have been mainly explored under the topic of feasts.

Feasts have been studied from various viewpoints. Brian Hayden (2009) emphasized the competitive aspect of feasts and their use for manipulation of power. He suggested that ambitious individuals who organized feasts for gaining political status catalyzed the production of surplus which led to the domestication of certain species.

Halstead emphasized the important role of feasts in negotiating social relationships (Halstead 2007: 42) and mitigating social inequality in Neolithic Greece (2012: 38). He suggested that feasts at this time focused mostly solidarity and equality (2012: 38). Surplus might often have been shared through feasts or used to fatten the animals that will be shared out in feasts (2012: 38). According to Halstead, this was practical and strategic since it imposed obligations to reciprocate in kind, with labor or in other ways (2012: 38). He argued that Neolithic feasts were not highly competitive and they expressed social distinctions only to a limited extent (2012: 38). However, the ostentatious aspect of feasts increased over time as households became increasingly isolated through Late Neolithic and Bronze Age in Greece (Halstead 2007: 43).

There are two points that are problematic in Halstead's argument. First, we do not know how reciprocal (i.e. 'balanced reciprocity' *sensu* Sahlins 1972) the food sharing practices in feasts were in Neolithic Greece. Ethnographic evidence suggests that food sharing involved in feasts can often be nonreciprocal. For example, among the Inupiat, reciprocity is not expected in large feasts (Bodenhorn 2000: 33). Among Wiradjuri, sharing is practiced irrespective of what may or may not be offered in return (Macdonald 2000: 91 & 97). In Torajan village Kanan in Indonesia, solidarity feasts do not focus on reciprocity (Adams 2004: 61). Neither weddings or "New House" feasts among the Akha in northern Thailand (Clarke 1998: 162). Therefore we do not know if the feasts were given in order to secure economic return in future. Second, it is not clear how increasing household isolation related to increasing competition. Increasing household isolation might have resulted in an increasing need for integration rather than competition.

The PPN feasting model proposed by Twiss may shed light into this second issue. She argued that while a feast may have an explicit and primary social purpose it commonly serves multiple functions and signal multiple meanings (2008: 419). According to her, this quality made feasts suitable for dealing with cultural changes during the development of dense and complex PPN settlements in the Levant. She argued that the multifaceted character of feasts played an important role in integrating a community while also allowing competition between households in these settlements (Twiss 2008: 436). According to her model, feasts increased in size and scale throughout the Prepottery Neolithic: While the feasts might have been hardly necessary for integrating the small PPNA communities at the origins of agriculture, they became crucial for bringing the large MPPNB and LPPNB communities together. At the same time, these events provided a socially appropriate way for hosts to compete with one another and gain political influence. The competitive component of feasts at this time might have helped enhance social distinctions without provoking open conflict (Twiss 2008: 436). Hence, the feasts might have been quite suitable for negotiating competition vs integration during transition to agriculture.

The integrative aspects of feasts have also been emphasized by Bogaard and colleagues (2009). They emphasized the role of feasting in resolving interhousehold conflicts and counterbalancing household storage practices in the SW Asian Neolithic site Çatalhöyük. They argued that the integrative role of feasts complemented the increasing household independence, and that it helped underplay the potential differences between household surpluses. Their study suggested that the household was the unit of consumption and plant processing, and that the habitual food sharing was restricted to the household itself. The household storage capacity was large enough for a family's annual requirements plus a modest level of surplus ('normal surplus') (Bogaard et al 2009: 661-664). However, they pointed out that the plant and animal foods seemed to be shared in different ways: While plant foods were shared within the household, wild cattle was shared beyond the immediate household. Their evidence suggested that plants were processed inside the houses on a piecemeal fashion and consumed indoors by the household members, while wild cattle were consumed in suprahousehold feasts. Although Bogaard and colleagues followed Flannery's independent household model, they also challenged his model in two ways: First, they were cautious not to assume that the unit of processing and consumption equals the unit of production; it is not clear if individual households owned and harvested their own fields and herds, or harvested plots from communally owned fields or communally owned and harvested all the fields. Second, they pointed out that the scale of storage in the houses seemed relatively limited (2009: 664-665) and proposed that some of the surplus might have been mobilized beyond the household rather than having been stored. They suggested that household independence in small scale processing and consumption of plants went hand in hand with interhousehold sharing of large game (Bogaard et al. 2009: 664-666). These activities complemented each other by providing household autonomy as well as communal integration.

In sum, the degrees of integration and competition in feasts may shed light on food sharing and social organization in transition to agriculture. However, archaeological bias in the preservation of feasting remains raises two problems. First, the material evidence favors large scale feasts over smaller scale sharing practices. Given the social significance of feasts, this may lead to a misrepresentation where feasts are seen as the only avenue of social negotiation in ancient agriculturalists, reducing daily sharing practices to purely practical and functional activities. However, ethnographic evidence suggests that daily food sharing beyond the household is a highly, and at times purely, social endeavor (e.g. Macdonald 2000:89). That said, it must be noted that feasts and quotidian food sharing activities might not have had the same role or social impact during transition to agriculture. Twiss pointed out that the transformative character of feasts can play an important role in the course of profound social change (Twiss 2008: 418).

The second problem caused by the archaeological bias in the preservation of feasting remains is the underrepresentation of plant remains and smaller animals. Although meat may be the most universal food component of feasts, most will also include plant foods despite their paucity in archaeological evidence. In addition, in some archaeological sites, large feasts may emphasize the consumption of wild and large rather than domesticated animals (although some of this evidence may be genuine, rather than archaeological bias). Therefore the use of plants and domesticated animals have already been ethnographically pointed out (e.g. Dietler 2000). Here, I would like to point out a few important uses for plants and domesticated animals in feasts:

- Unexpected situations that call for feasts are great candidates for the use of plant foods and domesticated animals because hunting may not be possible. For example, funeral feasts may have to rely more on domestic animals and plants. Feasts given for unexpected visitor may also call for the use of domesticated plants and animals. Some feasts may require the guests to bring food (e.g. Clarke 1998). Thus, the guests may be obliged to bring whatever is available to them, such as food made from domesticated animals and plants. Unplanned death of a domesticated animal may also call for a feast.

- Domesticated crops can be the main food items that accompany meat in feasts (Clarke 1998). Further, there may be feasts dedicated to certain crops, such as the rice fertility ceremonies among Akha in northern Thailand (Clarke 1998: 18 and 25-26)

- Feasts can be given not only after the hunt of a large game but also after a substantial collection of wild food such as fish or plants (e.g. Baka agriculturalists, Kitanishi 2000).

2.5 Conclusions

It has been suggested that in transition to agriculture, food sharing practices became restricted to the household, sharing beyond household became limited in extent. This transition has been argued to be a part of increasing household independence in several regions of the world (e.g. North America, SW Asia, China), and has been suggested to be a risk reduction mechanism. However, there are several problems related to this model. First, it is not clear what household independence entailed in early agricultural societies. So far, the evidence for household independence has been based on the self-sufficiency suggested by the domestic buildings, materials and storage. However, ethnographic evidence suggests that many delayed-return societies that seemingly live in independent households share food beyond the household on a daily basis, share rights to resources between households and are *interdependent* to some extent. Therefore, the current archaeological data may also be reflecting alternative scenarios that involve household interdependence and frequent interhousehold sharing. First, households might also have been relatively independent on certain aspects of life such as daily food processing while interdependent in other aspects such as food production. Second, for restricted sharing to function as a risk reduction mechanism, there has to be variation between households in terms of the amount of surplus or access to resources. However, so far, there is not any substantial evidence that points to such variation in archaeological record (although this may be due to archaeological bias). Third, the restricted sharing has been assumed to be a form of balanced reciprocity. However, early agricultural households might have practiced nonreciprocal or asymmetrical forms of food sharing that may or may not completely even out in the long run. For example, demand sharing might have been practiced, especially if there were any variations between households. Fourth, it is too simplistic to treat food sharing as a risk reduction mechanism because it always entails a strong social component. In fact, some ethnographers argue that food sharing is more about sociality than it is about what is being circulated or shared. In addition, many have argued that food sharing provided modern hunter-gatherer communities with flexibility and played a key role in their cohesion and survival in times of conflict. Daily or frequent suprahousehold food sharing in early agricultural villages might also have been crucial in maintaining integrity in the face of changing subsistence practices. Fifth, while some origins of domestication models emphasize the changing worldviews that accompanied domestication and imply that the suprahousehold food sharing ethic faded with domestication, it must be noted that early agriculturalists might not have experienced drastic changes in how they perceived their environment. The gradual and the context-specific nature of the transition to agriculture in different parts of the world might have made sudden changes in food-sharing worldviews unlikely. Sixth, in the investigation of non-economic aspects of food sharing, ‘former hunter-gatherer’ ethnographic studies prove most useful as they explore the whole range of social aspects, worldviews and ideologies of food sharing. Therefore, studies of food sharing in transition to agriculture must take full advantage of hunter-gatherer ethnographies, and not just traditional agricultural village ethnographies. Based on ethnographic data provided in this chapter, food sharing beyond the household might have been a significant integrative practice during the transition to agriculture.

Seventh, archaeological study of feasts does not cover the whole range of festal foods or whole range of food sharing activities. Although this line of research have proved invaluable to exploring transition to agriculture, the role of small scale quotidian food sharing have remained underexplored. Habitual suprahousehold food sharing among early agriculturalists might have had a crucial role in maintaining social integration and dealing with subsistence change.

Chapter 3 Food Sharing in Neolithic Southwest Asia

3.1 Neolithic Southwest Asia

In the previous chapter, I have explained how the model of restricted interhousehold food sharing relates to household independence, ideologies of domestication and the feasting practices during transition to agriculture. In this chapter, I discuss this model as it applies to Neolithic SW Asia. In this context, I focus on four topics: interhousehold food sharing, household independence, communal mechanisms for social integration and the absence/presence of social hierarchy. I first discuss the existing Neolithic SW Asian model, and then propose two more models that deal with varying degrees of household autonomy, interhousehold food sharing, communal mechanisms and social hierarchy.

3.1.1 Independent Households and Restricted Food Sharing Model

This model is mainly based on the well-known work of Flannery (1972), which proposed that the farming household became the unit of food production and acted as an independent socioeconomic unit in early agricultural villages. According to him, the Neolithic period involved two main stages: The first stage involved small settlements with typically oval-shaped structures and outdoor storage probably used collectively, as seen mostly in the Natufian and the PPNA periods of the Levant area (1972: 31). The second stage involved mostly rectangular houses that are large enough to hold a nuclear family and indoor storage that was probably used by the nuclear family only, as seen typically in the PPNB period of the Levant (1972: 39). Hence, Flannery suggested that the reorganization of society into nuclear families allowed for private storage, surplus accumulation and *eventual* differentiation between families (1972: 40 & 45). Flannery later added a third stage that involves the development of extended family household due to the limited capacity of nuclear families to handle agricultural tasks. Households in these settlements consisted of multiple structures or house compounds (2002: 424).

Influenced by this model, a number of scholars have suggested the rise of independent households in Neolithic SW Asia (e.g.) and investigated the relationship between household independence, interhousehold food sharing, storage, communal activities and differentiation in prehistoric settlements (Byrd 1994, 2005; Banning 1998 (Banning, Edward Bruce, 1998; Bogaard *et al.*, 2010; Bogaard *et al.*, 2009; Byrd, B., 2005; Byrd, B. F., 1994; Demirergi *et al.*, 2014; Goring-MorrisBelfer-Cohen, 2008; Kuijt, Ian, 2008, 2009; RollefsonKöhler-Rollefson, 1993; Twiss, K. C., 2012). Byrd suggested that early villages in SW Asia were characterized by restricted sharing networks and communal practices aimed to integrate the households that became increasingly isolated and independent in production and consumption (1994: 639 & 660). Other scholars also pointed out increased household autonomy and social segmentation throughout the Levantine Neolithic (e.g. Banning 2003; Kuijt 1994, 2000, 2011, Kuijt 2000, Rollefson 1997, 2004: 147). Banning concurred that MPPNB villages in the Levant "consisted of nuclear-family households" (2003:14) and that the accumulation of surplus within the house ultimately led to the replacement of an egalitarian organization by competition between households for wealth and status (Banning 2003: 5). Düring and Marciniak also argued for increasing household independence during the later levels of Neolithic CH (2005: 180). In addition, Wright argued that the Neolithic transition was characterized by changes in cooking, dining and storage practices in the Levant. She suggested that during the early and Middle PPNB people used cooking facilities and storage features outdoors and that "food preparation provided opportunities for social contacts" (Wright 2000: 89 and 111). In contrast, in the Late PPNB these facilities were placed private spaces, relatively hidden in view (Wright 2000: 89 and 114), suggesting that domestic work became increasingly private. Her study emphasized that the food practices in the Neolithic SW Asia point to increasing household independence and isolation between houses.

Although, the archaeological evidence may suggest independent households in early villages mainly based on architecture, private storage and domestic equipment, there is also some contradictory evidence. Finlayson and collegues (2011: 130) questioned the development of independent households in Southern Levant and suggested that the PPNA houses were not built specifically as nuclear-family houses. Instead the houses seem to have different functions. Düring and Marciniak suggested that the earlier Neolithic levels at CH were characterized by *interdependent* households organized as house clusters (2005: 178-179). Therefore, the development of nuclear household as a domestic unit may not be applicable to all cases in this region.

In addition to restricted food sharing and household independence, scholars explored the possibility of social hierarchy in these villages. While some studies argued for emerging social differentiation in this time period, the presence/absence of social stratification has been unresolved, largely due to lack of substantial material evidence.

The research on social hierarchy is largely influenced by Childe's argument that the changes in the Neolithic period of SW Asia led up to the Urban Revolution, which involved social and economic hierarchy (1936: 105). If households in Neolithic SW Asia were autonomous and they held private storage, differences in accumulation could have been created and the households might have used surplus for competition and gaining status. In addition, Byrd's (1994) model of restricted interhousehold sharing coupled with communal mechanisms implied that Neolithic societies that consisted of increasingly isolated units could have disintegrated unless there were leaders with higher status who helped maintain the integrative mechanisms (see also Halstead 1989 for similar arguments regarding Neolithic Greece).

Further, the scheduling of agricultural activities in villages necessitated community level mechanisms (Plog 1990: 190). It has been argued that social crowding would have been a major source of conflict in SW Asian Neolithic villages (Kuijt 2000: 93-95). Many scholars argued that population density increased during the LPPNB in the Southern Levant and led to new kinds of pressures on the communities (Bar-Yosef and Meadow 1995; Belfer-Cohen and Goring-Morris 2011; Bocquet-Appel and Bar-Yosef 2008). Byrd added that larger villages would involve a complex social structure, and leadership positions for supra-household decision making would have been necessary (Byrd 2005: 266). Thus, there are indications that social hierarchy would have emerged due to social crowding, agricultural tasks, social stress, competition and variation in surplus accumulation.

However, archaeological evidence for social hierarchy is difficult to be found. The material evidence for social hierarchy, as well as for social differentiation in terms of variation between houses is often absent. Skull removal and selective subfloor burials may signify the existence of leaders to some degree, but these practices are not necessarily exclusive to gender or age categories (Bonogofsky 2001). It has been argued that there is little evidence to suggest gender hierarchy in the Levant in this time period. Banning pointed out that PPNB sites point toward “relatively small variation” (2011: 639) between houses (also Banning 2003:14; Goring-Morris 2000). In some sites, such as Nevali Cori, Cayonu, Beidha, Jericho, certain houses seem more special or different than the rest, but they were likely used communally (Byrd 1994: 659-660; Kenyon 1954: 107,Schirmer 1990: 382 & 385, Ozdogan and Ozdogan 1989: 70-71, Mellink 1993: 109). The lack of clear evidence for social differentiation or social hierarchy may partly be due to the biases in the archaeological preservation and recovery of materials. It may also be due to the fact that social ramifications of farming and storage practices might not have developed as soon as soon as agricultural villages developed (see Kuijt 2008). In addition, it has been argued agriculture alone does not explain inequality and that different components of agricultural life differentially effect social differentiation. Gurven et al argued that *intensive* agriculture and the presence of scarce and defensible resources is necessary for significant inequality to develop (Gurven et al 2010: 49). Based on wealth measures from four horticultural societies that practice low-intensity agriculture (p 54) and in which access to resources such as land and animals is not too restricted (Gurven et al 2010: 61), they argued that wealth distribution is relatively egalitarian and intergenerational wealth transmission may be typically low in horticultural societies although they practice agriculture. Shenk et al measured intergenerational transmission of wealth in eight preindustrial agricultural societies that practice intensive agriculture in a range of geographical areas and argued that intensive agriculture and the transformation of land into heritable wealth played a significant role in the emergence of intergenerational wealth transmission (2010: 65-66 & 70).

Although the archaeological evidence for social hierarchy is equivocal, theoretically, one might expect social hierarchy if the households were completely independent. The prevention of social hierarchy requires significant interhousehold cooperation which automatically compromises the independence of a household. Hence, one can argue that if the households were independent, then they would have limited interhousehold cooperation and allowed social hierarchy to eventually develop. Even if communal mechanism counteracted household isolation and integrated the separate households, if the households were independent, interhousehold differences would have likely occurred. If so, there is an inconsistency between the lack of evidence for social hierarchy and the proposed model of independent households.

Beyond the absence/presence of archaeological evidence for social hierarchy, ethnographic research on House societies has also contributed to the exploration of social hierarchy in prehistory. In these societies, House is basically a social institution that organizes social relations. Along the lines of House membership and through ritual practices related to these Houses, social status can be reproduced and transferred through generations. House in this context may refer to a physical structure and its residents as well as other individuals and nonmaterial wealth (Gillespie 2000: 1-2). Originally based on Levi-Strauss' (1988) ethnographic account of House societies, this topic have been ethnographically explored by many scholars and/or used as analogy for ancient societies around the world (e.g., Beck 2005; Gillespie 2000; Hodder 2010; Kuijt 2000; Watkins 2004; Carsten and Hugh-Jones 1995). Through House society models, scholars investigated whether leadership roles might have been passed down through generations or not, and the potential archaeological correlations of social institutions in material culture.

This line of research has been useful for prehistoric archaeologists for a number of reasons:

- House society models explore how status can be reproduced and transferred through generations. These models also help explore how status distinctions might have emerged between houses as individuals sought privilege by claiming links to the histories and roots of certain houses and ancestors (see Beck 2005: 15).

- According to ethnographic accounts, membership to a House does not necessarily rely on lineage in these societies. Therefore they provide a flexible model potentially applicable to prehistoric cultures that do not consist of classes or lineage groups or cultures where genetic relationships cannot be archaeologically discerned (see Gillespie 2000: 1-2). House societies emphasize a dynamic way of forming affinities and social groups as the membership to a House is not predetermined by lineage.

- The House concept involves not just residents of a house, but also individuals and actions beyond a house itself, therefore, as During suggests, the house society concept helps shift our focus from "individual households to relations between households"(Düring, Bleda S, 2007: 131). Mills also pointed out that this concept helps explore the relations between entities rather than the entities and categories themselves (Mills 2014: 161).

- The focus on continuity and the development of houses through time helps explore diachronic changes apparent in the archaeological record.

One prominent line of evidence that has been explored in many SW Asian Neolithic sites is chronological continuity in the house structures. In other geographical areas, scholars have explored the role of continuity and social memory in organizing a community (e.g. Hamilakis 1998; Hendon 2000; Joyce and Gillespie 2000). In SW Asia, Hodder and Cessford pointed out that continuities in house structure and layout through time in many sites reflect the emphasis on dwellings, temporal depth, history and social memory (2004: 108). Guerrero and colleagues argued that quotidian practices in and around the houses underneath which predecessors were buried reaffirmed the links between household members and their lineage (Guerrero et al 2009: 388). According to Kuijt (2009) social memory was created through communal rituals, in connection to the built environment, and it helped create collective identity and integration (2001: 95).

However, despite the heuristic benefits, house society models are not always applicable to prehistoric societies as 'strong analogies' (*sensu* During 2005: 132). Beyond architectural continuity and its potential correlation to subfloor burials, it is difficult to archaeologically pinpoint what a House is or demonstrate its social status, especially if it involves more than just the people and the objects it harbors. In addition, the high status or economic power of a House can be materially masked in House societies (Mills 2014: 168). Even if we can explore the House society concept in the context of SW Asian Neolithic solely on the basis of architectural continuity and ritual activity, it is not clear how exactly the organization of a House society related to social hierarchy in this time period. On one hand, the presence of Houses may point to social hierarchy. Gillespie pointed out that power differences in House societies tend to be prominent (although without class-based relationships) (Gillespie 2007: 40-41).

Archaeologically, it has been argued that potential Houses at Neolithic CH in SW Asia, apparent through diachronic architectural continuity, held a distinct, and possibly higher, status, particularly in terms of access to or control over social memory (Hodder 2010: 183). In addition, the architectural continuity in Neolithic SW Asia may point to ownership of house plots and inheritance of wealth. Shenk et al (2010: 79) pointed out in their ethnographic study that land ownership can indeed play a significant role in the emergence of inequality. Hence the house continuity in SW Asian Neolithic may imply social hierarchy. On the other hand, Houses might have maintained controlled the limits of social differentiation and social hierarchy. Kuijt pointed to the potential role of Houses and mortuary practices in developing a shared social memory in MPPNB Levant (2001). He proposed that although the house continuity entailed a distinction and might have implied inheritance and ownership, social differentiation increased only in a controlled manner (Kuijt 2011: 506; 2001: 89) and egalitarian practices limited the power and authority that can be accumulated by a particular House (2002: 141). Hodder also argued that Houses maintained a determinedly egalitarian system at Neolithic Catalhoyuk. Hodder's argument is likely based on the lack of wealth accumulation and material differences between houses at this site. Social hierarchy and egalitarianism might not necessarily have been mutually exclusive, but, if House society models are to be applied to SW Asian Neolithic, the lack of differentiation in some of the sites compared to the ethnographically documented House societies has to be accounted for (see Mills 2014: 179-180). Alternatively, the House Society model can be used as an exploratory tool, and certain elements in this model, such as social relationships that override kinship, can be used to investigate social organization.

The egalitarian aspect of social life in this period has been emphasized by many scholars, which brings me to the last component of the independent households model: Cohesive mechanisms. It has been suggested that increasingly formal and institutionalized mechanisms were crucial in maintaining community integration in this period (Byrd 1994: 639). The use of nondomestic buildings for communal activities might have been the major means to integrate villages of households that were increasingly isolated and independent in production and consumption (Byrd 1994: 660). Many SW Asian Neolithic sites contain such nondomestic architecture, such as 'Ain Ghazal, Beidha, Cayonu, Gobekli Tepe, Jerf-el Ahmar and Jericho

(Banning, E. B., 2011; Byrd, B. F., 1994: 646; C *et al.*, 2000; Kenyon, 1954: 107; ÖZdoganÖZdoĞAn, 1989: 70-71; Rollefson, 1998: 45). Communal rituals involved in mortuary activities might also have been used to counterbalance increasing household autonomy. Kuijt pointed to the instrumental role of these rituals in dissipating social stress in the PPN period of southern Levant (1996: 322, 2011) and argued that these rituals were about maintaining an egalitarian organization (Kuijt, Ian, 2000a).

In addition to mortuary activities, feasts also likely provided cohesion. Twiss argued that feasts were used as an integrative mechanism in MPPNB and LPPNB in Southern Levant (Twiss 2008: 436). She suggested that feasts gained importance as inter-household differentiation and social complexity increased in this period, and that these events became a leveling mechanism while at the same time allowing for political enhancement of social divisions to some degree (Twiss 2008: 436).

In sum, the current model suggests independent households connected through restricted interhousehold sharing and integrative mechanisms and differentiated by possible, but probably limited, social hierarchy. I have suggested that theoretically, such a model would require social hierarchy and probably more evidence on hierarchy than it is currently apparent in the archaeological record. Alternatively, the society could be organized along more egalitarian heterarchical social configurations. Further, the independent household model deals with only one end of a spectrum, along which household independence can vary in terms of different elements, such as food production and consumption. I propose two more alternatives to explore this spectrum.

3.1.2 Partially Independent Household Model

In this model the households would have been independent in certain ways, but not in others. For example, each household might have had use rights of some resources while sharing others. They may have had private storage for plant foods while sharing all animal foods extensively. They may also have shared certain tasks such as making crafts, tools or pottery for domestic use, while separating out for other domestic activities such as food processing. These houses would have plausibly shared food on a regular, perhaps frequent, basis. Feasts might have been held for integrating the households, among other reasons. Although there might have been social differentiation as well some economic variation between households, there would not have been hierarchical differences. Integration between households based on quotidian domestic tasks as well as food sharing would have thwarted any household from becoming too independent or accumulating wealth.

In this scenario, extensive interhousehold sharing might have been accomplished through social pressure and demand sharing. Demand sharing can be described as "an obligation to give on demand" without an expectation of return from the demander (Macdonald 2000: 91, see Chapter 2). Peterson pointed out that demand sharing is commonly practiced among both immediate and delayed return foragers (1993: 860). He argued that demand sharing has great social significance in egalitarian societies (1993: 860). Rather than unsolicited giving, which can be interpreted by the receiver as a behavior that encourages inequality (Macdonald 2000: 98 & 100), demand sharing is interpreted as an assertion and an expression of autonomy on the part of the demander (Macdonald 2000: 97). In addition, demand sharing can be compatible with storage in the sense that one does not have to share anything unless having been asked. It is possible to store and accumulate food and goods (Peterson 1993: 867-869) and it has been documented that some can even deliberately hide their possessions to avoid giving, despite potential consequences of conflict (Peterson 1993: 868). Hence, in this model, partially independent households might have maintained a degree of interdependency through demand sharing. Sharing in this scenario might have been practiced as a result of social pressure, as a reaction to accumulation by some households, and as a response to possibly increasing differentiation, rather than as an act of generosity. In this light, if feasts might have been seen as unsolicited giving and disapproved. Thus, feasts would have to downplay the role of the giver and emphasize solidarity. However, it is also possible that the role of feasts in social organization was different then the practice of demand sharing; feasts might have been used as a means of self-promotion.

3.1.1 Interdependent Household Model

This model supposes that the households were not independent and that they shared food and resources between them on a regular, perhaps frequent, basis. There might have been some social differentiation between houses, but there would not have been significant economic variation or social hierarchy between houses. Extensive sharing of resources would have prevented wealth accumulation and significant variation. According to this model, feasts did not function as leveling mechanisms because there were not any significant variations between houses. Nonetheless, the feasts would have been held for myriad cultural reasons.

The last two models not only emphasize the interaction between households, but also the role of mundane practices such as quotidian interhousehold food sharing and consumption in social organization. Habitual practices can highlight the most basic social rules and reflect the social structure of a society. These models suggest that the reasons for food sharing in Neolithic

SW Asia would not have been restricted to risk reduction, and the context of food sharing would not have been restricted only to feasts.

3.2 Neolithic Central Anatolia

In this chapter, social organization of Central Anatolian Neolithic will be investigated through four main topics: (1) household independence, (2) social differentiation and hierarchy, (3) mechanisms for communal integration and (4) interhousehold food sharing.

The role of households in Central Anatolia has been investigated in a number of sites. These are Boncuklu Höyük; Aşıklı Höyük, Çatalhöyük, Can Hasan III and I, Tepecik Çiftlik, Pınarbaşı and Köşk Höyük, in approximately chronological order.

Aceramic Neolithic site Boncuklu Höyük is a permanent, but only partially agricultural, site that may provide some information about household organization in Central Anatolia. The site revealed a low density of houses with extensive areas of middens (Baird *et al.*, 2012: 232). Area K at this site revealed six ellipsoidal buildings reconstructed on top of one another. It is interesting that these houses were continually built over the older ones even though there were spaces in between the houses for building other houses (Baird *et al.*, 2012: 234). These houses contained hearths, raised clean floor areas, subfloor burials, plaster installations and paintings (Baird *et al.*, 2012: 224-226). One (unexcavated) building in this sequence had clay-walled features that may be storage bins (Baird *et al.*, 2012: 224). However, in general there was little space for storage capacity in the houses (Baird, 2012a: 452). Baird suggested that the Boncuklu houses belonged to nuclear families and that house sequences may have been occupied through family generations (2012a: 449-450). He pointed out that the layout of the buildings was similar throughout the sequence, although there was also a few variations (Baird *et al.*, 2012: 227). The use of internal space was structured in that NW side of the house always contained the cooking area and was dirtier than the SW side, which often contained subfloor burials (Baird *et al.*, 2012: 227). Although the domestic features of the houses may suggest some household autonomy, the limited storage capacity may indicate a low degree of autonomy and the parallels between the layouts of the houses may suggest possible suprahousehold traditions in house construction.

Düring and Marciniak (2006) have extensively discussed household organization in the two most well-known sites of the subregion: Aceramic Neolithic Aşıklı Höyük and Aceramic and Ceramic Neolithic Çatalhöyük. These sites are characterized by agglutinative architecture (i.e. houses with narrow spaces in between) and house entrances from the roof (Düring, Bleda SMarciniak, 2006: 170). Based on these sites, Düring and Marciniak argued that households in Central Anatolia were not autonomous units for the most part of Neolithic, but that there was a relative increase in household independence in the Late Ceramic period apparent from the later levels of Çatalhöyük architectural data (2006: 182-183). According to their analysis, Aşıklı Höyük houses were organized as neighborhood communities and likely shared facilities and resources (Düring, Bleda SMarciniak, 2006: 174). Further, Çatalhöyük Aceramic and Early Ceramic levels were organized in a similar way, but the Çatalhöyük houses were generally more autonomous than the Aşıklı Höyük houses (Düring, Bleda SMarciniak, 2006: 177). The authors pointed out that the house layouts in the sequential houses in both sites stayed unchanged through generations rather than having been architecturally modified according to each family's demographic changes, such as birth, death and marriage. This suggested that the houses were not privately owned, and that people moved from one building to the next according to their needs (Düring, Bleda SMarciniak, 2006: 175), although there is no other evidence to support this arguement. Further, the authors suggested that the notable similarity in size and internal organization of houses within these sites would not have been observed if the houses were individual competing units (Düring, Bleda SMarciniak, 2006: 179).

The authors contrasted this evidence to the Late Ceramic levels (i.e. Mellaart Levels V through I) of Çatalhöyük where they argued that the houses became increasingly autonomous. (Düring, Bleda SMarciniak, 2006: 181). They supported this argument by suggesting that neighborhood communities and the sequential reconstruction practice were abandoned and replaced by individual houses with larger open spaces around them. However, house continuity does not completely disappear in these levels; in one area of excavation (South Area) there is at least one sequence of continuous houses that date to the Late Ceramic Period Levels specified by the authors. This building sequence covers Buildings 65, 56, 44 and 10 (Hodder, 2014b: 6; ReganTaylor, 2014: 131) which date to sometime between Mellaart V and I (Hodder, 2014b: Table 1; HodderFarid, 2014: Table 1.3.). The authors also supported their argument by pointing out Conolly's suggestion that the late ceramic lithic industries may reflect craft specialization at Çatalhöyük (1999: 798-799). However, new data have led to a reappraisal of this suggestion, proposing that the change was more gradual and less dramatic than previously thought and that it was not necessarily a switch towards a more skilled lithic technology (Carter *et al.*, 2006: 907). In fact, Düring and Marciniak themselves also suggested that the changes in the Late Ceramic Neolithic at Çatalhöyük were not as dramatic as previously thought (2006: 176). Therefore, it is debatable whether there was a significant change towards increasing household independence or not in Late Ceramic Çatalhöyük. This topic is analyzed further in Chapter 5.

Can Hasan I and III, which together cover a time span from Aceramic to Late Ceramic Neolithic (French *et al.*, 1972; Steadman, 2000) have also contributed to the investigation of household organization in Central Anatolia. The 8th millennium mound Can Hasan III dates to

Aceramic period, while Can Hasan I dates to the Ceramic Neolithic and Chalcolithic periods (French *et al.*, 1972). Agglutinative architecture typical to Aşıklı Höyük and Çatalhöyük has been observed at Can Hasan I and III mounds as well. The houses are one or two-roomed, separated by party walls or walls that were built adjacently. This is generally similar to Aşıklı Höyük and Çatalhöyük plans, except that Çatalhöyük buildings are multi-roomed and typically bear their own walls. Like in Aşıklı Höyük, small courtyards in Can Hasan I and III are interspersed between the houses and were probably used communally (Steadman, 2000: 178). There are storage facilities associated with a few houses, but there is not any evidence for extensive household storage (Steadman, 2000: 177). The subsistence economy (i.e. plant cultivation, hunting and possibly herding) and the architectural layout did not change significantly through Aceramic and Ceramic Neolithic layers in this site (Steadman, 2000: 176). The minimal use of storage, the party walls, the building uniformity in size and construction and the communal use of courtyards suggest that the houses may not have been autonomous units at Neolithic levels of Can Hasan mounds.

There is some information on household organization at Ceramic Neolithic Köşk Höyük as well. Öztan pointed out that the architectural layout of the settlement was similar to Çatalhöyük and Aşıklı Höyük, with an agglutinative plan, uniform internal layouts and similar domestic features in houses (2012: 32-33). Some houses had storage, but these were not extensive in capacity (Baird, 2012a: 452). Occasionally the inner layouts of the buildings were changed, and some ovens, hearths and storage units were moved outside of houses (Öztan, 2012: 33). These outdoor features may suggest interdependency or sharing of tasks between the houses.

Another Ceramic Neolithic mound settlement, Tepecik Çiftlik, revealed a different architectural layout. At this site, rather than an agglutinative plan, the houses had open spaces between them and there were not any sequential house reconstructions (Bıçakçı, 2012: 93-94). In fact, there was considerable variability from one occupation level to the other (Bıçakçı, 2012: 93-95). Also, compared to the other sites, architecture was more dynamic; rooms and storage spaces were added or blocked often (Bıçakçı, 2012: 91-93). This dynamic change within an occupation phase may suggest that the house architecture was adjusted to the possible changes that occurred in the household, such as birth, marriage, death and wealth accumulation. This is in contrast to what Düring and Marciniak suggested about agglutinative architecture layout and house clusters where people move through the buildings according to their needs: At Tepecik case, it seems that families adjusted the architecture according to the needs of the households, instead of moving from one building to another (2006: 175). Although it is unclear how much household storage space there was, small rooms adjacent to the main rooms observed in some buildings might have been used for storing food (e.g. Bıçakçı, 2012: Fig. 28). In sum, it is possible that the distinct architecture of Tepecik Çiftlik indicates a different socioeconomic organization. The non-agglutinative architecture may suggest that the households were relatively more autonomous. However, there is so far not any other evidence that support this suggestion.

Central Anatolian sites also provide some information about the absence/presence of social differentiation and social hierarchy. At Boncuklu Höyük, Aşıklı Höyük, Çatalhöyük and Köşk Höyük burial goods, personal ornaments and idiosyncratic designs on portable tools and jewelry suggest individual distinctions (Baird *et al.*, 2012: 235; NakamuraMeskell, 2014: 453; Ozbasaran, 2012: 143; Öztan, 2012: 35). Epipaleolithic rock shelter occupation in Pınarbaşı (Area B) also revealed grave goods that may indicate personal differentiation early on in this subregion (Baird, 2012b: 186). In addition to burial goods, being buried under a house floor might have been a social distinction in and of itself: At sites like Aşıklı, Boncuklu, Çatalhöyük and Köşk Höyük it is probable that not everyone was buried under the house floors (see Baird *et al.*, 2012; HodderCessford, 2004: 22 & 31; Ozbasaran, 2012: 140; Öztan, 2012: 35). Individuals of distinct status might have been selected for this treatment.

Although the current evidence suggests that social differentiation probably existed at least in some sites in Neolithic Central Anatolia it is more difficult to pinpoint social hierarchy in this time period. The differentiation detected in these sites through subfloor burials did not reveal a pattern that is based on age or sex that would suggest clear hierarchy (e.g. Hillson *et al.*, 2013: 385-386; Ozbasaran, 2012: 140). However, at Çatalhöyük, the burial goods favored children and older adult burials, therefore these age groups probably had marked status (NakamuraMeskell, 2014: 454). Additionally, unlike other Central Anatolian sites discussed here, Aşıklı Höyük architecture revealed a special building complex that may indicate social hierarchy. This complex differed from the site's residential area in architectural plan, construction, floor painting, interior furnishings and the amount of large cattle bones (Ozbasaran, 2012: 138-139). However, it is not yet clear whether this was a structure reserved for socially distinct individuals/groups or if it was a place used communally for special events (Ozbasaran, 2012: 140).

In addition to data on burial goods and special buildings, it has been suggested that a potential association between the number of subfloor burials and the degree of architectural continuity in sites such as Boncuklu and Çatalhöyük implies some kind of social hierarchy (e.g. Baird, 2012a: 453; Düring, Bleda S, 2007; HodderPels, 2010: 164). These studies suggested that the sequential houses are reminiscent of ethnographically studied House societies, where certain 'House' affiliations can foster differentiation and social hierarchy (see previous section). Burials in these houses may reflect House membership and/or high social status. Baird suggested that houses were central to the social order in Central Anatolian Neolithic and that the continuity reflected an effort to stay close to the ancestors who lived and/or were buried in the houses below the new ones (2012a: 453). He suggested that the household identities developed early on in Central Anatolia, apparent from the sequential houses and the subfloor burials in Aceramic Neolithic Boncuklu Höyük (2012a: 453). At this site, houses were deliberately reconstructed on the same spot even though there was extra space around the houses to build new dwellings (Baird *et al.*, 2012: 234). Regarding Çatalhöyük, Hodder and Pels suggested that the sequential houses at this site were not only distinct in continuity of architecture and internal layouts, and the number of subfloor burials, but also in the relatively limited size of storage and processing spaces in these houses (2010: 175-176). Hence, the sequential houses may have specialized in or controlled ritual production and they may have been provisioned food by others (HodderPels, 2010: 178). Further, the house sequences arguably increased their elaboration through time by accumulating bucrania installations, horns cores and a larger number of individuals in burials, implying that the houses may have become increasingly more distinct throughout a sequence at Çatalhöyük (HodderPels, 2010: 178). Mills suggested that House affiliations may have represented sodalities that focused on religious practice (2014: 162). Although sequential houses may reflect a distinct practice, it is not clear how this related to hierarchy: As Hodder himself pointed out, the non-architectural data, namely botanical, obsidian points, health and diet markers and burial goods, did not suggest a correlation between sequential houses and differentiation (Hillson *et al.*, 2013: 385; Hodder, 2014b: 5). The only possible correlation found was that the people buried in history houses may have had less workload, based on the fact that osteoarthritis was less severe in these individuals compared to the individuals buried in other houses (Larsen *et al.*, 2013: 402).

Carleton et al further discussed the material inconsistencies in the Çatalhöyük House society model, arguing that the house sequences are not necessarily associated with higher numbers of burials (Carleton *et al.*, 2013). However, this study may be incomplete as it does not incorporate the most current data on architecture and burials (Hodder *in press)*.

Overall, if house continuity was a source of any distinction in ritual production, it is not clear how it related to distinctions in health and economics, and whether it led to social hierarchy or not. As Baird pointed out, although House as an institution might have controlled access to ritual resources at Çatalhöyük, there is not any evidence that it accumulated significant economic capital (2012a: 453). Deriving from North American Southwest archaeological and ethnographic research, Mills pointed out that suprahousehold affiliations such as Houses are commonly used as a means to create and maintain power even if the material correlations of inequality are not apparent (Mills, 2014: 168). Although Mills' suggestion is plausible for the Çatalhöyük case, it is also possible that the House society organization worked differently or without significant hierarchy at Çatalhöyük and possibly other Central Anatolian Neolithic sites.

As valuable as it is to discuss questions of social segmentation, it is also necessary to explore possible mechanisms of cohesion within Central Anatolian Neolithic societies. As the first sedentary communities in this subregion, how did they resolve conflicts and lived together for centuries? Boncuklu, Çatalhöyük, Köşk Höyük and Tepecik Çiftlik all lack monumental architecture that can reflect collaborative work and communal events (Aşıklı Höyük building complex T might have been a monumental structure). However, other architectural characteristics in Central Anatolia may point to different types of communal interaction. Agglutinative layout, seen at Aşıklı Höyük, Çatalhöyük, Can Hasan III and I and Köşk Höyük may reflect a tendency for households to stay connected to each other. The similarity of house layouts within sites such as Boncuklu, Aşıklı, Çatalhöyük and Köşk Höyük (Baird *et al.*, 2012: 227; Ozbasaran, 2012: 139; Öztan, 2012: 33) suggest that the house construction was an integrative event that was carried out communally and in the same way every time. Courtyards seen at Can Hasan III were probably communally used (Steadman, 2000: 178) and provided opportunities for suprahousehold interaction. The sites that were not characterized by courtyards, such as Çatalhöyük and Aşıklı Höyük, had open midden areas of various sizes that were probably also used communally (Ozbasaran, 2012: 139). The roof entry to the houses seen in these sites also suggests that the roof tops were used as a communal area for quotidian activities and interaction (Ozbasaran, 2012: 139). The special complex at Aşıklı Höyük might also have been used for communal events (Ozbasaran, 2012: 140).

Although these practices might have played an important role in solidarity, their significance in household integration is unclear. Because the evidence for household independence is debatable, the role of these mechanisms in relieving interhousehold tension is also debatable. Integrative mechanisms might have served many purposes other than improving interhousehold relations, such as facilitating interaction between individuals, between suprahousehold groups and between humans, animals and spiritual beings.

Material evidence in Central Anatolian Neolithic sites also hints at the nature of food sharing practices. Partly due to the diverse environment in this region, the Central Anatolian Neolithic sites reveal various subsistence practices. However, one characteristic in common is the significant use of wild resources in all sites throughout the period. This consistency may imply a long-term emphasis on sharing wild resources between households. Aceramic Boncuklu Höyük depended heavily on wild resources, especially wetland taxa such as fish, bird and reeds, as well as other wild plants and animals such as cattle, boar, cervids, nuts and fruits (Baird *et al.*, 2012: 230-233). Cultivated cereals and sheep/goat (domestication status unclear) were also used, but only to a minor extent (Baird *et al.*, 2012: 230-233). Ceramic Neolithic seasonal hunter/herder camp site Pınarbaşı (Area B), which may have been used by nearby settlement Çatalhöyük, revealed wild as well as domestic animals (Baird *et al.*, 2011: 383). Aceramic Aşıklı Höyük and Aceramic-Ceramic Çatalhöyük sites used significant amounts of cultivated plants and domesticated (or 'managed' in case of Aşıklı Höyük) animals, but always in tandem with wild resources: More specifically, Aşıklı Höyük inhabitants used sheep/goat (not morphologically domesticated, but managed) and cultivated cereals and pulses, but they also hunted game such as cattle, boar, horse, deer, and collected wild nuts, fruits and chick peas (Ozbasaran, 2012: 142). Çatalhöyük residents consumed domesticated sheep/goat as well as cultivated cereals and pulses, but they also hunted cattle to a significant extent , and other wild taxa such as equids to a minor extent (Bogaard *et al.*, 2013: 95; Bogaard *et al.*, 2009: 661; Russell, N. *et al.*, 2013: 205 & Table 11.1). Although the number of cattle specimens may be less than that of sheep/goat at Çatalhöyük, the cattle meat likely played a major role in the diet (Russell, N. *et al.*, 2013: 205). In terms of plant foods, Çatalhöyük inhabitants relied on a range of wild (e.g. fruits, nuts, wild chick peas and tubers) and cultivated plants rather than a single staple (Bogaard *et al.*, 2009: 661). Can Hasan I and III may have had a somewhat similar subsistence economy to Çatalhöyük in that wild cattle was used in significant numbers in addition to (possibly domesticated) sheep/goat (French *et al.*, 1972: 188-189). Ceramic Neolithic Köşk Höyük and Tepecik Çiftlik displayed even greater dependence on wild resources. These sites revealed high rates of wild animal specimens and they were never completely reliant on herding and agriculture (Bıçakçı, 2012: 102; Öztan, 2012: 45).

The limited storage space in Central Anatolian houses also suggest that a significant proportion of food was shared beyond the household. For example, Boncuklu Höyük had little storage capacity (Baird, 2012a: 452). Storage at Aşıklı Höyük houses was not common either (Ozbasaran, 2012). Similarly, most houses at Can Hasan mounds did not have designated storage space (see Steadman, 2000: 177). In contrast, Çatalhöyük houses had storage rooms and facilities indicative of a 'normal surplus' (i.e. sufficient annual storage plus some surplus for possible risks) (Bogaard et al 663). However, Bogaard et al suggested that the storage capacity at Çatalhöyük was restricted compared to the storage volumes in traditional farming villages in SW Asia (Bogaard *et al.*, 2009: 662-664). At Köşk Höyük, houses had some storage facilities, but in limited capacity (Öztan, 2012). At Tepecik Çiftlik, some houses may have had storage features (see Bıçakçı, 2012: 91-93). In sum, storage was certainly used at Central Anatolian Neolithic houses, but in limited capacity. It is entirely possible that perishable storage containers were used widely, but it seems that the inhabitants did not built expansive facilities for large-scale surplus in houses.

Interhousehold food sharing may also be considered as part of a long-term Central Anatolian Epipaleolithic-Neolithic tradition. Baird argued that many Neolithic period developments in this subregion originated from a local Epipaleolithic tradition (2012a: 445; 2012: 232). The presence of a temporary hunter gatherer settlement at Pınarbaşı Rock Shelter suggests that Central Anatolia had already been occupied by hunter-gatherer communities towards the beginning of the Holocene (Baird 185-186). These communities seem to have developed local Neolithic traditions and gradually established the first Neolithic villages in the area (Baird, 2012a: 440). Concurring with this suggestion, indigenous domestication of caprines is proposed based on the evidence that Aşıklı inhabitants held captive and managed morphologically wild sheep/goat (Buitenhuis, 1997; Stiner *et al.*, 2014). The microlithic characters of the Epipaleolithic Pınarbaşı B and the Neolithic Boncuklu Höyük also support the suggestion of a prolonged local Epipaleolithic tradition in Central Anatolia (Baird *et al.*, 2012: 232). The presence of a long term Epipaleolithic-Neolithic tradition can also be suggested by the apparent resistance of these villages to some of the developments that were occurring in the other subregions of SW Asia. For example, at Çatalhöyük, the domestication of cattle has been adopted later than in the contemporary sites to the east, west and southwest (Arbuckle *et al.*, 2014: 4)(4). Aşıklı Höyük is characterized as a conservative community 'closed to outside inputs' (Ozbasaran, 2012: 145). Despite its proximity to the Cappadocian obsidian sources and its standard use of obsidian, Aşıklı Höyük was not a part of the obsidian trade network between Cappadocia and Northern Levant and Cyprus. Relatively low degree of diachronic change at Aşıklı Höyük, Can Hasan I and III and Köşk Höyük (Ozbasaran, 2012: 145; Öztan, 2012: 32-33; Steadman, 2000: 177) may also relate to this resistance, as well as an adherence to long-term traditions. Sites like Çatalhöyük, Aşıklı Höyük, Köşk Höyük and Can Hasan may owe their long term stability to their resistance to outside influence and change.

The use of landscape for food procurement and sedentary settlements may also indicate a strong Epipaleolithic-Neolithic tradition in Central Anatolia. Pınarbaşı, which was repeatedly used as a temporary site in Epipaleolithic, was continued to be used in the Neolithic period, by mobile groups and/or farmers from nearby settlements (Baird, 2012b: 201) despite the location's unsuitability to farming. Pınarbaşı might have been treated as a venerable site due to its long term use (Baird, 2012a: 445). In addition, the site locations might have been chosen according to their long-term value in wild resource procurement: Pınarbaşı, Boncuklu Höyük and Çatalhöyük are all located in the wetland-steppe environment where wild resources, such as mammals, fowl, fish and water plants are plentiful (Baird, 2012b: 184). Similarly, the location of Can Hasan mounds on rocky soil with no immediate water source (French, 1998) suggests settlement motivations not related to farming.

Indeed, many features of hunter-gatherer way of life seem to have persisted throughout the period. Wild resources were important in most sites as discussed above. In addition, some sites suggest relatively high mobility: Aceramic and Ceramic Pınarbaşı occupants seem to have continued an Epipaleolithic practice by using a seasonal campsite. At Çatalhöyük there are indications that people traveled long distances to get to resources although this was a permanent settlement. Extensive interhousehold food sharing also might have continued as part of this Epipaleolithic package. This practice, which supposedly encompassed wild plants and animals, might have extended to the domesticated plants and animals as they were incorporated to the diet. The distribution of plant and animal foods produced via agriculture might have been organized according to the existing food sharing systems (See Chapter 2).

Interhousehold food sharing may have been organized through suprahousehold networks, such as hunting sodalities in these villages. If the house continuity reflects the importance of suprahousehold organizations such as Houses, then it is possible that food sharing was also arranged through these affiliations, and resources were shared along these lines.

In the previous chapter (Chapter 2), I have argued that a strong food sharing ethos often relates to a worldview in which humans think of themselves as living alongside and in cooperation with plants and animals. Nature is believed to be a part of the social world, and there is not a sharp distinction between nature and culture. This worldview is the basis for a strong sharing ethos among many hunter gatherers as well as mixed economies of hunting, gathering and cultivation. In this way of thinking, animals and plants are believed to share themselves with humans, and humans in turn are expected to share the procured food widely (e.g. Bodenhorn, 2000: 33-34; Ingold, 2005: 173). There are indications that this worldview might have been a part of the long-term Epipaleolithic-Neolithic tradition in Central Anatolia. For example, in Ceramic Pınarbaşı (Area B), both wild and domestic animal remains were used in a ritual deposit (Baird, 2012b: 202). The deposit consisted of plastered bones from wild cattle, equids and domesticated sheep (Baird, 2012b: 202). The bones seem to have been defleshed and the deposit was covered with wet plaster, which filled the cavities of the bones (Baird, 2012b: 202). This deposit may point to the participation of animals in ritual practice. At Çatalhöyük, there are installations of cattle bucrania on house walls and many examples of animal depictions in art (Russell and Meece 2006). Although Çatalhöyük paintings and installations typically concern wild animals, bones of domestic sheep are found alongside the bones of wild animals in many bone clusters and feasting remains (Russell, Nerissa *et al.*, 2009: 106; Russell, N. *et al.*, 2013: 237)(106,237). The high frequency of zoomorphic figurines at this site also suggests special attention to animals. Moreover, a significant proportion of the zoomorphic figurines depict presumably domesticated sheep and goats (domestication assumption based on the high proportion of domestic sheep/goats in the faunal assemblage). This suggests a close integration of wild/domestic animals into the human world and may support the idea that the natural and the social worlds might have been perceived as one and the same.

Similarly, at Boncuklu Höyük, there was a plastered installation of probably zoomorphic character, which may indicate a focus on animal world (Baird *et al.*, 2012: 235). Further, Baird (2012b: 202) suggested that the Central Anatolian Neolithic inhabitants incorporated landscape into their ideological world without identifying a 'domus/agrios' dichotomy (*sensu* Hodder, 1990). An extensive interhousehold food sharing practice would have likely followed this worldview of animal-human integration.

In this chapter, I have discussed household organization, social differentiation and hierarchy, mechanisms for communal integration and interhousehold food sharing in Central Anatolian Neolithic. The limited nature of indoor storage capacity, the communal use of open or midden areas and the standardization of architecture and internal house layouts suggest that households were not completely independent in making decisions about daily life and food production. Although differentiation between individuals probably existed, this does not seem to have been institutionalized. There may have been suprahousehold groupings that organized agricultural tasks and food sharing, but it is not clear how much power the members of these affiliations could accumulate. The lack of significant material differentiation suggests that membership in possible suprahousehold groups did not result in economic advantage. Food sharing, quotidian and festal, might also have acted as a cohesive mechanism, but not necessarily in uniting separate households. Although 'independent households integrated by cohesive mechanisms such as mortuary practices and feasts' is a well-known model for wider SW Asian Neolithic, the material evidence at Central Anatolia runs into problems with this model. Evidence for household independence is uncertain; therefore the function of cohesive mechanisms in integrating independent households is debatable. It is possible that the Central Anatolian Neolithic households were not isolated enough to need these mechanisms of solidarity. Regular food sharing between households might have connected individuals, families, suprahousehold groups, animals, plants and spiritual beings continually and reinforced interhousehold dependency. A deep-rooted Epipaleolithic-Neolithic tradition carried out in these settlements suggests that interhousehold food sharing was likely a substantial part of life throughout the period. This tradition might have carried a strong egalitarian ethos and the food sharing code might have played a great role in the long duration and prosperity of these societies.

Chapter 4 Neolithic Çatalhöyük

4.1. Introduction

Çatalhöyük is located in the Konya Plain, in Central Anatolia in Turkey (Map 1). As the largest settlement and the one with the longest lifespan in Neolithic Central Anatolia, Çatalhöyük provides a uniquely rich data set to explore ancient foodways and social organization. In addition, thorough recovery and recording methods utilized by the current excavation project and the abundance of detailed site reports make this an exceptionally informative site.

Neolithic Çatalhöyük was first discovered and excavated by Mellaart in the 1960s (1962, 1963, 1964, 1966, 1967). A renewed excavation project started in the 1990s under the supervision of Hodder (1996, 1999, 2005, 2006, 2012, 2013).

4.2. Environment

The Konya Plain is in the southern part of the Central Anatolian Plateau, which is 1000 m above sea level and consists of Pleistocene lake marls (Hodder, 2013a: 13). It has a cold-steppic climate with winter temperatures close to freezing and a drought period in summer (Charles et al 2014: 71). The Konya plain currently has a semi-arid climate with a low degree of rainfall (<300 mm per year). The site is located next to the Çarşamba River.

4.2.1. Paleoenvironmental Reconstruction

Despite the currently dry climate, it is thought that the annual precipitation was considerably higher during Early Holocene (Hodder 2013a: 13).

Previously, the core sampling done by the Konya Basin Paleoenvironmental Research (KOPAL) Project suggested that the settlement was found on a raised hummock amidst an alluvial plain with areas of marshland (Roberts and Rosen 2009). In addition, based on the KOPAL evidence and the traces of the recent Çarşamba channel, it has been thought that Çarşamba was a large channel that ran next to the mound (Hodder 2013a: 13).

However, this model has recently been challenged by several lines of evidence by Charles and colleagues (2014). They argued that the Neolithic soil sampled in the KOPAL core locations (i.e. on and between the mounds) would have been disturbed by settlement activity and that they could not have provided accurate information about the natural soils around the settlement (Charles et al 2014: 83). To gather better information on local soil sediments, Doherty and colleagues applied a new coring program (Doherty, 2013: 58; Doherty *et al.*, 2007: 383), which suggested that the marsh areas were not as extensive as has been suggested previously, and that the settlement was founded on a slight depression rather than on a raised hummock (Charles 2014: 83-84).

The new coring project also indicated that the nature and the course of the Çarşamba River is more complicated to reconstruct than previously thought (Doherty 2013). Charles and colleagues suggested that the Çarşamba was an alluvial sequence that consisted of multiple narrow channels of low energy movement, as opposed to a single large channel. This suggestion also contrasted with the extent of marsh and flooding suggested by the earlier model (Charles et al 2014: 86).

In addition, the arable weed taxa found on site probably grew in moist to dry conditions (Charles et al 2014: 78), also suggesting the possibility that the local environment was drier than previously thought. Almond, which also is a dry woodland taxon, was probably collected locally as well (Bogaard et al 2014: 874; Asouti 2012: 140 table 8.10 and 143). Furthermore, these paleoenvironmental data show contrasts with the more classic wetland environment of Neolithic Boncuklu, 9 km distant, where the charcoal samples are dominated by reed fragments, a pattern that is suggested not to be attributable to preservation biases or taphonomic factors (Charles et al 2014: 72, Kabukcu and Asouti *in press*).

These paleoenvironmental data show contrasts with the more classic wetland environment of Neolithic Boncuklu, 9 km distant, where oak and juniper occur in very low frequencies (Kabukcu & Asouti *in press*) and the vegetation was dominated by reed fragments (Charles et al 2014: 72).

Combining these lines of evidence, Charles and colleagues (2014) proposed a revised paleoenvironmental model suggesting that the marshes around the site were patchy and there were dry areas around the site.

4.2.2. Socioeconomic Implications of the Paleoenvironmental Reconstruction

The paleoenvironmental research shed some light onto the degree of farming, herding and wetland resource exploitation in this settlement. Although the present-day climate is too dry for rain-fed cultivation in the center of the Konya Plain, it is thought that the annual precipitation was higher during Early Holocene (Hodder, 2013a: 13).

The previous model suggested that the location of the settlement was chosen due to the ample wetland resources, and that farming would have been done at a distance from the settlement (possible ~10 km away) and spring flock would have to be moved to the edge of he flooded zone. However, the recent model suggests that the environment around the site was a mosaic of various sediments, including dry patches for cultivation, and the inhabitants could farm and herd relatively close to the site. Evidence from seeds of wild taxa from sheep dung also suggested that the animals were grazed on the alluvium-based landscape surrounding the site (Bogaard *et al.*, 2013; Charles *et al.*, 2014: 78) In addition, Doherty suggested that the clay used for mudbrick would have been produced by sediments that are suitable for cultivation (2007: 380-381). Therefore, he concluded that larger zones of dry soil was probably available and used for cultivation near the site (2007: 381). Further, strontium isotope analysis of plants suggested that barley was grown locally in the alluvial fan zones in the vicinity of the mound and therefore dry areas that allowed cultivation were present during Neolithic occupation (Bogaard et al 2014: 872-4). In sum, the most recent paleoenvironmental model has some compelling arguments about the possibility of farming and herding near the site.

Additionally, Doherty suggested that the clay used for mudbricks was obtained from the overbank sediments of the Çarşamba channel, and it was an important resource. He argued that if the area was not as flood-prone as previously thought, then this slight depression might have been chosen as a settlement location due the availability of clay and localized water sources (Charles *et al.*, 2014: 83-84; Doherty, 2013: 65).

4.3 Spatial Organization

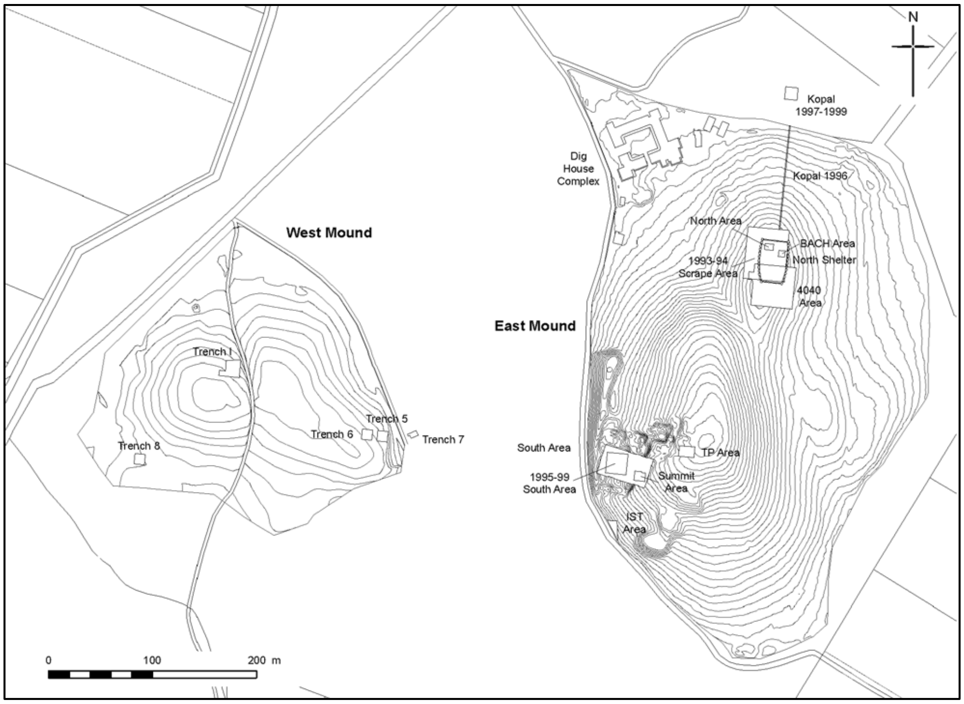
The site consists of two mounds (Map 4.1): the Neolithic East Mound (7100 - ~6000 cal BC) (Bayliss et al 2015: 17; Marciniak et al 2015: 1 & 173) and the Chalcolithic West Mound (6000-5600 cal BC) (Biehl 2012: 77). To investigate food sharing during the transition to agriculture, this thesis focuses on the Neolithic East Mound. The East mound is 13 hectares in size and 21 meters high.

4.3.1. Excavation Areas

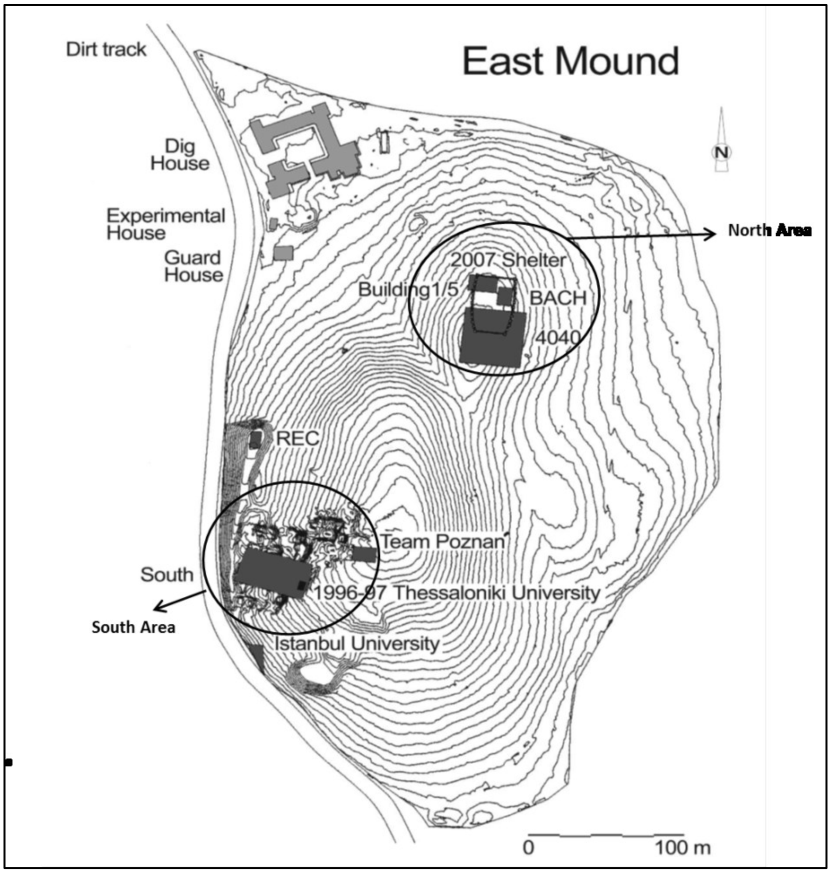
The mound has several excavation areas: South Area, North Area, Team Poznan (TP) Area and IST Area (Map 4.2). Among these, the South and the North Area have been excavated by one large team, and the TP and IST areas have been excavated by two separate teams. As part of the KOPAL paleoenvironmental project, there also have been excavations at an edge-of-settlement area to the north, named KOPAL Area.

The South Area and the North Area are two excavation areas that concentrated on two eminences on the East mound. These eminences are not separate mounds; there is a considerable amount of cultural deposits between these peaks, connecting the peaks to each other. The South Area rises 20 m above the surrounding plain, and it covers an area of nearly 1300 square meters (45m x 27m). The North area is 9 m above the plain and covers an area of about 1100 square meters.

The South Area contains 14 occupational levels (Table 4.1), starting from the beginning of habitation at the bottom of the mound (Levels South G through South T). So far, there are five preliminary level categories in the North Area (Levels North F, G, H, I and J). These levels are probably contemporaneous with middle and the late occupation levels of the South Area (i.e. Levels South L through T). The TP and the IST Areas cover the last occupational levels, probably the last few centuries of the East Mound (Marciniak et al. 2015: 169 & 172).



Map 4.1 Çatalhöyük East and West Mounds (Çatalhöyük Research Project)



Map 4.2 Neolithic Çatalhöyük Excavation Areas (Çatalhöyük Research Project)

4.3.2. Spatial Sampling Strategy

This thesis analyzed data from the North and the South Areas. There were two main reasons for this strategy. First, the South Area exposed a long occupational sequence and covered most of the Neolithic lifespan of this site. The North Area provided a large horizontal exposure allowing spatial analysis and comparison within this Area as well as between the North and the South Areas. When the data from these two Areas are combined, they provide a rich dataset both spatially and chronologically. Second, these areas were excavated consistently by a single team, and numerous detailed site reports and lab reports were available.

The zooarchaeological analysis in this thesis covers all faunal material analyzed and recorded until the end of the 2011 field season. Reports of data recorded until the end of the 2011 field season have been published in 2013 and 2014. Starting 2012, a new recording system has been developed in the Çatalhöyük faunal lab, to streamline data recording and accommodate the research goals of the new publication season upcoming in 2019. All zooarchaeological material recorded from the South and the North Areas have been taken into consideration in this thesis.

4.3.3. Architectural Description

Çatalhöyük East is known for its agglutinative architecture (Mellart 1963: 51; 1967: 56-63; Hodder 2007, 2013, Düring 2001), where houses are built next to each other with alleyways or narrow spaces in between. The house layouts at Çatalhöyük are strongly repetitive, with one main and usually one or two side rooms. Building 1 displays a common floor plan (Figure 4.1). Most of the houses had similar internal features: hearths, ovens, storage bins, basins for food processing, platforms and sub-floor burials. The main room usually had the oven, hearth and the platforms for burial and other purposes. It also had the roof entrance with a ladder that descends into the house (Mellaart 1963: 51; 1967: 56-63; Hodder 1987). Side rooms were usually reserved for domestic tasks and storage (e.g. Bogaard et al 2009, 2010; Twiss et al 2009; Wright 2013: 404-5 & 411). Each house had its own walls, and the interior of the walls, as well as the house floors, were plastered. It has been estimated that the average building size (the size of the living area without the space occupied by the walls) is about 40 square meters and probably large enough to house four to nine individuals (Cessford 2005: 325; Düring 2001: 5). Therefore it is likely that each house was inhabited by a nuclear family or a nuclear family with a few more (possibly related) individuals.

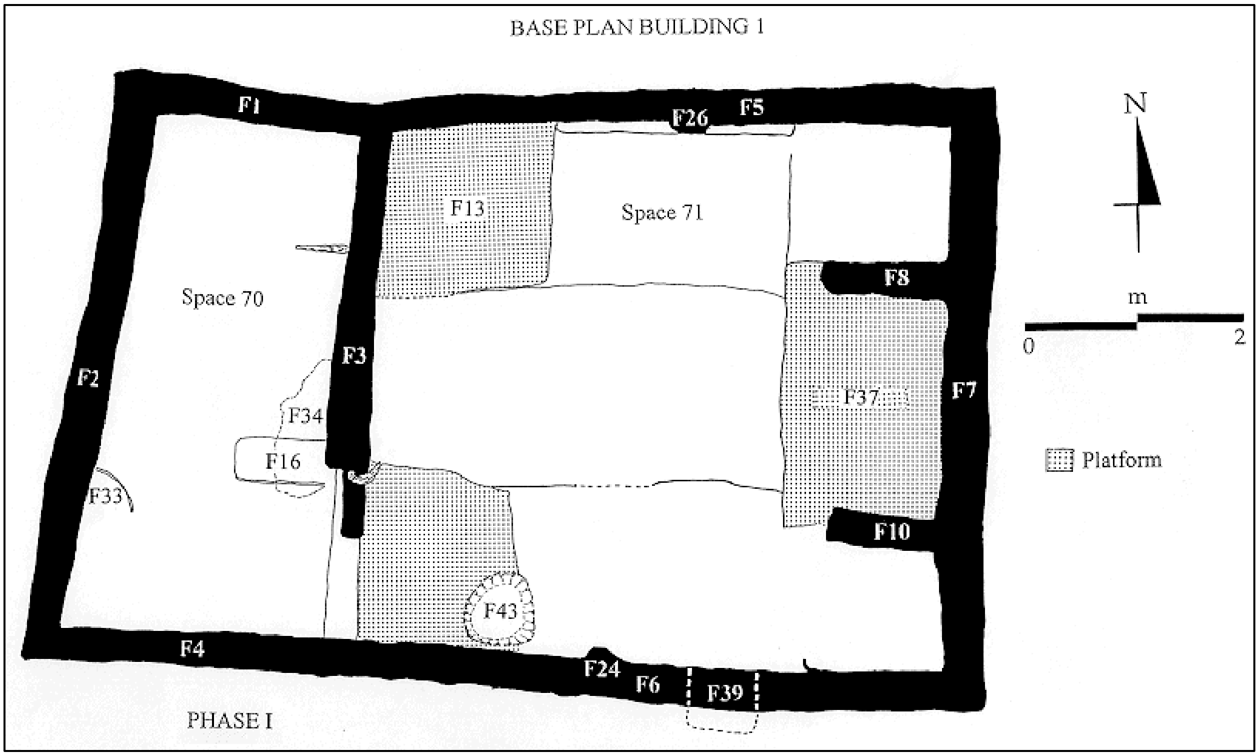


Figure 4.1 Building 1 floor plan (Çatalhöyük Research Project, Matthews 1996)

Table 4.1 Neolithic Çatalhöyük Occupation Levels

Mellaart	South	North	North
0, I, II, III	TP 6 levels	Ceramics	Lithics
	T	J	
	S	J	
	R	I	
	Q	H, I	I
V	P	H	H
VIA	O	G	G
VIB	N	G	
VII	M	G	
VIII	L	F	
IX	K	F	
X	J		
XI	I		
XII	H		
Pre XII	G		

Many houses were built on top of previous houses and carry similar layouts to the previous houses. When a house was abandoned, the inhabitants removed the timber from the roof and the post locations, cleaned up the floor, removed any installations from the walls and knocked down the upper parts of the walls. Then, they filled the ruins with earth and trash material to make it level, and built a new house on top of it. So the remains of the old house acted as the foundation of the new house. In some cases they followed the exact layout of the previous house; they even built on top of the previous foundation walls (see below). In other cases, the layout of the new house somewhat differed from the previous one. Some houses were built immediately after the abandonment of the previous house. In other cases, the abandoned house might have been partly filled and used as a midden for some time before a new house was built on the same spot, if at all. A house might have been abandoned due to a number of reasons, such as architectural deterioration, pest control, fire damage or death or disease in the house.

Many houses have elaborations such as wall paintings, architectural installations and cattle crania on walls. In fact, the site is known for the symbolic role of aurochs apparent in wall paintings and architectural installations. In addition, many houses have subfloor burials which are thought to be significant ritual elements of houses. The burials usually contained multiple individuals, and some exceed the number of people expected in one domestic group.

In this thesis, the word household will be used to refer to the inhabitants of a single building (i.e. house) at this site, probably a nuclear family or a nuclear family with a few relatives. Ethnographic studies have shown that the nature of households is highly variable from culture to culture, and it may or may not be defined by residential or economic boundaries. Therefore, the term household must be defined based on the specific culture. In the context of

Çatalhöyük, I will use the term household to refer to a single dwelling and will explore the degrees of social and economic independence Çatalhöyük households might have had. I will also investigate possible household differentiation and social hierarchy at this site. The following section explores the published data on social organization, specifically in relation to household independence, differentiation and hierarchy at Çatalhöyük.

4.4. Current Data on Economic and Social Life

4.4.1. Household organization

Several lines of data provided insights to the nature of household organization at Çatalhöyük. The architectural data, data on household equipment, and the evidence of plant processing suggested that households acted independently in storing and consuming cereal foods (and possibly other plant foods).

The architectural elements suggested that the settlement was made up of houses that were self-sufficient domestic units. Each house had their own walls, suggested they could be built independently from each other; and each house had the basic cooking and storage features, as well as a basic groundstone toolkit. Ground stone and plant and animal remains suggested that side rooms were usually reserved for domestic tasks related to food preparation and storage and that each household processed and cooked their own food (e.g. Bogaard *et al.*, 2010; Bogaard *et al.*, 2009: 889; Twiss, Katheryn C. *et al.*, 2009; Wright, K., 2013: 404-405 & 411). In addition, many houses revealed chipped stone remains from small scale lithic tool production.

The presence of private storage in side rooms suggested that households could control their own food supply, especially in terms of plant foods. The volume of the architectural storage bins were about 1 cubic meters (Bogaard et al 2009: 661 & Table 5). On one hand, based on interviews with the local villagers Atalay and Hastorf suggested that these bins "were best for grain storage because they keep out pests" (2006: 299), and they seem only large enough to get through the winter months rather than the whole year. On the other hand, Bogaard et al suggested that the size of food storage at Çatalhöyük is comparable to ethnographically documented villages in the Konya region, which allow for an annual storage of plant staple plus a 'normal surplus' (Bogaard *et al*. 2009: 661 & Fig. 10). However, Bogaard et al also added that the storage capacity at Çatalhöyük was restricted compared to the storage volumes in traditional farming villages in SW Asia where household build expansive facilities for large-scale surplus in houses (Bogaard *et al.*, 2009: 662-664). Hence, the household storage capacity at Çatalhöyük pointed to a degree of independence, but it was not large enough to be manipulated by households for political and economic gains.

Although households could probably control their annual plant food supply through private storage, it is likely that meat supplies could not be stored and controlled to the same extent. Most of the storage bins were likely reserved for plant foods, as there were only a few assemblages that contained animal bones in storage bins. One example comes from the side room bins in (burnt) Building 52 in the North Area, which revealed several large caprine bones from meat bearing body parts, some in articulation (Twiss, K. C., 2012: 59). The lack of animal bones in storage bins may partly be due to the house cleaning practices performed during house abandonment. It may also be due to storing meat without the bones. Meat preservation possibilities will be explored below.

Non-architectural lines of evidence also gave clues to the use of small-scale (probably household) storage at Çatalhöyük. Clay bins, skins, baskets, wooden containers or bins might have been used for storage. For example, the side room of Building 1 (space 186) had a wooden storage bin that contained charred lentils (Matthews, W., 2005b: 566). Phytolith evidence suggests use of baskets especially in side rooms (Atalay and Hastorf 2006: 301), which were dedicated to processing and storage of both domesticated and wild foods (Twiss et al 2009: 891). Clay might also have been used for lining the base of wooden storage containers (Atalay and Hastorf 2006: 299). Stored food in the houses may be also implied by the presence of house mice who took advantage of stored food in Çatalhöyük houses (Jenkins & Yeomans 2013: 263).

Pots might also have been used for storage. Whittle (1996) argued that early prehistoric pottery was used more often for storage and presentation rather than consumption. Although at least some pottery might have been used for storage throughout the whole Çatalhöyük occupation, the pottery in the early levels (South L and below) was probably mainly for storage and serving (Last 2005: 128). The reason for this assumption is that the pottery in these levels was chaff-tempered, and therefore not ideal for cooking (Last 2005: 128). Copley and colleagues (2005: 173) detected grease and salt in the pots from early levels which may indicate storage of these foods in pots. Dairy products from cattle appear as organic residue in some ceramics found in Level North G (Pitter 2013:115), (probably contemporaneous with South M/N/O Levels (Hodder, 2014a: Table 1.3), suggesting that milk products might have been stored in pots in mid-to-later occupation levels (Evershed et al 2008: 531). Additionally, pots were not found in burials, suggesting they were not used for food offerings, whereas wooden vessels, some filled with food remains, occurred in burials (Mellaart 1963: 99).

Although pots might have been used for storage, it is important to note that pottery in general occurred in low numbers at this site: According to the EVE (estimated vessel equivalent) calculations, only half of the spaces contained a complete deep jar (Yalman et al. 179). If so, the possible use of deep jars for household storage was not a common practice.

Evidence on different stages of grain processing sheds further light into household organization at this site. Grain processing commonly consists of grain threshing, winnowing, sieving and hand cleaning. Grain threshing is done to loosen the edible part of the grain from the inedible chaff around it (i.e. chaff). Winnowing is separating out the grain by allowing the air to blow through it, for example by tossing the grains in a basket to allow the wind to remove the straw remains and pebbles (Atalay and Hastorf 2006: 297). Sieving and hand cleaning are the final stages of processing to remove any leftover inedible pieces and sticks. While threshing and winnowing at Çatalhöyük probably took place off site (Bogaard *et al.*, 2014b: 132), the final stages of processing, i.e. fine sieving and hand cleaning, mostly took place on site, indoors or on rooftops on a small scale (Atalay and Hastorf 2006: 297; Bogaard et al 2014: 132; Bogaard 2013: 99 & 113). For example, a bin in Building 1 seemed to contain a temporary storage of grains, "with wild seeds and sticks found among the domestic seeds" (Atalay Hastorf 2006: 297), whereas cereal grain accumulations found in in situ fires have been documented to contain little straw or chaff (297) implying that cereals contained some inedible parts when they were placed in the storage bins, and that they were further sieved and cleaned on a piecemeal fashion prior to cooking (Bogaard 2013: 99 & 113). Charred plant remains in the fire spots in Building 65 also suggested small scale final processing activities on site (Bogaard 2013: 113). These practices suggested that each household did the final preparation and cooking of cereals separately at a domestic level.

In sum, architectural plan, household equipment, and the evidence of plant processing suggested that households acted independently in storing and consuming cereal foods and possibly other plant foods. The evidence on storage suggested that houses could store significant amounts of food, and that they did not necessarily share all foodstuffs with other households.

Bins and possibly other types of containers, such as baskets and wooden bowls, were used for storage. However, pots were probably not used for storage. This may suggest restrictions on household storage. The storage bins revealed evidence of mostly plant foods, rather than meat. This may suggest that meat was mostly shared between households rather than having been stored and consumed by individual households.

While the lines of evidence discussed so far, except the lack of pottery use in storage and the animal bones in storage bins, point to the independence of each household in certain practices, there are also many lines of evidence pointing towards close relations, cooperation and interdependency between households at Çatalhöyük.

Evidence on food preservation suggested that while plants preservation was possible in many ways, preservation of meat was probably minimal. Meat might have been salted (Atalay and Hastorf 2006: 298; also see Erdogu and Fazlioglu 2006). Salt helps remove moisture from meat. At Çatalhöyük, meat might have been covered in salt in skins or pits for several weeks and stored throughout the winter (298). Salt might have been brought to the settlement from the Tuz Golu (Salt Lake), which is about 100 km to the northeast of the site, especially in summer and autumn months when travel was probably easier. Carter et al. 2005 suggested that obsidian from this region was also brought to the settlement. A number of concentrated salt deposits have been found on site (Matthews, R. J., 1996; Matthews, W., 2005a: 363 & 373)suggesting its availability. Salt might also have been used for pickling fruits and vegetables, which helps extend their shelf life. Salt might have been used for flavoring as well.

In addition, although we do not have direct evidence of drying or smoking, both animal and plant products might have been dried or smoked for household storage without leaving substantial archaeological evidence. In the dry summer months and early autumn, fruits and berries might have been dried on roof tops, using wooden racks or drying racks from reed stalks, without leaving substantial archeological evidence (Atalay and Hastorf 2006: 296 Table 2 & 297). In nearby village Kucukkoy, a variety of fruits, vegetables and herbs are dried to be consumed in the winter months (Atalay and Hastorf 2006: 298).

In terms of meat drying, although Atalay and Hastorf (2006: 297) suggested that meat might have been dried or smoked on a small scale in summer or early fall when the weather is still relatively hot and dry, Halstead (2007: 31) argued that the Mediterranean climate is not ideal for drying meat in warmer months since the meat attracts insects and spoils too quickly in hot weather. He suggested that meat curing and storage was more likely limited to the winter months. He further argued that freezing and drying would be difficult in this climate, but that smoking might have been possible (Halstead 2007: 28-31). The dried or smoked meat might have been placed in skins or baskets and stored in the side rooms, or "hung from the ceiling roof beams" at Çatalhöyük (Atalay and Hastorf 2006: 298).

The cut mark evidence also suggests that meat drying was practiced but to limited extent. Thin strips of meat cut off the bone are usually ideal for drying, these can leave filleting marks on the bone. Although, filleting marks could also have been done during stripping meat off the bone for cooking rather than preserving. We find filleting marks on Çatalhöyük bones, but the percentage of bones carrying any type of cut mark is very low at Çatalhöyük (Russell and Martin 2005; Russell et al 2013: 235; Russell et al 2014: 61 Aswa). On one hand, this may be due to the fact that butchery tools were mostly made of obsidian, which is a sharp material that tends to leave few and fine marks on the bones (Dewbury and Russell 2007: 357). In addition, butchery might have been done by skillful butchers who left only few butchery marks since contact with bone tends to dull the tool edge (Dewbury and Russell 2007: 357). On the other hand, the paucity of filleting marks may indicate that drying meat was not common.

Hence, the evidence of storage and preservation suggested that cereals were stored for annual household consumption, and that other foodstuffs, especially plants, might have been preserved by salting, drying and smoking. However, there is no evidence that meat preservation was done on a significant extent. It is probable that Çatalhöyük inhabitants often shared meat and other foods that yield large amounts between households when they were relatively fresh rather than preserving them for long-term household consumption. Storage of plant food was probably much more common than that of meat. Most meat was likely shared between households while fresh. This suggests that meat consumption was a suprahousehold activity and that the households might not have been completely independent in this activity.

Grain processing also provides clues to interhousehold relations and interdependency. Although the final stages of grain processing were performed in the houses, the first stages, threshing and winnowing at Çatalhöyük probably took place off site (Bogaard et al 2014: 132). Silicified byproducts of threshing and winnowing are evident at the edge-of-site KOPAL area (Atalay and Hastorf 2006: 297) and they are found rarely in houses. Also, the relatively small size of the buildings allowed probably only the final stages of processing on site (Fairbarn 2005: 195). Threshing and winnowing might have been done by the fields, and they might have been undertaken as a communal activity. Individuals from households might have processed all the grains in bulk and then divided them into equal shares for household storage.

Furthermore, ground stone evidence provides some evidence supporting close interhousehold relations. Unbroken large querns (i.e. millstones) and unfinished quern roughouts were found only in some of the houses (Wright 2014). This may mean either that some houses had unequal access to these querns or that multiple households might have grinded food from multiple houses in bulks. Wright suggested that the latter was more likely based on the evidence that differential access to raw material or craft specialization could not be clearly pointed out so far (Wright 2014: 29).

In addition, faunal data pointed to the presence of domestic tasks shared between households. Heavily processed faunal bones in the assemblage indicate processing bones for grease (Russell and Martin 2005: 91). For example, in B 17, space 182, at least one sheep and one goat were fractured for bone grease extraction (Russell and martin 2012: 92). Also Space 181 revealed numerous sheep goat bones that were heavily processed for grease, as well as several mandibles lightly burnt and fractured on the bottom for marrow extraction, suggesting possibly communal or large scale processing for bone grease and marrow (Russell and Martin 2012: 93). Inhabitants possibly collected or saved the bones over a period of time and processed those in bulk as is ethnographically documented (Outram 2001).

The use of roof tops also suggested that houses interacted closely. In the warmer summer and early autumn months these activities might have taken place on rooftops as well (Matthews 2005: 373; Stevanovic and Tringham 1998).

While the architectural data and *in situ* botanical evidence suggested that cooking was often done in houses, there is some evidence for food preparation and consumption outdoors as well, suggesting possible interhousehold food preparation and consumption. The hearths and especially the ovens were built near the roof entrance, to allow for smoke to exit the room. However, soot evidence within the wall plaster suggests the smoke did not disperse entirely through the roof. Therefore cooks might have been exposed to smoke and they might have occasionally cooked outdoors to avoid smoke (Atalay and Hastorf 2006: 306). Rooftops might have been an important area for domestic activities (Stevanovic and Tringham 1998). There is micromorphological evidence for consumption around hearths on rooftops (Bogaard *et al.*, 2014b: 133; Matthews, W., 2005b). Some cooking and consumption might also have taken place around large outdoor ovens found in the later levels, in possible “private yard spaces” (Bogaard et al 2014: 133) and *some* of the outdoor fire spots (Bogaard et al 2014: 132-133). The KOPAL Area was possibly used for cooking and consumption as well, especially in large feasts (Atalay and Hastorf 305-6). In addition, Space 181, which was a large midden at the edge of the settlement in the early levels, revealed evidence of large scale, probably communal, bone grease processing (Russell and Martin 2012: 93). In the South Area, some chaff particles are found on the sides of the buildings, suggesting processing on the roof tops and outside of the buildings.

The taxonomic distribution of animals also shed light on household relations, especially on interhousehold food sharing possibilities. The macrofauna consisted of cattle, sheep, goat, deer, horse, wild asses, boar, fox, badger, dog and cat. Fish (Van Neer et al 2013) and bird specimens were also found (Russell and McGowan 2005). The mammals are all wild except dogs, sheep and goat, which were domesticated from the beginning of the settlement. In addition, domesticated cattle were used alongside wild cattle in the later levels of the occupation.

Faunal analysis revealed that sheep and goat dominate the assemblage, followed by aurochs, indicating that these taxa were the key sources of protein and fat at Çatalhöyük. Equids, boar, red deer were also consumed occasionally (Russell *et al.* 2009: 105). Smaller mammals, such as hare, fox and badger played a minor contribution to the diet (Russell et al 2013: 204-206). Fish and birds also had a minor role in the diet (Russell and McGowan 2005: 99; Van Neer et al 2013: 317-8). Halstead's study based on ethnographic accounts of agricultural villages in early to mid-20th century before significant refrigeration suggested that animals such as young piglets (up to 6 months), lambs/kids (up to 1 year old), infant calves (up to 1 month old) can be consumed within a household (or a household with a few guests; 6-10 people). However, animals larger than these are usually too large to be consumed by a single household. In this light, I suggest that most of the sheep/goat and cattle was consumed on a suprahousehold level at Çatalhöyük (Halstead 2007: 27-29 & 34).

For the large wild animals (such as cattle, equid, boar, deer), this implies that after a hunt, large chunks of meat were not regularly cooked and consumed by the hunters at the kill site, and that the animal was brought back to the settlement for suprahousehold distribution. Bringing a large animal to the village, in whole or in chunks would have been visible to the community, and possibly would have made it difficult not to share between households. Small wild animals, such as hare and goose might have been butchered and consumed at the kill site, or brought back to the settlement and butchered and consumed in the buildings inconspicuously, without involving any interhousehold sharing. For domestic sheep/goat, the fact that all skeletal parts were found on site implied that even if an animal was butchered at the edge of the site, the skeletal parts were brought back, probably for suprahousehold distribution. If sheep/goat were butchered in the settlement, they probably required outdoor spaces such as rooftops and midden areas (Atalay and Hastorf 2006 297). This also implies that the butchery would be visible to others.

Cooking materials also shed light on possible interhousehold food sharing. There are some indications that boiling was a common cooking method throughout the Çatalhöyük occupation (Atalay and Hastorf 2006: 306). The human dental evidence on morphology suggested that the diet was not very abrasive (Boz 2005: 591). Therefore, meat as well as plant foods might have been rendered soft by boiling, although some food might have been made soft by grinding stones as well.

In Levels South L and earlier, clay balls were probably used for boiling food in skins or tightly woven baskets (Atalay 2006: 310). This ethnographically documented (Atalay 2005) method requires that clay balls are heated over fire and dropped in a container filled with food and liquid. The hot clay balls are constantly stirred to prevent them from burning the container walls. While clay balls were used for boiling food in these levels, pots were probably used for serving rather than cooking because their material, which contained local clay and organic temper (Last 102-104), was less than suitable for heating (Last 2005: 128) and they are mostly in the shape of open vessels rather than bowls.

Level South M onwards, the number of clay balls decreased while dark colored deep jars started to be produced. The deep jars were made from mineral-tempered nonlocal volcanic clay, which was a suitable material for cooking (Doherty & Özbudak 2013: 184, Yalman et al 2013: 153). In addition, the deep jars carried clear evidence of exterior sooting, suggesting they were used for cooking (Atalay 2006; Yalman et al 2013: 153 & 179). Yalman and colleagues (2013: 179) noted that the exterior sooting is mostly on the upper sides of the pots suggesting that the "pots may have been buried into the charcoal" and the sides had direct contact with fire. The rounded bottoms of these jars seem suited for this position. One small deep jar that has been found in situ in a hearth in this position confirms this suggestion as well (Yalman et al 2013: 179).

Although deep jars were made of material better suited to cooking, they may not have been the best candidate for cooking meat alone, due to their somewhat narrow and deep shape, they were probably better for cooking food that contained a considerable amount of liquid, rather than just meat that would better cook in a wide and shallow vessel (Yalman et al 2013: 179). Therefore, they would have been ideal for cooking meat with juice, as in boiling bones or making soups and stews. Alternatively they may have been used for making gruel or vegetarian meals.

Therefore, the increase in deep jars in the later levels that co-occurred with a decrease in clay balls also suggested that the clay balls were used for boiling food in the early levels (Atalay 2006: 310), whereas mineral-tempered pottery replaced clay balls in boiling food in the later levels.

If both clay balls and deep jars were used for boiling, why did they change from clay balls to deep jars? Atalay and Hastorf pointed out that cooking in deep jars may require less attention than cooking with clay balls where constant stirring is required (2006: 309). Therefore they suggested that this change was due to "increased pressure to multitask within household" (Atalay and Hastorf 2006: 309). However, there is evidence to suggest that deep jars could accommodate meals for crowds somewhat larger than a household. The medium size deep jars (which are the most common size) were estimated to contain enough food (for example a stew with meat, vegetables and juice) for 8-10 people (Yalman et al. 2013: 179). This number may correspond to a meal that involves one large family or a few small nuclear families. Hence, the deep jars and the meals provided in them might have been shared by members of one or a few families.

The frequency of deep jars may shed further light on the scale of consumption of the boiled foodstuffs. Early pottery is infrequent and later pottery is, although more common, still low in numbers (Yalman et al 2013: 182). According to the EVE (estimated vessel equivalent) calculations, only half of the spaces contained a complete deep jar, and they contained even fewer open bowls (Yalman et al. 179). This means that not every house owned a deep cooking jar or an open bowl. Therefore, these bowls might have been shared by a few houses. If so, then switching to deep jars might have been related to increased pressure to multitask at a scale *beyond* the immediate household. It must be noted that, although the deep jars were not ubiquitous, they do not seem to be rare items of prestige or special pots reserved for feasts either. They are not found in burials or caches. So far, there is no clear evidence that they are associated with any higher status. Although the deep jars were possibly used in feasts as well, they do not seem to be exclusive items, and they were likely part of quotidian cooking and the meals they contained were considered quotidian. In other words, these pots may refer to meals held between few houses *regularly*. Therefore, their increase in middle occupation levels may be related to quotidian food practices and social relationships between households. In addition to the significant role of regular or frequent food sharing at Çatalhöyük, feasts also played an important role in suprahousehold cooperation and food sharing.

Feasting evidence primarily come from two sources at Çatalhöyük. First, the architectural installations of bucrania and horn cores and the deposits of horn core collections found in some houses suggested the commemoration of cattle feasts through these displays and deposits. As the largest animal commonly found at Çatalhöyük, cattle was a symbolically as well as a nutritionally important animal at this settlement. The second source of evidence for feasts came from the bone clusters. These are concentrations of large fragments of bones that are usually from large animals, particularly aurochs, often in articulation and less heavily processed than typical specimens in the middens (see Chapter 7) (Russell, Nerissa *et al.*, 2009; Russell, Nerissa *et al.*, in press: 203; Russell, N. *et al.*, 2013; Twiss, Katheryn C., 2008: Table 5; Twiss, K. C., 2012: 61). Bone clusters in fills, middens and other contexts attest to the use of cattle and possibly other large animals, such as red deer, equid and wild boar in feasts, although they may also contain large fragments of sheep bones. These clusters were possibly feasting remains deposited differently than the quotidian household meals, and they may reflect different scales of special consumption from household ceremonies to suprahousehold feasts and village-wide celebrations.

The bone clusters that were found in house abandonment and house foundations suggested that house construction was a communal ritual that involved feasts (Russell, Nerissa *et al.*, 2014b). Maunier (1925: 17) described in her ethnographic study in North Africa that the construction of a house followed a set of communal rituals and feasts every time a house foundation was built. Animals were sacrificed for the feast and some of the bones were placed in the construction as foundation deposits (Maunier 1925: 17). Based on the clusters of animal bones found in house foundations or in house closure deposits at Çatalhöyük, Russell and colleagues suggested that these deposits were from feasts and communal rituals related to house construction/abandonment (Russell, Nerissa *et al.*, 2014b). If these were communal events, they may suggest that house construction/abandonment were suprahousehold events. Similarities between the house layouts may also suggest that house construction was a communal activity and/or communal practices were followed when building a house. In Chapter 7, I investigated feasting evidence by analyzing the bone clusters in terms of the size and the nature of the feasts (with regards to the elements of social integration and competition).

To summarize the evidence on household organization, although multiple lines of evidence suggest a degree of self-sufficiency at the household level, there are also many lines of evidence suggesting close cooperation between households.

4.4.2. Socioeconomic Differentiation

There are several lines of evidence that provide insights on social differentiation at Çatalhöyük.

Burials

Most human bones at Çatalhöyük come from subfloor burials in houses, although complete skeletons or bones were also found in midden and fill deposits. The subfloor burials may contain single or multiple inhumations. They may also be primary or secondary burials (Pearson, Jessica A., 2013: 267). Not all houses have subfloor burials, and based on the number of people represented by the osteological assemblage, it has been suggested that most people were not buried onsite (i.e. in subfloor burials). The osteological analysis of the burials in house floors did not indicate a significant bias in age, sex or other criteria. There is no clear evidence that certain groups were selected for subfloor inhumation. Therefore, the criteria, if any, for burying a person under a house, is unclear. It has been argued that the human remains from the subfloor burials are probably a representative sample of the population because all ages and sexes were represented in the assemblage (Hillson et al 2013: 385). However, it has been suggested that there was an overlap between houses with multiple or high number of burials and the houses that were built on top of one another with continuity in architectural features (see below).

Health and diet

Food access that was relatively consistent across site, a nutritionally balanced diet and generally good health point to relative stability and prosperity at this settlement.

Çatalhöyük inhabitants generally had access to all key nutrients. Both carbohydrates and meat were consumed regularly. Plant and animal remains suggested that the general diet consisted of wild and domestic foods; namely grains, legumes, fruit, nuts, meat, eggs, fish, birds and tubers.

Main plant foods found were wheat (including emmer and einkorn), barley, pea, lentils, hackberry fruit, almonds, acorn, pistachio, wild mustard, fig, plum, club-rush tubers (Fairbarn et al 2005: Table 8.1 and Bogaard et al 2013: 95). Cereal consumption was significant, but it might have been relatively less heavy compared to other contemporaneous SW Asian sites such as Jericho and Jarmo, probably due to the regular consumption of tubers, meat and nuts at this site (Atalay & Hastorf 2006: 312).

Sheep/goat was the most dominant taxonomic category in the assemblage. Although cattle specimens were far less in numbers (i.e. NISP) than sheep/goat specimens, they may have provided an equal amount of , if not more, meat than sheep/goat because they yield much more meat (Russell et al 2013: 205; Russell and Martin 2005: 45). A similar argument can be made for the meat yield of equids compared to that of sheep/goat in certain levels of the occupation sequence (see Russell et al 2013: 209 Fig 11.4). Although, it must also be noted that the bones from larger animals might have been preserved better and may be overrepresented in the assemblage (Russell et al 2013: 205-206).

Isotope analysis on human bones suggested that animal protein was “a clear and important component” of the diet (Hillson et al 2013: 347 & 386). Faunal analysis revealed that sheep and goat dominate the assemblage, followed by aurochs, indicating that these taxa were the key sources of protein and fat at Çatalhöyük. Equids, boar, red deer were also consumed occasionally (Russell *et al.* 2009: 105). Smaller mammals, such as hare, fox and badger played a minor contribution to diet (Russell et al 2013: 204-206). Fish and birds also had a minor role (Russell and McGowan 2005: 99; Van Neer et al 2013: 317-8).

Isotopic evidence suggested that the diet was very diverse across site and even between people buried in the same house (Pearson 2013: 286 & 291). This may suggest that some people might have travelled often or long distances, or lived away from the settlement at certain parts of the year (Richards and Pearson 2005: 321). Although most of the diet food was local, some food came from a distance (Pearson 285 & 291), either brought by guests as a gift or by local inhabitants who traveled (Atalay & Hastorf 2006: 311). Isotope values from bone collagen suggested that meat was consumed repeatedly on a regular basis, perhaps daily at Çatalhöyük, although there are variations between individuals in terms of how much meat was consumed (Pearson et al 2015: 70).

Based on the human remains assemblage on site, the settlement had all its basic nutritional requirements met; the inhabitants were not struggling for food (Hillson et al. 2013: 386). The human dental (caries and dental calculus) evidence (Hillson et al 2013: 375) suggested that cereal consumption was regular and significant. There were not any consistent differences in cereal consumption between sexes (Hillson et al 2013: 374). Chipping on human teeth suggested that some harder foods such as dried fruit or meat , plant fiber, nuts or bones were also consumed, even though the diet was soft in general (Boz 2005: 589 & 591).

Analysis of human dental and long bone development and adult stature revealed “normal growth and attainment of normal body size” and that growth during childhood was not greatly disrupted by dietary deficiencies, illness or social hardship (Hillson et al. 2013: 386). Stature estimates were within the range of other contemporary populations (Hillson et al. 2013: 386).

Although osteological and isotopic evidence suggested a generally healthy population (Hillson et al 2013: 386) without significant imbalances according to age or sex, there are some spatial differences in skeletal injuries (Larsen *et al.*, 2013: 402) and mobility (Larsen et al 2013: 393)related to the sequential house. This will be explored at the ‘architecture’ section. Overall, data on health and diet suggested that the population was generally healthy and had access to a nutritionally balanced diet.

Food Equipment

The spatial distribution of ground stones suggested a broad equality of access to many ground stone tools. However, unbroken large querns (i.e. millstones) and unfinished quern roughouts were unequally distributed with a bias towards elaborate buildings (although the sample size is small). This may indicate unequal access to these tools or their raw material. Alternatively, it may simply indicate that the querns were shared between households without indicating large differences in access. Wright suggested that significant differential access to raw material or craft specialization in making these tools could not be clearly pointed out at this point (Wright 2014: 29).

Pottery analysis indicated to a small number of pots that are more elaborate than the others in terms of decoration or relief. Many of these unusual pots were small (i.e. ‘miniature bowls’) (Yalman *et al.*, 2013: 154). These bowls may have been used in feasts; the miniature ones could only hold small amounts of food or drink. It is possible that the miniature bowls were used to contain exotic or rare foods and were used in exclusive feasts. If so, these may indicate limited access to these kinds of foods. However, there is not any indication that these pots were associated with feasting remains or other rituals contexts such as burials. Many of the miniature bowls were found in middens, as broken pieces, and there is not any significant pattern to their distribution on site to indicate exclusive access to these objects.

Craft Specialization

There are some indications of emerging craft specialization at Çatalhöyük. Bains argued that there was a diachronic increase in raw material types and bead types and that manufacture methods became more complex over time (Bains et al 2013: 362-363). She also found bead-making evidence in one house, potentially suggesting that certain households specialized in bead-making. In addition, Conolly (1999) had suggested that there is a shift in mid-occupation from production of simple flake tools to more specialized prismatic blades (Conolly 1999: 798). However, Carter and Milić (2006: 907) revisited this finding and suggested that these blades could have been made using different tool kits, actions and levels of skill. Therefore, the evidence for lithic tool specialization is so far equivocal (2013: 444). At the same time, Carter and Milić also pointed out that caches in a few buildings may suggest preferential access to obsidian preforms (2013: 446). In sum, there may have been some differentiation in access to obsidian and stone raw materials and a trend towards complexity in bead manufacture. However, it is unclear if these reflect craft specialization.

Butchery specialization

Butchery marks are very rare on Çatalhöyük bones (Russell, NerissaMartin, 2005; Russell, Nerissa *et al.*, 2014a: 61). This is mainly due to the fact that butchery tools were mostly made of obsidian, which is a sharp material that tends to leave few and fine marks on the bones (Dewbury and Russell 2007: 357). In addition, butchery might have been done by skillful butchers who left only few butchery marks as contact with bone tends to dull the tool edge (Dewbury and Russell 2007: 357). Therefore, it is possible that butchers were somewhat specialized at Çatalhöyük. However, there has not been any evidence to suggest different butchery styles or any spatial concentrations of bones with cut marks indicative of a workspace dedicated to butchery.

Architecture

Architectural data provided some indications that households may have been differentiated at Çatalhöyük. According to the frequency of architectural features, Hodder suggested that there may be four types of houses at Çatalhöyük: history houses (sequential houses, with continuity in architectural features), elaborate houses (based on wall paintings, installations etc), houses with a large number of burials and non-elaborate houses (Hodder, 2013b: 2). Indeed, some houses are more elaborate than others or have many more subfloor burials compared to other houses, for example, Building 1 had 62 burials beneath the floors. Also some houses seem distinct because they were rebuilt at least four times on the same location, often using the same foundation, and with internal features exactly in the same spots. However, it is unclear so far, what any of these distinction meant in socioeconomic terms. Studies who examined these differences pointed out that these features did not easily overlap with other characteristics such as storage size, house size, age or sex patterns of the humans buried in these houses (also pointed out by Hodder 2010: 25).

There may be one potential overlap between house continuity and burial data: Some scholars suggested that the sequential houses were associated with large numbers of subfloor burials, possibly more than 10 burials (Hodder 2010; Hodder and Pels 2010; Düring 2006) and that these houses had higher status. Hodder suggested that the sequential houses (which he named 'history houses') had at least one building in the sequence that had a large number of burials. Düring suggested that the domestic buildings with architectural continuity and large numbers of burials were lineage houses that were important for large social groups, not just the inhabitants of a building (141). Hodder further suggested that these houses exercised control over rituals, history and access to ancestors. Differentiation might have emerged between houses as people sought distinction by claiming links to the histories and roots of certain houses and ancestors (Hodder, 2007a: 108). Both scholars used House Society models to interpret the significance of these houses and they suggested that the continuity of a house sequence emphasizes the transmission of House membership through generations (Düring 2007, Hodder and Cessford 2004; Hodder and Pels 2010). According to ethnographic accounts, membership to a House does not necessarily rely on genetic relationships in these societies (see Gillespie 2000: 1-2). Hence, these models seem suitable for Çatalhöyük where people buried under the same house were probably not genetically closer to each other than they are to people buried under other houses (Larsen et al 2013). However, the association between house continuity and large numbers of burials has not been evaluated thoroughly. First, Düring relied on one restricted section of the excavation area to investigate building continuity. Second, in Hodder's analysis, the correlation coefficients found between sequential houses and large numbers of burials show weak to moderate values. Carleton et al also pointed out the lack of strong quantitative evidence for a correlation between sequential houses and large numbers of burials. Their analysis suggested that there were not any significant correlations between a building and the number of subfloor burials. However, their analysis focused on the relationship between these two characteristics in each occupation level, and considered each house one by one. House sequences could consistently have a large number of burials in *at least one* building in the sequence, even though most of the houses in a house sequence may not reveal large numbers of burials.

In any case, although sequential houses may have been differentiated by their longevity as sequence, their relation to burials, ancestral relationships and history is not clear. Additionally, there is not any evidence that these houses had differential access to any resources. As Hodder himself pointed out, the non-architectural data, namely botanical, obsidian points, health and diet markers and burial goods, did not suggest a correlation between sequential houses and differentiation (Hillson *et al.*, 2013: 385; Hodder, 2014b: 5). The only possible correlation found was that the people buried in history houses may have had less workload, based on the fact that osteoarthritis was less severe in these individuals compared to the individuals buried in other houses (Larsen *et al.*, 2013: 402). Chapter 5 investigates this topic further by comparing meat access through middens stratigraphically associated with sequential versus non-sequential houses.

4.5 Discussion

If the houses were independent in how much food they can accumulate, it is possible that some houses would accumulate more than others, at least in some years, and hoard their surplus instead of sharing with other houses. They could control their own food storage, and they could decide what to do with surplus and how much meat to share, if any. In that case, it is likely that differences would emerge between houses in terms of storage and meat access, and these differences might even have augmented over time.

If houses were not independent however, then, there may have been social and economic limitations about how much food to store or share, and rules about sharing surplus with others. One scenario (inspired by Hegmon 1996, see Chapter 2) could be that every house kept its own annual food storage, and shared any surplus beyond that. It may be that the early agricultural technology did not lead to large surpluses, but it might also have been difficult to control the amount of yield, and in some years, yields larger than intended might have been possible. When surplus was available, there might have been a strong sharing ethos that urged people to share all or part of it, which resulted in the parallels detected between houses. In addition, it has been indicated that large animals were most likely shared beyond the immediate household in Neolithic SW Asia (Halstead 2007). Therefore, it is plausible that there was a significant degree of interdependence between houses based on sharing surplus.

Although a fully agricultural village, the data from Çatalhöyük suggested a significant role of hunting and gathering in this site. Wild foods were significant in the diet and in social life. Special deposits revealed that aurochs and other wild animals had a central role in social contexts. Although specimens from large wild animals such as cattle and equid were fewer than sheep/goat specimens in NISP, they may have provided an equal amount of meat to sheep/goat, if not more (Russell et al 2013: 205; Russell and Martin 2005: 45, also see Russell et al 2013: 209 Fig 11.4). In addition, although cereal consumption was substantial, the regular intake of meat, nuts and tubers at Çatalhöyük compared to some of the contemporaneous sites, such as Jericho and Jarmo, suggested that cereals were *relatively* less emphasized at this site (Atalay and Hastorf 2006: 312). The wild marsh foods were an important part of the diet; rushes and reeds were exploited regularly, and dried or fresh fish might have been used regularly, although in small amounts (Atalay and Hastorf 2006: 295; Van Neer et al 2013). Using resources from the mountain forests, such as wild boar, juniper wood, nuts and hackberries, suggested that the inhabitants periodically ventured into the mountains that are 12-25 km away.

Wild food consumption and the use of mountain resources suggested that the inhabitants spent considerable time away from the buildings, "eating off the land" and collecting food for the storerooms (Atalay and Hastorf 2006: 293). Collection of obsidian, clay from volcanic sources and ground stone material suggested that some inhabitants traveled for days at a time. Isotopic evidence also suggested that some people might have travelled long distances (Richards and Pearson 2005: 321). Overall, diversity and significance of foraged foods and off-site resources suggested that the Çatalhöyük inhabitants were quite mobile.

Bogaard and colleagues described Çatalhöyük subsistence organization as intensive small scale farming and herding that was accompanied by great ideological emphasis on sharing of wild resources beyond the household (Bogaard *et al.*, 2010: 315; BogaardIsaakidou, 2010: 202). Sharing wild game may be linked to an egalitarian ideology emphasized in some hunter-gatherer and farming societies (see Chapter 2, also Demirergi 2013, Bogaard and Isaakidou 2010: 197), and it suggested that hunting large game at the early agricultural site Çatalhöyük may have also been linked to an ethic of sharing central to the social organization. Scholars also pointed out that the uniformity of architecture and domestic equipment in large SW Asian Neolithic sites reflect a collective ideology (Bogaard and Isaakidou 2010, Kuijt 2001, Banning 1998). Storage and material evidence related to sharing surplus as well as large game between Çatalhöyük houses suggested a degree of interdependence that ensured continuity in this large site. Material evidence does not point to significant differentiation between households so far (see Chapter 5).

Although the sequential houses at Çatalhöyük have been proposed to have a distinct status, which may suggest a large degree of household independence, the houses were not independent to manipulating household surplus or use socioeconomic differences to create strong differentiation between household.

Atalay and Hastorf suggested that the lack of major stress in health, the relative stability of quotidian life and the continuation of long term patterns from one generation to the next point to great success in maintaining equality and cohesion at this site (2006: 314-315). A sharing ethos might have played a major role in integrating households, resolving conflict and maintaining this cohesion. Interhousehold meals might have repeatedly provided an arena for solidarity. Given the large size and the dense and continuous occupation of the settlement, meals within and between households likely played a vital role in household integration and the long term success of Neolithic Çatalhöyük.

In the previous chapter (Central Anatolian Neolithic, Chapter 3), I have emphasized that Central Anatolian Neolithic settlements were rooted in a long term tradition that connected hunting-gathering to early agricultural life. In this light, Çatalhöyük should be considered a farming village that maintained many characteristic of a sedentary hunter gatherer society, such as wild food consumption, hunting and food sharing. According to the lines of evidence brought together in this chapter, there are many reasons to suspect that food sharing beyond household occurred regularly and served as social glue at Neolithic Çatalhöyük. In the rest of this dissertation, I will analyze faunal remains from feasting and quotidian contexts of Çatalhöyük to explore evidence for food sharing. I will also investigate cut marks and their relation to butchery, cooking and food sharing at this site.

Chapter 5

Socioeconomic Differentiation at Neolithic Çatalhöyük

In this chapter I analyze zooarchaeological data from middens (trash areas) to explore the following questions:

1. Is there any evidence of social or economic differentiation, within the site (between different areas and houses)?
2. How does the restricted sharing model apply to Çatalhöyük?
3. Were households independent at Çatalhöyük?

5.1. Comparison of Middens by Bone Density

To compare middens by density, I focus on the most common taxonomic categories found at Çatalhöyük, namely sheep/goat and cattle. I compare a total of 21 midden Spaces (Table A1 in Appendix A). Note that not all the midden units from a Space were necessarily selected for analysis. There are 14 occupational levels in the South Areas (Levels South G through T), and five preliminary level categories in the North Area (North F, G, H, I and J). Levels South L through South T are probably contemporaneous with Levels North F through J. The Spaces in this my analysis come from 10 South Levels or their Equivalent in the North Levels (Table A1) spanning most of the occupation and all of the levels that had yielded substantial amounts of data by 2011.

I first compare the two main Areas of excavation--the South Area and the North Area-- in terms of the overall densities of sheep/goat and cattle bones. I also calculate correlation factors between Area and three different variables: overall bone density, skeletal completeness and fragmentation rate. These help me explore potential differences between the two Areas in terms of access to animals, access to meat-rich animal body parts, and intensity of processing (as a measure of meat availability).

Overall bone density is calculated by dividing the number of diagnostic zones (Russell & Martin 2005) found in an Area's selected midden into the total volume of soil excavated from that Area.

To calculate body part completeness in a midden (DZ/MNI), the number of diagnostic zones observed for each (species-specific) skeletal segment or body part is divided by the minimum number of individuals (MNI). MNI is calculated as equal to the most numerous (by DZs) element in a particular midden. Body parts and corresponding elements are as follows:

Head: Cranium, mandible, and horn cores
Torso (Axial + Girdle): vertebrae, pelvis, and sacrum
Upper Limb: scapula, humerus, radius, ulna, femur, patella, tibia and malleolus
Lower Limb: metapodia, carpals and tarsals
Feet: phalanges and sesamoids

Fragmentation rates are calculated by dividing Total DZs by total NISP in a midden. Higher DZ/NISP values suggest lower fragmentation.

Goodman and Kruskal's gamma was calculated to search for potential correlations between Area and overall sheep/goat and cattle densities, body-part completeness ratios and fragmentation rates. Gamma is a measure of association and rank correlation; it indicates whether or not there is a relationship between two ordinal variables or nominal dichotomous variables. Gamma has been computed using IBM SPSS Statistics 22. Density, body part completeness and fragmentation variables have been taken as ranked variables measured at the ordinal level, Area has been taken as a nominal dichotomous variable (North and South). Gamma measure of association ranges between -1 and +1. The boundary between a moderate and a strong relationship is usually taken as 0.4 (Leon-GuerreroFrankfort-Nachmias, 2002: 253). Therefore, in this chapter only gamma values equal to or greater than 0.4 are taken into consideration. Relationships that are between moderate and weak (i.e. gamma < 0.4) are assumed not to reflect a correlation.

In certain cases (when there are many tied cases between the variables), gamma may overestimate the degree of association between variables by ignoring the ties. This can be detected by comparing Gamma to Kendall's tau-c. Similar to gamma, Kendall's tau-c is a correlation coefficient that measures the degree of association between two variables. If the gamma value is double or twice as large as the Kendall's tau-c value, than the gamma is probably overestimated. In those cases Kendall's tau-c has been taken into consideration instead of gamma (see Leon-GuerreroFrankfort-Nachmias, 2002). Like gamma, Kendall's tau-c values also range between -1 and +1. In this chapter, only Kendall's tau-c values that are equal to or higher than 0.3 has been taken into consideration. Values below 0.3 have been assumed not to reflect a correlation.

Statistical significance values (p) smaller than 0.01 are considered highly significant. Values between 0.01 and 0.05 are considered moderately significant, values that are between 0.05 and 0.10 are considered of low significance and treated with caution. Values higher that 0.10 are considered not significant.

The comparison of overall bone density by Area shows that the South Area deposits that are probably contemporaneous with the North Area deposits are denser in bone fragments than the North Area deposits (Table 5.1). Overall density here is taken as the total cattle or sheep/goat DZ in all the middens of an Area divided by the total soil volume (L) removed from the middens of that Area. It should be noted that there were more middens to analyze from the South Area (hence larger soil volume) than from the North. Therefore, the difference may be partly due to the difference in sample size between the two Areas.

Table 5.1 Cattle and Sheep/Goat Density (DZ/L) in Middens by Area

North	Cattle DZ		49.5
	Sheep/Goat DZ		1055
	Soil Volume		27412069
	Number of middens (# of Spaces)		5
	Overall Density DZ/L	Cattle	0.000002
		Sheep/Goat	0.000038
South	Cattle DZ		382
	Sheep/Goat DZ		3113.5
	Soil Volume		71824463
	Number of middens (# of Spaces)		16
	Overall Density DZ/L	Cattle	0.000005
		Sheep/Goat	0.000043

Gamma measure of association was calculated to search for potential correlations between Area and the overall sheep/goat and cattle densities. Although the South Area is overall denser in sheep/goat and cattle, neither Area showed any strong correlation with density in these taxonomic categories (Table 5.2). In other words, the two Areas could not be differentiated in terms of cattle or sheep/goat bone density. The SPSS output of the Gamma calculation tables are shown in Appendix A, in Figures A1 through A4.This can also be observed in Figures 5.1 and 5.2, where both Areas' middens show high variation in densities of both cattle and caprines. I thus infer that cattle and sheep/goat densities *per midden* do not necessarily differ between the site Areas.

Table 5.2 Gamma values for correlations between Area and taxonomic category

	Sheep/Goat		Cattle	
	Gamma	Statistical significance	Gamma	Statistical significance
Area by Density	0.162	0.615	0.139	0.687
Area by Fragmentation	-0.025	0.928	-0.173	0.551

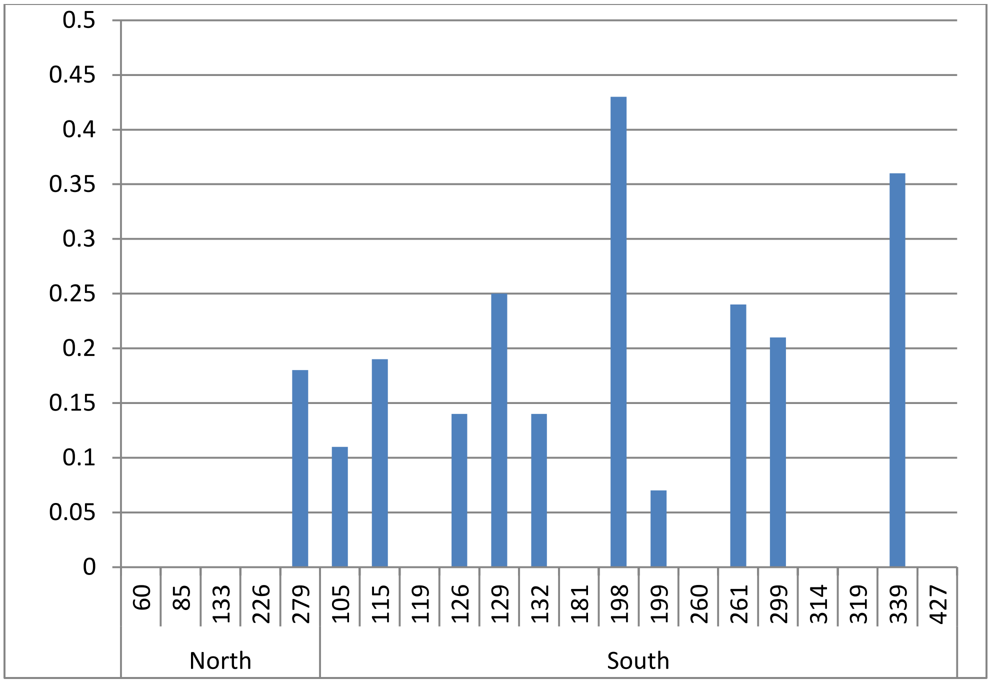


Figure 5.1 Sheep/goat Density (DZ/L) by Space and Area

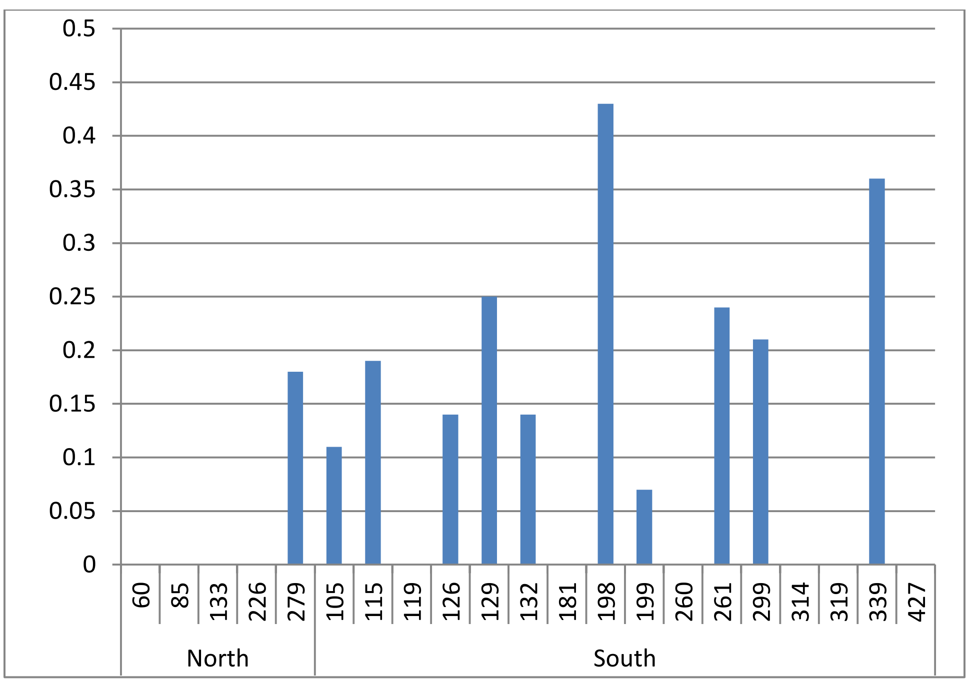


Figure 5.2 Cattle Density (DZ/L) by Space and Area

There was not any significant correlation between Area and bone fragmentation. In other words, the fragmentation ratios for sheep/goat and cattle were not significantly higher or lower in one of the Areas compared to the other; bone fragmentation could not be distinguished based on Area.

Similarly, there was not any correlation between Area and sheep/goat skeletal segment completeness; sheep/goat skeletal completeness was not significantly higher or lower in one of the Areas compared to the other. However, the cattle body part distribution for head, torso and upper limb may be more likely to be complete in the South Area than in the North Area (Table 5.3 and Figure 3, 4 and 5). Table 5.3 shows the correlation values between cattle skeletal segments and Area. I consider the values in bold on the table (See Appendix A, Figures A5 through A9 for SPSS output tables). Although, these show positive relationships between the South Area and some of the cattle body parts, note that the values are not always highly significant and some of the correlations are not strong. Figures 5.3, 5.4 and 5.5 show the body part completeness of cattle head, torso and upper limb respectively, by Space and Area.

Table 5.3 Gamma values for correlations between cattle skeletal segment completeness and Area

	Cattle Skeletal Segment Completeness By Area				
	Gamma	Kendall's tau-c	Strength of correlation	Statistical significance (t-test)	Statistically significant
Head	1.000	**0.317**	weak to moderate	0.010	Yes
Torso	**0.643**	0.327	strong	0.058	Somewhat
Upper Limb	0.636	**0.317**	weak to moderate	0.060	Somewhat
Lower Limb	0.000	0.000	none	1.000	No
Feet	0.310	0.163	weak to nonexistent	0.401	No

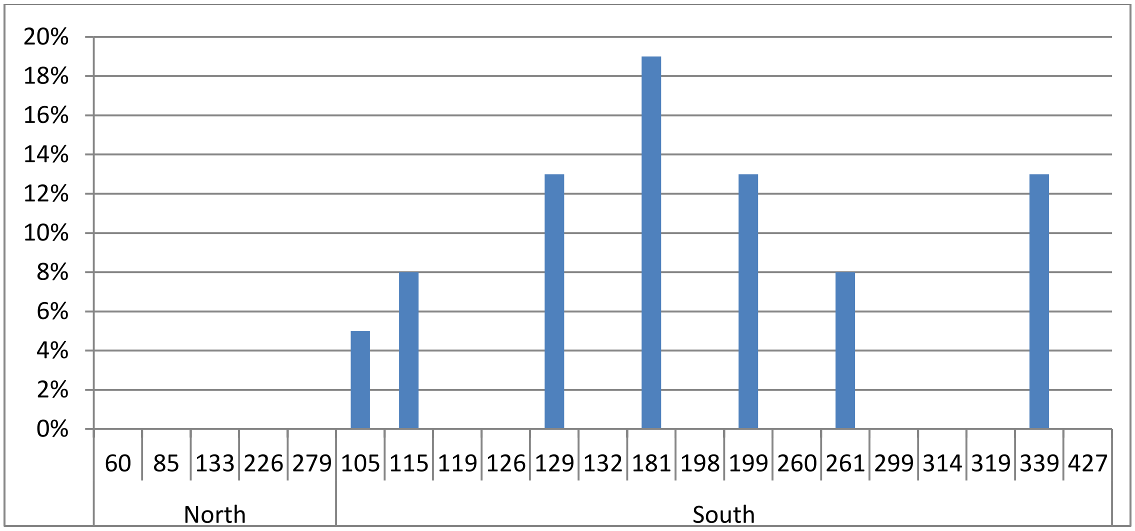


Figure 5.3 Cattle head skeletal segment completeness by Space and Area

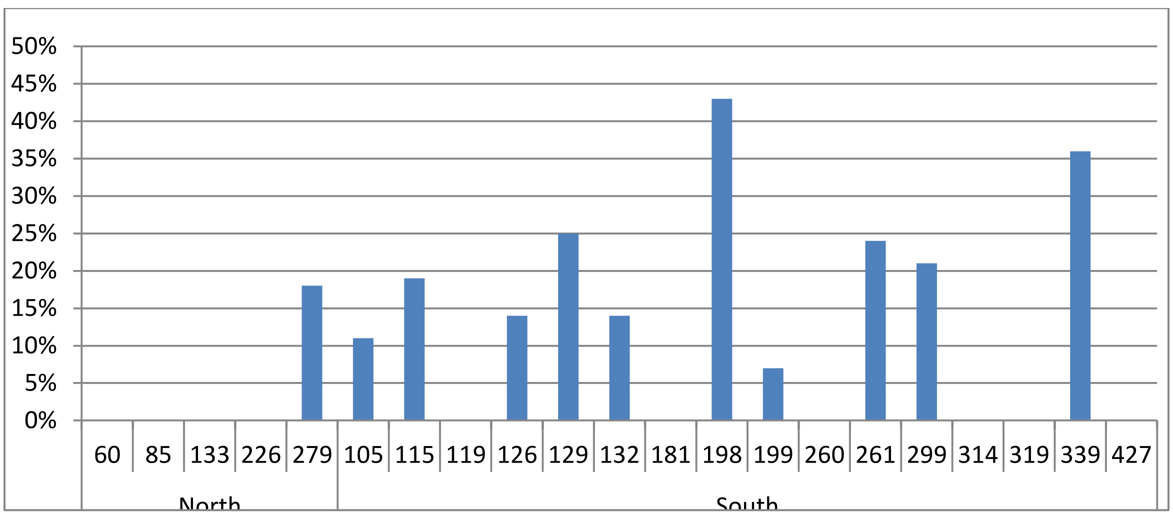


Figure 5.4 Cattle torso skeletal segment completeness by Space and Area

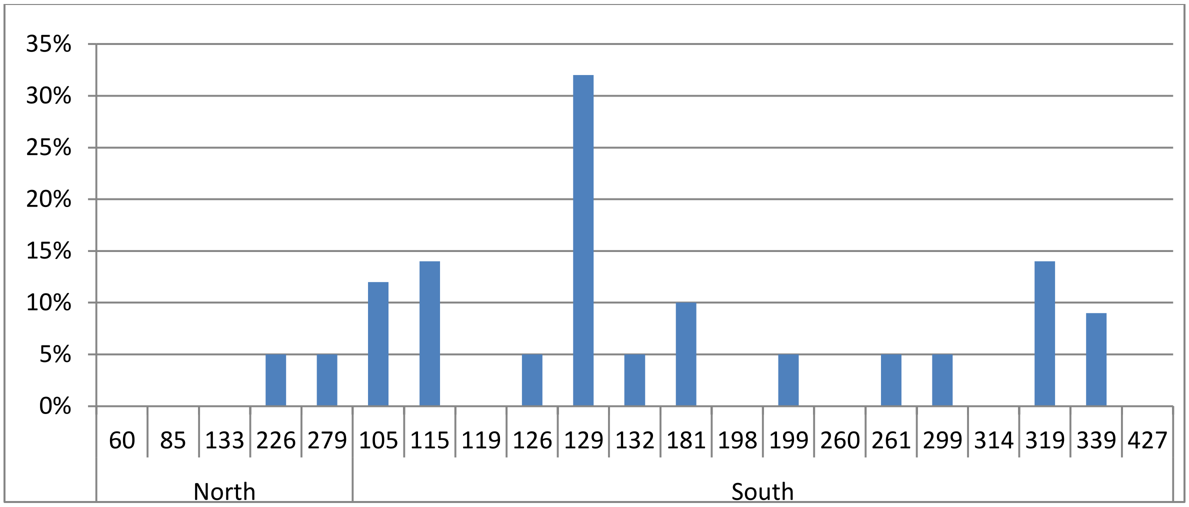


Figure 5.5 Cattle upper limb skeletal segment completeness by Space and Area

Nonetheless, the correlations between the South Area and these cattle body parts may reflect a genuine difference between the two Areas in terms of access to meat-rich body parts. In addition, the cattle specimens from the North Area are not necessarily more fragmented compared to those from the South Area (Figure 5.6). Cattle fragmentation rates in the North Area range between 0.04-0.21 DZ/NISP, and those in the South Area between 0-0.56 DZ/NISP (higher DZ/NISP values mean lower fragmentation). This suggests that fragmentation is variable in both Areas. In addition, Goodman and Kruskal's Gamma suggests a very weak relationship between Area and cattle fragmentation rates (see Table 5.3; gamma=-0.173, p=0.551, not statistically significant). Therefore, the difference cannot be explained by the North Area having more fragmented cattle parts (and thus lower potential for body-part identification) compared to the South Area.

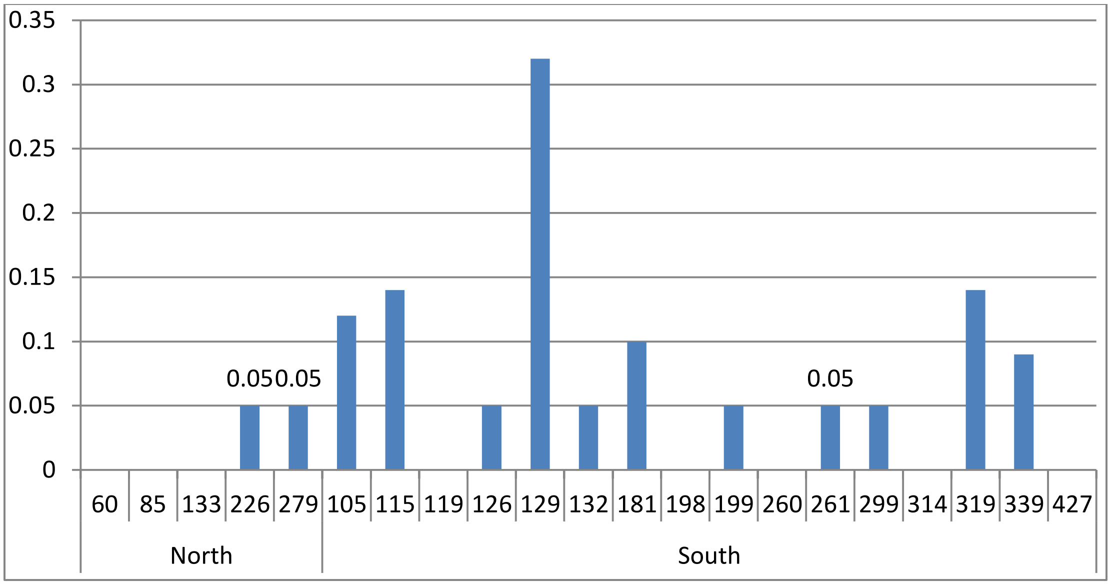


Figure 5.6 Cattle fragmentation by Space and Area (DZ/NISP)

As a result, cattle body part distribution suggests that there are differences between the two Areas, which may arise from several possibilities:

- The South Area may have had better access to cattle torso that is relatively rich in meat. They also may have had a somewhat better access to meat-rich upper limbs. This may mean differentiation, and an imbalance in sharing between the two Areas, if they can be considered sharing units.
- Result may be due to chance since they are not statistically highly significant.
- The difference in the cranial body part completeness may be due to differences between the two Areas in the treatment and disposal of cattle heads, or in terms of their use in displays versus discard into middens. Therefore, this may point to a difference in cultural practice between the two Areas, but not necessarily differentiation or an imbalance in sharing (this will be further explored below in "differences in disposal of sheep/goat and cattle" section).

Overall, the density and fragmentation of sheep/goat and cattle and the body part distribution of sheep/goat by Area suggest that there was no significant difference between the two Areas in terms of general access to meat. Although the two Areas differ in a few criteria (i.e.

the body part completeness of meat-rich cattle torso and upper limb), the correlations were either weak to moderate or only somewhat significant statistically. In addition, if they indicate genuine differences, then this potential does not extend to sheep/goat body parts or to the overall access to animals measured through midden densities. Therefore, it is possible that the two Areas were not differentiated and that they shared equally if they acted as social units in any way.

Kohler et al suggested that reciprocal exchange is commonly practiced up to a certain level of population (max ~ 1000-4999) (2000: 364). Therefore, with increasing population, the sharing unit may become larger and change from households to sodalities and clans in some agricultural societies. Based on dental metrics and morphology, the individuals from the two Areas appeared to be phenotypically distinct (although the biological differences between the two groups are not significantly distinctive) (Hillson et al 2013: 345). This led to the suggestion that the two Areas may have represented separate moieties (Hillson *et al.*, 2013: 342). If so, the faunal variables analyzed do not indicate clear differentiation or a significant imbalance in sharing relationships between the two moieties.

5.2. Differences in the disposal of sheep/goat and cattle remains

To explore potential differences in disposal of sheep/goat and cattle between the two Areas, I have compared the densities of the two taxa to each other in each midden.

The two Areas indeed provided different results. In the North, the densities of cattle and sheep/goat correlate positively with each other: i.e. the middens with a relatively high density of one taxon have a similarly high density of the other taxon. However in the South Area, the two categories did not correlate with each other. Figure 5.7 provides indications that there may be correlations between the densities of cattle and sheep/goat in the Spaces of the North Area. Indeed, statistical analysis suggested that the association between sheep/goat and cattle densities in the North is a perfect positive correlation (gamma: 1.000, Kendall's tau-c: 1.000, Appendix A, Figure A10). However, the correlation between proportions of the two taxa in the South is weak to nonexistent (gamma: 0.068, p=0.776, Appendix A, Figure A11). However, it should be noted that the sample size in the North is small (5 Spaces) when compared to the one in South (16 Spaces).

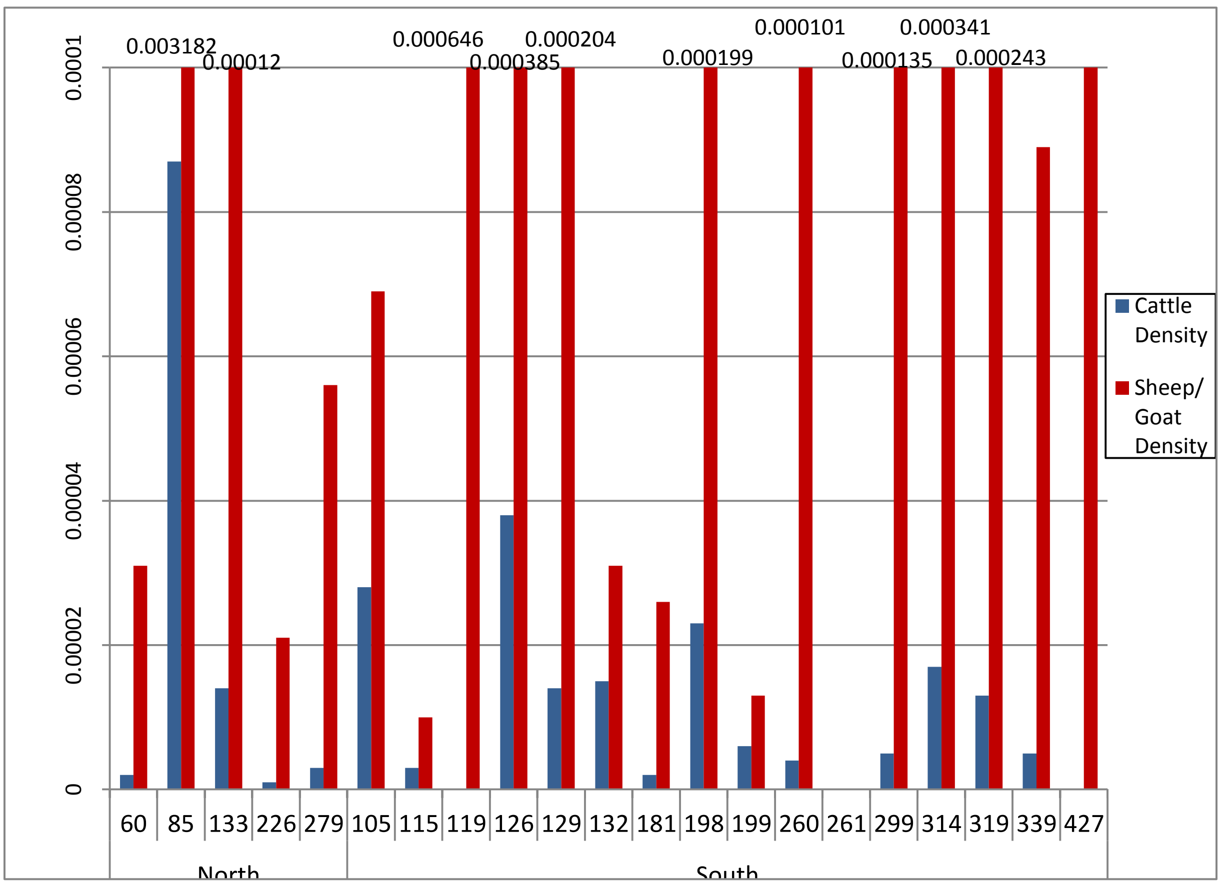


Figure 5.7 Sheep/Goat and Cattle Density Correlations within the North and South Areas (Note that the vertical axis has been cut off at 0.0001 for better visual observation, the density are indicated for the columns that were cut off).

It is thus possible that in the South, sheep/goat and cattle were treated, consumed and/or discarded differently, whereas in the North, they followed similar paths. Several possibilities arise. Two intriguing possibilities are that:

- South and North may have had different cultural practices. In the South, sheep/goat and cattle might have been shared, consumed and/or discarded differently from each other, whereas in the North, they were treated in similarly. If feasts were associated more with cattle and quotidian meals more with caprines, the difference between the two Areas might indicate that feasting and quotidian food refuse were discarded differently in the South. This implication is similar to the one in the previous section that cattle might have been shared and/or disposed of differently in the South versus the North, due to the finding that some cattle body parts seem more complete in the South.
- In the North, access to caprines vs cattle was similar across households, whereas in the South, houses differed in access to sheep/goat vs cattle. However, access to sheep/goat vs cattle was not necessarily mutually exclusive in the South because no moderate or strong negative correlation has been detected between the densities of sheep/goat and cattle.

Overall, South and North seem to differ in the treatment of cattle versus sheep/goat. In the North, these taxa seem to have been discarded in similar ways to each other, whereas in the South they were discarded in different ways in that cattle may have been discarded in more complete form compared to sheep/goat. This may indicate a difference in feasting practices; it is possible that more feasts were held in the South, or feasts were discarded differently in different Areas. For example, feasting remains might have been discarded as abandonment clusters in or underneath the house fills instead of middens in the North.

So far, I have made a general comparison between the Areas. Next, I will examine potential differences between houses. However, before doing so, I will attempt to take a closer look at the middens available for this analysis, in terms of their relationships to the adjacent houses and the kinds of trash they may carry.

5.3. Household trash: potential midden types

My analysis of middens included all of the site's middens that were fully faunally recorded by 2011. These middens come from a range of Spaces. Therefore they vary in certain aspects such as chronology, size and surroundings. It may be possible to differentiate between these middens, or focus on certain kinds of middens to get a better understanding of quotidian food practices (Table 5.7).

The boundaries of most of these midden spaces have not been completely exposed (especially the ones in the South Area). However, in some cases, the deposits from these middens are stratigraphically associated with the adjacent houses. Excavator note on the Çatalhöyük database that these deposits are likely to be stratigraphically associated with a particular house(s). Micromorphological work has indicated that fine layers in a midden often contain domestic refuse (Shillito *et al.*, 2011: 1035). In many cases, the deposits stratigraphically associated with house walls comprise of fine midden layers. Table A1 shows whether the deposits from a certain Space are associated with a building, and the building number associated. In one case (Space 314), the Space seems to be a yard or a private trash area of a building. The deposits that are not stratigraphically associated with a building are also located next to buildings, however, their link to adjacent buildings are not clear. Sometimes a midden deposit is not stratigraphically related to the adjacent wall, or it is related to an unexcavated wall.

Nonetheless, an effort is made during excavation to seek for links between midden deposits and nearby walls, and there is a possibility that many of the deposits not associated with walls actually do not link to a particular building.

These deposits may be different than the ones stratigraphically associated with a building in certain ways: For example, they may contain trash from multiple buildings, or they may have been irregularly used to dump trash and for other activities. We do not have enough information to assume that these deposits are similar to each other or that they make a coherent category. However, a comparison of the middens associated with houses to the ones not associates with a particular house may prove useful in defining quotidian household trash and habitual food practices.

Goodman and Kruskal's Gamma has been calculated to measure the degree of possible correlation between a deposit's association (house vs unknown) and three faunal variables (density, body-part completeness and fragmentation). Only one strong relationship has been found: the midden deposits associated with a house differ from the rest of the middens in terms of the density of sheep/goat bones: These deposits are more likely to have higher density of sheep/goat bones, and the result is highly significant (gamma: -0.758, p= 0.000, statistically highly significant) (see Appendix A, Figure A12 for SPSS output table). This can also be seen on Figure 8. The densities of the middens associated with houses (categorized as "HouseWall" on Figure 5.8) are generally higher than the densities of the rest of the middens (categorized as "Midden" on the graph). In addition, the same results are obtained when these two categories are compared within the North and the South Areas separately. The gamma values are displayed in

Table 5.4 (See Appendix A, Figures A12, A13 and A14 for SPSS output).

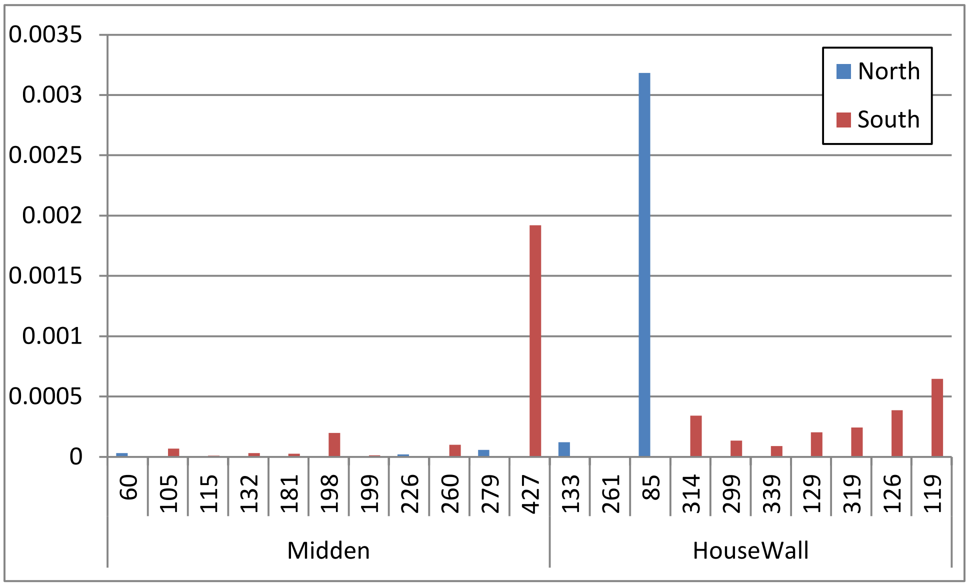


Figure 5.8 Sheep/goat density in middens linked to specific houses (categorized as "HouseWall") versus the rest of the middens (categorized as "Midden").

Table 5.4 Gamma values for correlations between sheep/goat density (DZ/L) and the presence of a stratigraphic association between a midden and a house

	All areas		North		South	
	Gamma	Significance	Gamma	Significance	Gamma	Significance
Midden association and sheep/goat density (DZ/L)	- 0.758	0.000 Highly significant	-1.000	0.000 Highly significant	-0.643	0.008 Highly significant

The correlation of high sheep/goat density with middens associated with houses may simply be a matter of accumulation: These middens might have been used more regularly or more intensively by a particular house, whereas the rest of the middens might have been used less regularly, or intermittently for household trash and other activities, including filling the area to build house foundations. Therefore, it is possible that the deposits with unknown associations are more heterogeneous in content than the house middens due to the lesser degree of repetition. Irregular use of a midden might have also led to the difficulty of associating a midden with a particular house during excavation.

Mazzucato's analysis on archaeological material density in various Spaces at Çatalhöyük sheds further light into my analysis (2013). According to her study, hot spots describe areas of high material density, cold spots describe low material density (Mazzucato, 2013: 50). Therefore, I would expect the middens associated with houses to be hot spots and those not associated with houses to be cold spots. 8 out of 21 middens in my analysis are designated as hot or cold spots according to Mazzucato's work (Table A1). 5 out of 8 Spaces in my analysis are supposed to be 'hot' and the rest are supposed to be cold. Of five hot spots, four come from middens associated with houses. Of three cold spots, one come from a midden associated with a house. Therefore, most (6 out of 8) of the middens designated as hot or cold fit my expectation, which means they are rich in multiple kinds of materials, as well as bones. This supports the suggestion that these middens were used more intensively and regularly for household trash compared to any other kinds of middens.

I next compare middens to each other to get at potential differences across the site. I compare all the deposits to each other to search for any associations between a faunal variable and a specific location. I also make a comparison within the deposits associated with houses in terms of faunal variables. These comparisons provide possible elements of differentiation and parity between houses, which I discuss next.

5.4. Differentiation and Sequential ('History') Houses

Ten out of the twenty one deposits in this analysis belong to a chronological sequence of middens which are stratigraphically associated with a total of four sequential houses. This midden sequence displayed some differences compared to the rest of the deposits. The houses associated with these middens were built exactly on top of one another, with very similar layouts and features. Hodder and Pels called these and other sequential houses at Çatalhöyük history houses, and suggested that these houses may have claimed certain links to the past and ancestors and gained privilege or distinction within the society (2010). According to Hodder and Pels, in addition to these houses, elaborate houses, such as larger houses or those with relatively more displays/paintings, and houses with a high number of burials might also have differed from the more ordinary houses. Building houses continuously may have played an important role in the persistence of sharing networks, debt relations and obligations through time (see Meillasoux 1972) and led certain houses at Çatalhöyük to become distinguished over time. There is some evidence that supports this proposition:

- Hodder and Pels proposed that some houses display continuity through architecture, internal layout and other internal features (2010).
- Based on the proposition that these houses have smaller processing and storage spaces, Hodder and Pels argued that they might have produced less food and provisioned more from other houses (2010: 178).
- Human remains suggest that people buried in history houses may have had less workload (based on the fact that osteoarthritis was less severe in these individuals) compared to those buried in other houses (Larsen *et al.*, 2013: 402).

However, there is also some evidence contradicting that the history houses were distinguished:

- Human remains analysis pointed out that people buried in history houses were more likely to have osteoperiostitis (an indicator of nonspecific stress such as bacterial infection or trauma) , suggesting that they did not necessarily have better health or protection from diseases (Hillson *et al.*, 2013: 375 & 379).
- Human remains analyses also suggested that there was a lack of differentiation between the history houses and other houses in terms of many criteria such as growth in stature and body mass (364), growth pattern in children (p 360), dental caries rate (386) (Hillson *et al.*, 2013:364, 360 & 386).
- Carleton et al suggested that the house sequences are not necessarily associated with higher numbers of burials (Carleton *et al.*, 2013). If house burial was a sign of distinction, then the sequential houses are not more distinguished than other houses.

In terms of faunal analysis, if these houses were somehow more privileged and produced less food themselves, then the faunal signature in the sequential middens is likely to show one or more of the following indications:

- The sequential middens should carry less butchery remains (head and feet) and/or more consumption remains (torso, upper and lower limbs) (I explore the possibility that these houses engaged more in ritual activities rather than domestic food production. If so, these houses may have been provided with animal parts by other houses rather than butchering animals themselves).
- The sequential middens should have higher densities of cattle bones, if privilege meant better access to valuable cattle.
- These middens should have a higher density of sheep/goat if privilege meant access to meat in daily life.

The faunal analysis suggests that the house sequence has a strong positive correlation with sheep/goat density compared to the rest of the midden deposits (gamma: 0.604, p=0.006 highly significant) (Appendix A, Figure A15). As seen on Table 5.5, the total sheep/goat density in sequential houses (0.000154 DZ/L) (total sheep/goat DZ in all sequential middens divided by total volume), is also higher than that of the rest of the deposits (0.00025 DZ/L). Although the latter midden group contains a few high density values, the majority of the midden densities are smaller than the ones in the sequential middens category (Figure 5.9).

Table 5.5 Cattle and Sheep/Goat Densities in Sequential and Non-sequential Middens

	Soil Volume	Sheep/Goat DZ	Cattle DZ	Sheep/Goat Density	Cattle Density
Middens linked to sequential houses	12898109.33	1987.5	114	0.000154	0.000009
Middens linked to non-sequential houses	249896.75	136	15	0.000544	0.000060
Middens linked to non-sequential houses and middens not linked to any houses	86338422.95	2181	317.5	0.000025	0.000004

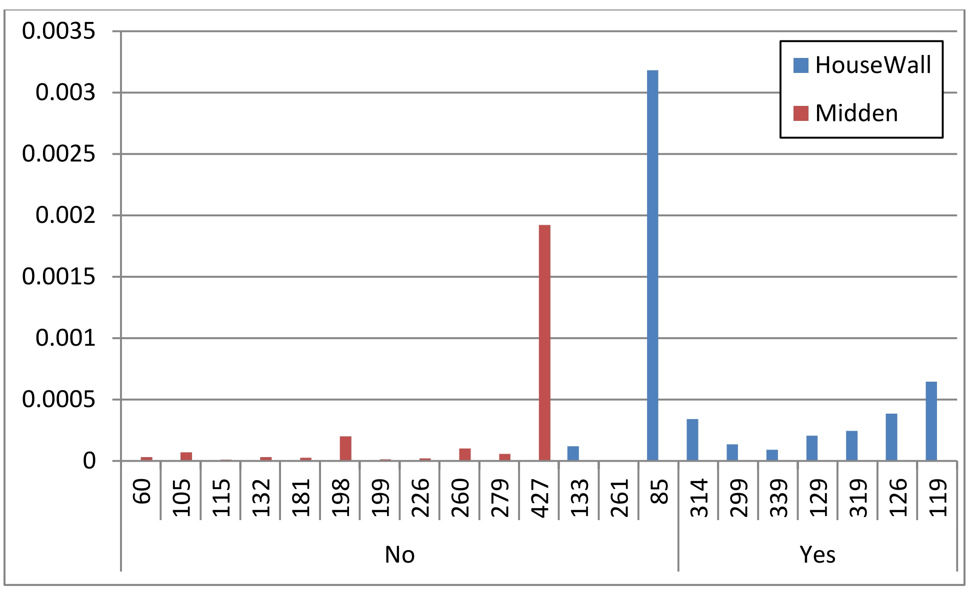


Figure 5.9 Sheep/goat densities (DZ/L) in sequential ('Yes') versus all other middens ('No'). The legend shows whether a midden is linked to a specific house ('HouseWall') or not (Midden').

Although the total sheep/goat density (0.000154 DZ/L) in sequential houses is higher than that of the remaining middens, it is much lower than the total sheep/goat density in nonsequential middens associated with houses (0.000544 DZ/L) (Table 5.5). However, the gamma calculation did not show a statistically significant correlation between nonsequential middens linked to houses and sheep/goat density.

The gamma calculation did not show any statistically significant correlations between sequential middens and cattle density either. However, the total densities comparisons revealed similar results to the sheep/goat density comparisons: The total cattle density in sequential houses (0.000009 DZ/L) is higher than that of the remaining middens, but it is much lower than of the nonsequential middens associated with houses (0.000060 DZ/L) (Table 5.5).

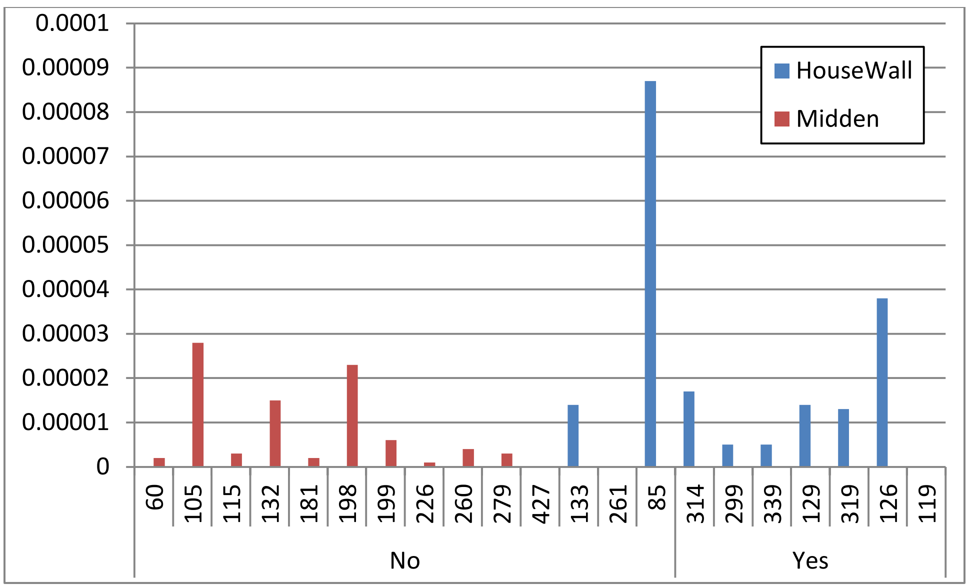


Figure 5.10 Cattle densities (DZ/L) in sequential ('Yes') versus all other middens ('No'). The legend shows whether a midden is linked to a specific house ('HouseWall') or not (Midden').

So far, although we see a potential differentiation in meat access, the pattern does not hold when only the house-associated middens are compared to each other. This means that the difference may originate from comparing house-middens to other middens that were potentially used less regularly or intensively. It is possible that the high sheep/goat density in history houses and the non-history houses as opposed to middens with unknown association is due to repetition and consistency in use of a midden area for household trash refusal. In case of the history houses, due to building houses on the same spot, the households might have had to use the same midden more intensively; they might have had constricted space for trash and used their surroundings more intensively. Hence the relatively high and consistent sheep/goat densities across history house middens.

Although the average density of sheep/goat in non-history house middens is actually higher than the history house middens, they are much more variable possibly due to the fact that these come from three different houses as opposed to the rebuildings of one sequence of houses (So far, there is no indication that these houses were occupied for longer than the rest of the houses, which could have explained the high sheep/goat density).

The lack of association with cattle density may either support the idea that the sequential middens did not have better access to cattle and were not distinguished, or that potential differentiation did not affect access to cattle.

In terms of body part completeness, a comparison of the house-associated middens to the remaining middens revealed only one statistically significant association. This is a strong positive correlation between sequential middens and sheep/goat cranial fragments, and the relationship is statistically highly significant (gamma: 0.579, sig: 0.008) (Appendix A, Figure A16). An analysis within the house-associated deposits also confirmed that the sequential middens had more complete sheep/goat cranial fragments than non-sequential middens associated with houses (gamma: 1.000, p= 0.000, highly significant) (Appendix A, Figure A17). It additionally revealed that these houses had more complete cattle feet body parts compared to the non-sequential deposits that are associated with a house (Kendall's tau-c: 0.480, p=0.020, moderately significant) (Appendix A, Figure A18). Sheep/goat head and cattle feet are relatively poor in meat, thus the sequential houses might not have been much better off in terms of meat access. In addition, head and feet body parts, which are butchery wastes, do not necessarily indicate that the sequential houses were provisioned meat.

On a contrary note, this analysis also suggested correlations between sequential middens and meat-rich body parts, but these correlations are not statistically significant, therefore they may have occurred by chance. The gamma values suggests that sheep/goat torso (gamma: 0.600, p=0.078, not significant) and cattle upper limbs (gamma: 0.773, p=0.080, not significant) are likelier to be more complete in sequential middens rather than nonsequential middens linked to houses (Appendix A, Figures A19 & A20). Figures 11 and 12 show the body part completeness percentages of sheep/goat torso and cattle upper limbs respectively, in sequential versus nonsequential middens that are linked to a particular house. Table 5.6 shows the median and the range for these categories. The sheep/goat comparison in Figure 11 suggests that the torso completeness is higher in most cases in the sequential middens. Similarly, Table 5.6 suggests that the median is higher in the sheep/goat torso completeness of the sequential middens. The cattle body part distribution in Figure 12 suggests that the upper limb completeness is higher in only some of the sequential middens. The median of the cattle upper limb distribution is somewhat higher than that of the nonsequential middens associated with houses. This may indicate differentiation in access to meat-rich body parts. However, the evidence is not strong. Thus, according to the Figures 11 and 12, the cattle pattern seems slightly weaker than the sheep/goat pattern. In other words, the body part distribution in sequential middens may have been more complete in sheep/goat torso parts, but not in cattle upper limbs.

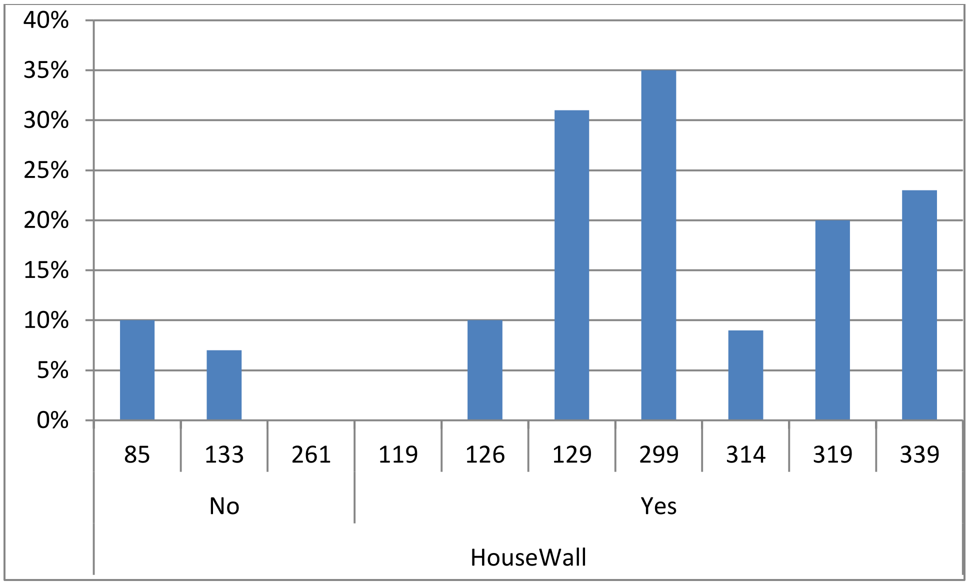


Figure 5.11 Sheep/goat torso skeletal segment completeness in sequential ('Yes') versus non-sequential ('No') middens link to specific houses.

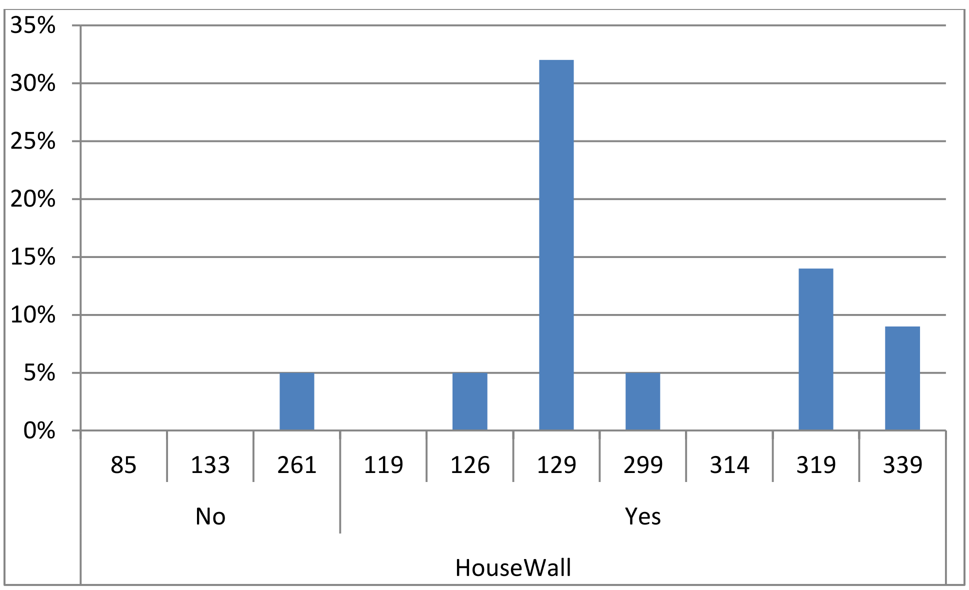


Figure 5.12 Cattle upper limb skeletal segment completeness in sequential ('Yes') versus non-sequential ('No') middens linked to specific houses.

Table 5.6 Descriptive statistics for sheep/goat torso and cattle upper limbs in sequential versus non-sequential middens linked to specific houses.

	Sheep/Goat Torso		Cattle Upper Limb	
	Sequential House Middens	Nonsequential House Middens	Sequential House Middens	Nonsequential House Middens
Median	0.21	0.07	0.05	0

My analysis also revealed that the sequential middens (which are all associated with specific houses) were correlated with higher cattle fragmentation when compared to the nonsequential middens (whether or not associated with a specific house) (gamma: -0.522, p=0.027, moderately significant). Within the middens that were associated with specific houses, the sequential middens were also associtated with higher cattle fragmentation compared to the nonsequential middens (gamma: -1.000, p=0.000, highly significant)(Appendix A, Figures A21 & A22). This may indicate heavy processing of cattle meat, as opposed to a privileged access to cattle in the sequential houses.

In sum, the statistically significant correlations suggest the following results:

1. The sequential middens had higher sheep/goat density than all the middens combined, but this may be due to the highly repetitive use of middens associated with particular houses compared to middens not linked to a particular house (because the average density of sheep/goat and cattle in the former midden category is lower than in the latter category).
2. The sequential middens had more complete butchery parts for sheep/goat and cattle compared to the nonsequential house middens. Thus, the residents of sequential houses butchered and processed animals, and that they were not necessarily provided meat by other houses.
3. The sequential middens had higher cattle fragmentation when compared to the rest of the middens or to the nonsequential middens associated with houses. This may indicate more intensive processing of cattle, hence poorer access to cattle.

There is no statistically significant evidence for better access to cattle or sheep/goat body parts in sequential houses. The results that are not statistically significant may or may not reflect genuine differences between middens. If the sheep/goat torso completeness in sequential middens reflects a genuine difference, then one possible reading would be that the sequential houses had better access to sheep and goat meat, but not necessarily to cattle meat.

A social differentiation may be discerned from the indications that these houses practiced strong repetition in construction as well as midden use over time. If that is the case, the faunal evidence suggests that they were not provided meat by other houses. If the sequential houses had any ritual or social distinction within the society, it was limited and did not translate into a clear economic or nutritional advantage.

In terms of food sharing, the butchery parts pattern may suggest these houses might have shared meat-rich consumption parts of sheep/goat and cattle with other houses. However, if that is the case, it does not necessarily mean that they had more meat than other houses.

Now that I discussed the faunal signature from middens and their inference on differentiation and food sharing, I move on explore my analysis in terms of household independence at Çatalhöyük.

Table 5.7 Midden spaces and stratigraphic association

Space	Stratigraphic association with a house vs unknown association	Stratigraphic association with a Sequential vs Non-sequential House	Building # (if stratigraphic association is possible)
126	House	Seq	B10
119	House	Seq	B10
129	House	Seq	B44
319	House	Seq	B44
339	House	Seq	B56
314	House	Seq	B65
299	House	Seq	B65
133	House	Nonseq	B82
85	House	Nonseq	B3
261	House	Nonseq	B53
279	Unknown	N/A	
226	Unknown	N/A	
60	Unknown	N/A	
260	Unknown	N/A	
132	Unknown	N/A	
427	Unknown	N/A	
105	Unknown	N/A	
115	Unknown	N/A	
198	Unknown	N/A	
199	Unknown	N/A	
181	Unknown	N/A	

5.5 Independent households, self-sufficiency and interdependence

The discussions on the potential independence and self-sufficiency of the early agrarian households are encumbered by the ambiguities of the terminology on houses and households. Archaeologists struggle when using these terms because their meanings are often too culture-specific and amorphous to be revealed in the material culture.

House may mean one or multiple buildings. It can sometimes include the surrounding landscape. In 'house societies' it can mean a corporate entity that is larger than the sum of its components. It may involve a whole lineage including dead ancestors, or a number of social units that may or may not reside together.

Similarly, the term household may refer to a social unit that may or may not live together. Its meaning may depend on what a house is in a society. In addition, households may at times overlap in that a person may belong to more than one household. A further complicating factor is the fact that these are dynamic terms that may change through time and space within a society.

In this chapter, I use the word house to refer to a single building, and I will use the words building and house interchangeably to refer to domestic dwellings. I will use the word household to refer to people who presumably inhabited each building, regardless of whether they were biologically related or not.

Some scholars suggest that the households were independent at the Neolithic Çatalhöyük. The clearest evidences that support the household independence are as follows:

- Each house have basic domestic features, such as cooking, processing and storage facilities.
- Each house have a simple ground stone core kit (Wright, K. I. K., 2014: 18-19).

- Most ground stone artifacts were found indoors (Wright, K. I. K., 2014: 13-14) which suggest that plant food processing was an indoor activity. Indoor hearths, ovens and storage spaces also suggest that these processing and cooking were relatively private activities.
- Plant data suggest that food processing was small-scale household level and the plants were processed piecemeal, often indoors (Bogaard *et al.*, 2013: 99 & 113).
- Built storage features suggest that the plant storage was probably enough for the annual requirements of a family (Bogaard *et al.*, 2009: 661).
- The fact that certain houses had sequential and repetitive architectural characteristics might suggest that these houses were independent in making decisions regarding continuity. Hence, at least certain houses might have acted independently in some ways.
- During and Marciniak suggested the settlement plan suggest in increase in household independence in the later levels of the Neolithic Çatalhöyük (Düring, Bleda SMarciniak, 2006: 179).

There are also some indications that households were not completely independent:

- Ground stone evidence suggests that the large querns are rare and they were possibly shared by multiple households (Wright, K. I. K., 2014: 15). Based on this evidence, Wright suggests that households were not self-sufficient at Çatalhöyük (Wright, K. I. K., 2014: 28).
- Many houses had similar architectural features and internal layouts to each other, which may suggest that house construction was somewhat standardized, and that a household was not independent in constructing a house. It is possible that building a house was a communal activity that involved people outside of the household, and that the household might have been bound by communal rules of house construction.
- From the very beginning of the settlement, Çatalhöyük houses were built close to each other, with very little space in between houses, and little opportunity for a house size to expand over time. This led Tringham (2000: 129), who was inspired by Chapman's study on European Neolithic settlements (Chapman 1989), to argue that Çatalhöyük was somewhat similar to European tell settlements, where houses were not independent. She argued that the Çatalhöyük architecture emphasize similarity and conformity and she

contrasted it to the open settlements of Neolithic Europe where houses are not close to each other, and seem to be more independent.

- Isotopic and dental microwear analyses by Henton and faunal analysis by Russell and colleagues suggest that sheep herding was done communally at least in the earlier levels. These works suggest that whether the animals were owned by individual families or not, they were likely pooled into common herds and grazed on common pasture lands. This suggests that households may have been interdependent. Alternatively, they may have been independent in domestic activities, and cooperated to some degree in food production.

If the houses were independent in how much food they can accumulate, it is possible that some houses would accumulate more than others, and hoard their surplus instead of sharing with other houses. They could control their own food storage, and they could decide what to do with surplus and how much meat to share, if any. In that case, it is likely that differences would emerge between houses in terms of storage and meat, and these differences might even have augmented over time.

If houses were not independent however, then, this may mean that there were social and economic limitations about how much food to store or share, and rules about sharing surplus with others. One scenario (inspired by Hegmon 1996) could be that every house kept their own annual food storage, and shared any surplus beyond that. It may be that the early agricultural technology did not lead to large surpluses, but it might also have been difficult to control the amount of yield, and in some years, yields larger than intended might have been possible. When surplus was available, there might have been a strong sharing ethos that urged people to share all or part of the surplus evident in the parallels detected between houses in terms of storage, architectural layout and meat access.

To summarize the parallels in meat access, there was no discernible differentiation in terms of cattle or sheep/goat body parts completeness within each Area, which suggests that access to meaty body parts was similar for all houses within an Area. The houses were not significantly different from each other in terms of the intensity of meat processing (i.e. bone fragmentation) either, which again suggests equivalence in meat access within an Area.

The difference in cattle body part completeness between the two Areas may suggest differentiation between two potential groups, but it may or may not be related to household independence. Taphonomic factors aside, the sequential houses might have been independent in certain ways, but it is important to keep in mind that these houses do not differentiate from others in many aspects. If these houses gained any ritual privileges, this possibly did not translate into social and economic independence.

5.6. Discussion and Conclusions

Although my analysis revealed some differences between households, it also highlighted major parallels across the village, which leads me to believe that household at Çatalhöyük might not have been independent. Although there is evidence of self-sufficiency at Çatalhöyük archaeological record, this may not translate into clear household independence. The similarities in meat access between houses suggest that there was likely a strong tradition of food sharing between houses. The lack of differences between middens in terms of meat access may be explained by common traditions in food practices. However, the lack of differences particularly between the *specific* midden units that were stratigraphically associated with particular houses suggest that there was a strong food sharing ethos. Some of this sharing might have been practiced frequently without leaving any archeological record, and another part of this sharing might focused on surpluses. These emphasize an egalitarian social structure at Çatalhöyük. Although differences between houses existed, these likely did not accumulate over time to turn into differentiation. Lack of chronological change discernible through data used in this analysis might also suggest that differentiation was not significant at Çatalhöyük. The chronological stability may reflect the role of egalitarianism in the persistence of this village for a thousand years. This is interesting for a large Neolithic village that had self-sufficient houses with private storage and whose population might have reached thousands (Cessford 2005). This could be an indication that the Neolithic period in SW Asia did not necessarily reflect a transition from egalitarianism to differentiation. It is possible that in the case of Çatalhöyük, Neolithic period reflects an egalitarian sedentary agricultural way of life.

Chapter 6

Butchery and Cooking at Neolithic Çatalhöyük

6.1. Introduction

Cut marks on bones shed light on past butchery, processing, cooking and consumption practices.

6.2. Methods of analyzing cut marks at Çatalhöyük

2380 specimens in the Çatalhöyük assemblage carry cut marks. This number represents the amount of 'cutting events' rather than the individual cutting motions. Most cut marks occur in multiples even though they have a single purpose, such as dismemberment or filleting. Each set of marks created by a particular task has been counted as one cutting event. However, when there is more than one cut type on a specimen, these are counted separately. For example, if a rib fragment carries a dismemberment cut near the rib head and filleting cuts on the rib shaft, these are tallied as two separate cutting events.

The overall frequency of cut marks in the assemblage is low (0.2%); this is probably due to the fact that at Çatalhöyük, chipped stone tools are mostly made of sharp-edged obsidian. It has been proposed through experimental work sharp obsidian tools result in a lower frequency of cut marks compared to other materials of chipped-stone (DewburyRussell, 2007a).

6.2.1. Types of cut marks

According to the location, the orientation and the depth of the cut mark on the bone, the Çatalhöyük Faunal Team has categorized seven main cut types: dismemberment, filleting, consumption, marrow fracture, skinning, horn removal and tendon removal in the order of frequency (Binford 1981, Frisson, Guilday et al 1962). Dismemberment, filleting, consumption and marrow fracture (add skinning?) cuts are analyzed to discuss the processing, cooking and sharing practices in Çatalhöyük.

Dismemberment cuts occur while disarticulating the major joints of an animal during primary butchery, thus they are usually found on the joints, near the epiphyseal ends of the bones (Binford 1981: 104-138). These cuts are deep and usually occur as a single cut or a set of multiple parallel cuts. Filleting cuts usually occur subsequently, while stripping meat off the bone (Russell, NerissaMartin, 2005).

Filleting may be done in order to produce meat strips suitable for drying and preservation, or in order to acquire slices or strips to cook (or eat) off the bone. In addition to long bones they are commonly found on ribs on the proximal shaft (Binford 1980). They are light in depth and "oriented diagonally or longitudinally to the long axis of the bone" (Russell and Martin 2005:85). These cuts are usually found as multiple cuts parallel to each other.

Consumption cuts mostly occur when meat is cooked on the bone-- they are produced when cooked meat is carved or cut away from the bone to eat (Russell, NerissaMartin, 2005). Such cuts are more likely to occur on baked or roasted meat than on boiled or stewed meat, because the latter tends to separate from the bone relatively easily (although slow, long roasting can also produce easily separable meat—e.g., American barbecue).These occur often on the meaty parts of a bone, as multiple cuts next to each other, but not necessarily parallel to each other. These can be very similar to filleting marks, but they are usually deeper in depth, often oriented transversely to the long axis of the bone and less often parallel to each other.

Marrow fracture cuts usually occur when the bone surface is prepared and the periosteum is removed for marrow breakage. These cuts appear as scrape marks or abrasion. The marrow break is often found nearby these cuts. The marrow fracture cuts are rare in the assemblage. However, this does not necessarily imply that the bones were rarely broken for marrow. As a matter of fact the high fragmentation in the bones suggests otherwise. The low number of marrow fracture cuts may reflect the difficulty of recognition on highly fragmented bones.

6.2.2. Units of analysis

I analyzed the cut marks on the basis of animal size class rather than taxon because many cut marks occur on taxonomically unidentifiable specimens such as ribs and long bone shaft fragments. Taxonomic representation at the site indicates that most of the bones in ‘sheep-size’ category probably come from domestic sheep and most of the bones in ‘cow-size’ category come from cattle.

The most common cut mark types are dismemberment, filleting and consumption. The rest of the cut marks have substantially smaller sample sizes. Expectedly most of the cut marks are found on the two most frequent animal categories, namely sheep-size and cow-size categories. I focus on these three most common cut types to get at butchery, processing, cooking, consumption and sharing practices of sheep-size and cow-size animals in Çatalhöyük.

6.3. Contextual cut mark analysis

In this section, cut marks are analyzed according to two main kinds of contexts: the depositional and the consumption contexts. Depositional context help understand where the bones carrying cut marks were discarded and whether there were any selection on the discard of these bones. Cut mark creation depends on the butcher's experience, kinds of tools, butchery style/tradition, and butchery and processing location (on site, off site, middens, houses …etc.).

The cut marks are found in the two most common depositional contexts: midden and fill. This is expected considering that these deposit types yield the majority of the bones, and the fill deposits are usually dug from the middens and redeposited elsewhere to fill and level a house or an outdoor area (i.e. fills are usually tertiary deposits).

Consumption contexts (quotidian, feasting, special) help understand whether the consumption event can be considered quotidian, nonquotidian or unusual. Specific meals such as a feast with a large amount of articulated cattle bones can sometimes be delineated and analyzed separately. Consumption contexts help examine whether processing patterns are different in usual and less usual contexts (see Chapter 7).

Quotidian category is expected to yield most of the cut marks because it has the majority of the bones. However cut marks are found most frequently in the "feasting" category and followed by the quotidian and the special categories respectively. Figure 6.1 show the number of cuts divided by the total bone weight in each consumption category.

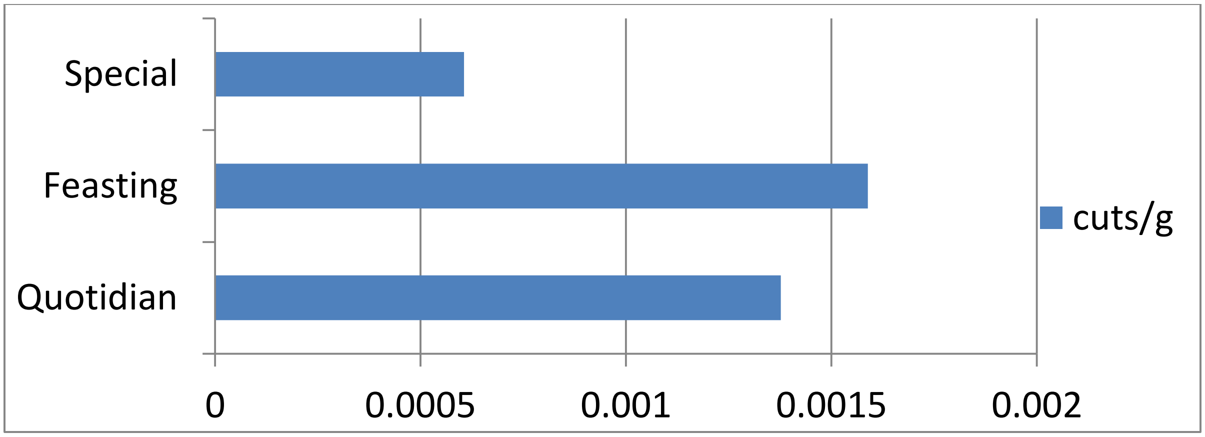


Figure 6.1 Number of cuts divided by total bone weight in each consumption category

There may be several reasons for the high frequency in feasting contexts: First, feasting deposits usually contain bones that are less fragmented. Second, the each bone in a feasting deposit may receive more attention by the zooarchaeologists because the deposit is usually smaller and more unusual. Third, animal parts used in feasts might have been butchered in a different style, or by special butchers. Fourth, the bones might have been butchered by less common tool types, especially non-obsidian tools that tend leave more cut marks. However, although there are special types of non-obsidian tools at Catalhoyuk, a potential correlation between tools made with materials other than obsidian and unusual or special tool characteristics has not been detected. The possibility of special butchers is interesting in relation to butchery specialization, but it conflicts with the assumption that experienced butchers are supposed to leave less cut marks on the bones (Russell & Dewbury 2012).

To detect further differences in the cut mark patterns I looked at the distribution of cut marks on skeletal parts in different consumption categories.

6.4. The distribution of cut marks on the animal body

6.4.1. Distribution of dismemberment cuts on the animal body

Figure 6.2 shows the distribution of dismemberment cut marks on the skeletal parts of sheep size and cow size bones in different consumption categories. For both sheep size and cow size specimens, the dismemberment cut distribution on the body changes only slightly across all consumption contexts, except in the feasting context of the cow size bones. The cut pattern in this context differs somewhat from the rest of the contexts. However, this may be a consequence of the small sample size. Overall, the similarities across consumption contexts may suggest that primary butchery was always done in the same way regardless of the consumption context. However, this may not have profound social implications because there are a limited number of ways in which a ruminant can be taken apart with simple technology and relatively limited effort.

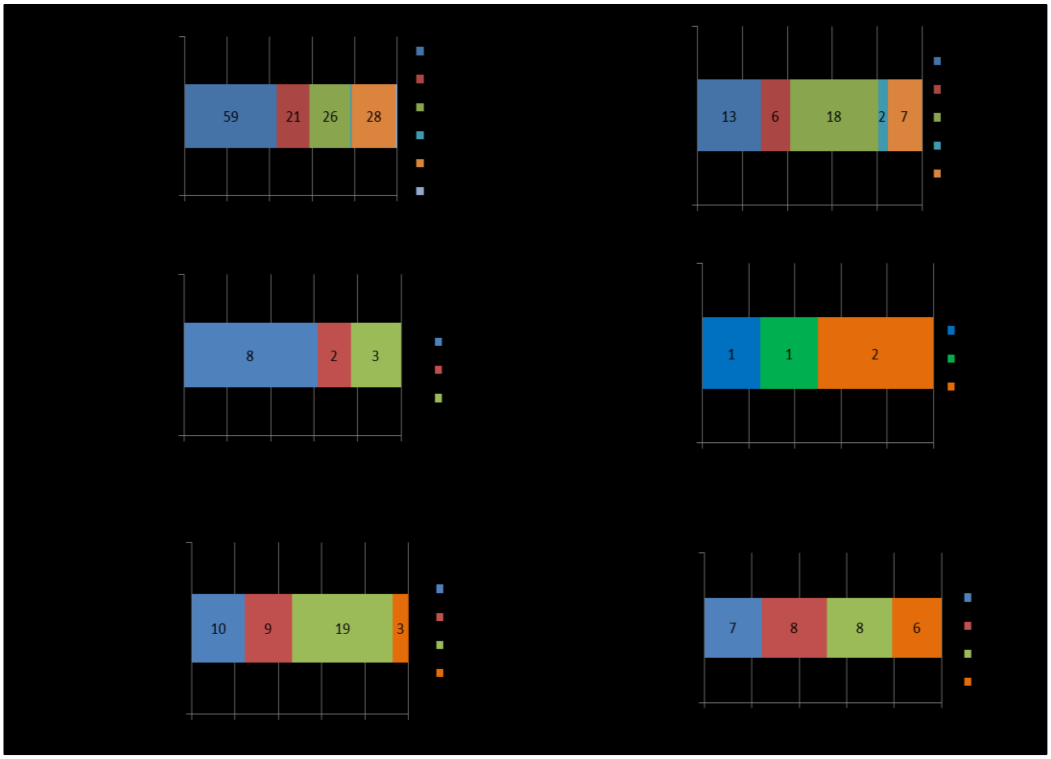


Figure 6.2 Percentages of dismemberment cut marks on the skeletal parts of sheep size and cow size bones in different consumption categories. Numbers on the chart reflect the number of cut marks (i.e. the sample size).

6.4.2. Distribution of filleting and consumption cuts on the animal body

For sheep-size fragments the distribution of both filleting and consumption cuts on the body stays virtually the same across consumption contexts (Figures 6.3 and 6.4). However, both the filleting and the consumption cut patterns on the cow size fragments change considerably depending on the context. Therefore, although primary butchery (evident through dismemberment cuts) seems to have been standardized across contexts, further processing of different body parts in processes such as storage, smoking, cooking meat with or without the bone and carving of the meat cooked with bone may have depended on the consumption context. The contextual differences in filleting and consumption patterns may reflect different cooking styles, sharing patterns, stone tool types or butchers involved in different occasions of consumption.

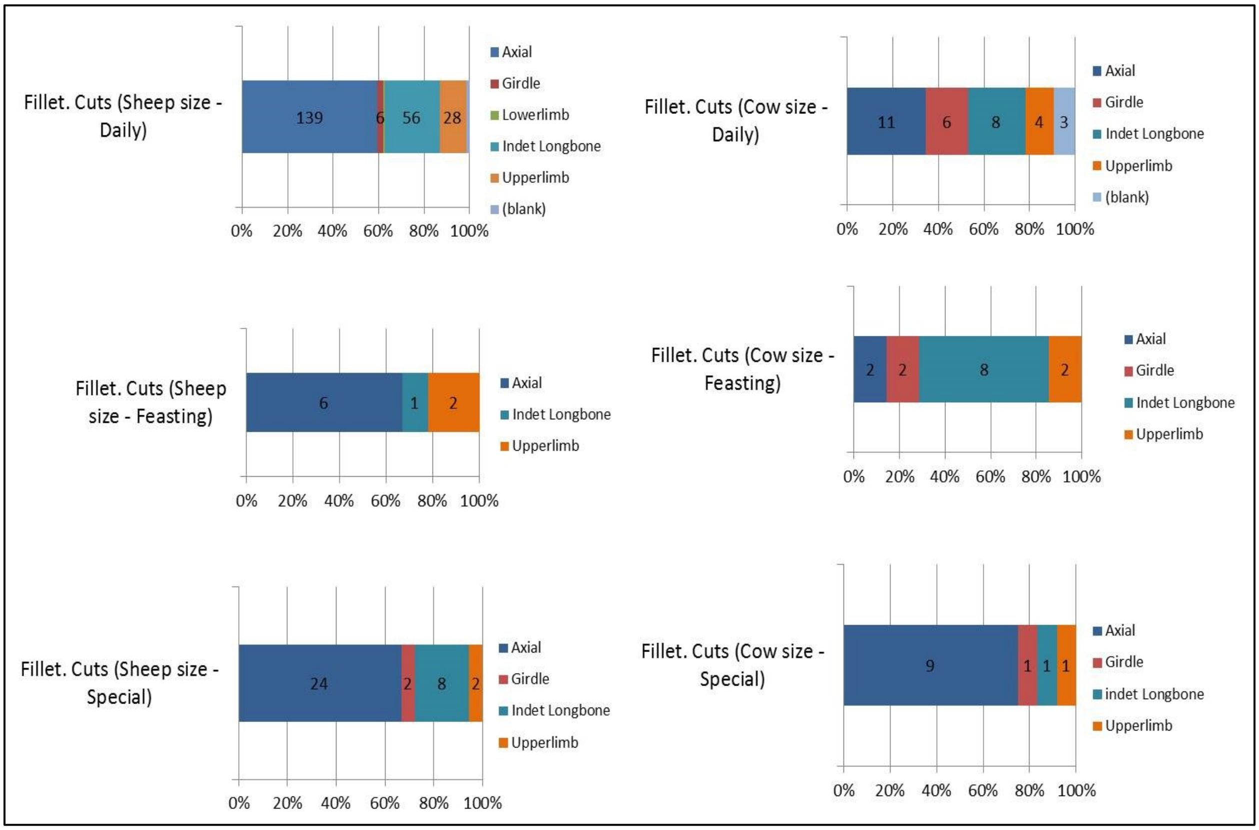


Figure 6.3 Percentages of filleting cut marks on the skeletal segments of sheep size and cow size bones in different consumption categories. Numbers on the chart reflect the number of cut marks (i.e. the sample size).

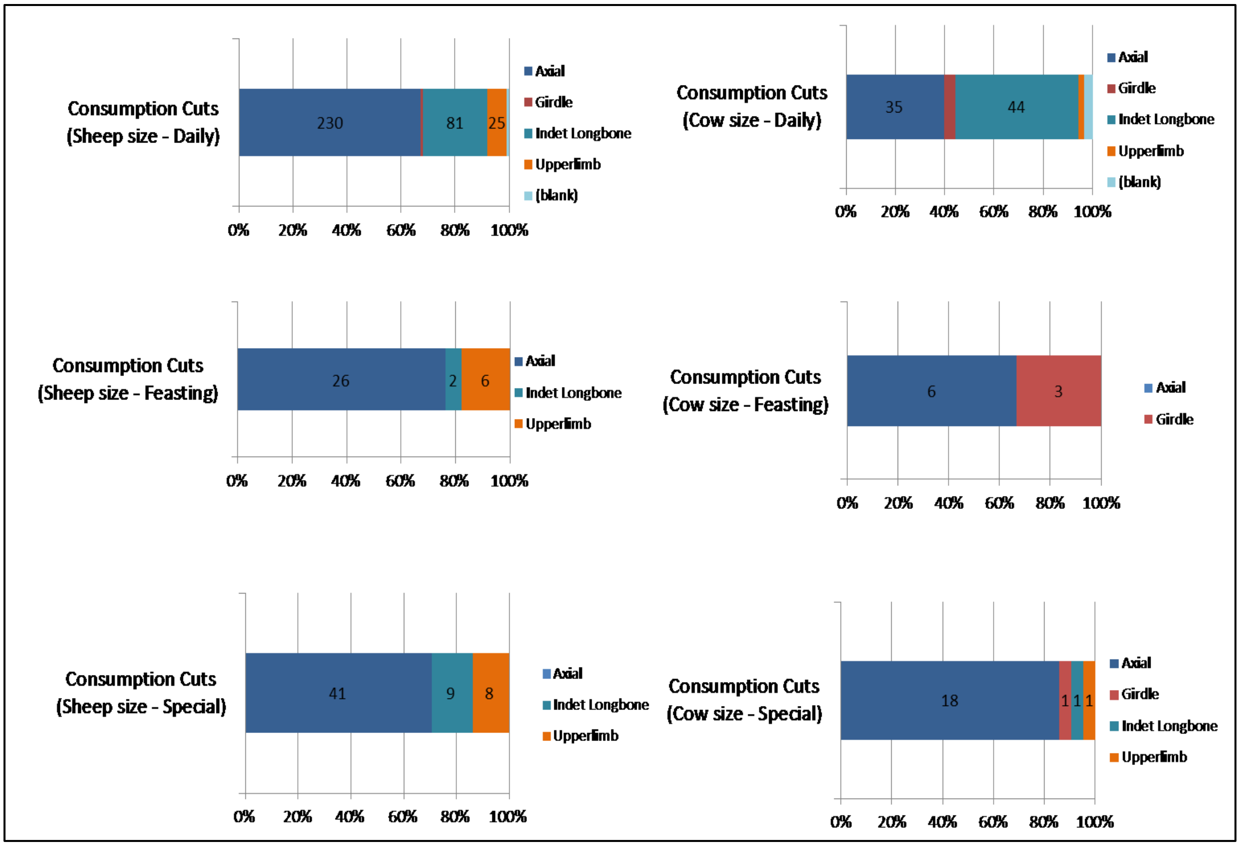


Figure 6.4 Percentages of filleting cut marks on the skeletal parts of sheep size and cow size bones in different consumption categories. Numbers on the chart reflect the number of cut marks (i.e. the sample size).

In sum, sheep size bones seem to have been treated the same across consumption contexts in terms of the distribution of cut marks from both primary butchery (i.e. the dismemberment marks) and further processing (i.e. the filleting and consumption marks). Cow size bones were also treated similarly in terms of primary butchery. However, further processing of these bones varied depending on the consumption context. It should be pointed out that the differences in the cut mark patterns cannot be explained simply by the differences in the body parts available in these contexts. As noted in the Body part analysis (Refer to section: Bpr analysis) all body parts are used in all the consumption contexts. Even though there are some uneven distributions, these do not match the cut mark frequencies on the body parts. For example, in the special context in Figure 6.4, the consumption cuts on cow size bones are most frequent on the axial bones even though the axial bones are underrepresented in this context.

In conclusion, body part distribution of the cut marks according to consumption categories suggest that sheep-size animals were treated the same regardless of the consumption context, whereas cow size animals display a more complex picture. This may be due to the lower numbers of cow size bones carrying cut marks. In addition, although the cow size animals were dismembered the same way regardless of consumption context, further processing of these animals may have varied depending on the context.

In addition, there is not a clear distinction between the quotidian context and the non-quotidian contexts (i.e. feasting and special contexts). All three contexts seem different from each other in terms of the distribution of cut marks; the non-quotidian contexts are not any more similar to each other than they are to the quotidian context patterns. This implies that the non-quotidian patterns do not necessarily merge into a single coherent pattern. Instead they display diverse butchery, cooking, consumption treatments, especially in the case of cow size specimens.

6.5. Chronological Cut Mark Analysis

Figures 6.5a and b show the chronological changes in cut mark frequency on the dominant animal categories at Çatalhöyük. This analysis was limited to the South Area where the chronological data is more secure and detailed compared to the other areas of the mound. For this analysis, the chronological sequence has been divided into two categories: Levels South H through M and Levels South P through T. The Levels South N and O are currently being excavated and therefore have been excluded from this analysis. There are a number of changes that occur after Level South M, such as a decrease in the use of clay balls, an increase in the use of deep cooking jars, a change in the lithic tool material sources and lithic tool types, and the appearance of domesticated cattle. These changes are discussed in Chapter 4. In addition, Düring and Marciniak suggested that the houses become more independent in the later levels of the site, compared to the earlier ones. In this analysis, I investigate potential diachronic changes in cut marks distribution. Here, I consider cut marks per gram of bone recorded in a particular animal-size category. The analysis includes all depositional contexts (midden, construction/makeup, floors in order of frequency) except the fill deposits, which are tertiary. Figures 6.5 and 6.6 show the number of bones with cut marks found in a group of occupation levels (South H-M and South P-T) divided by the total weight of bones from an animal-size category found in that group of occupation levels.

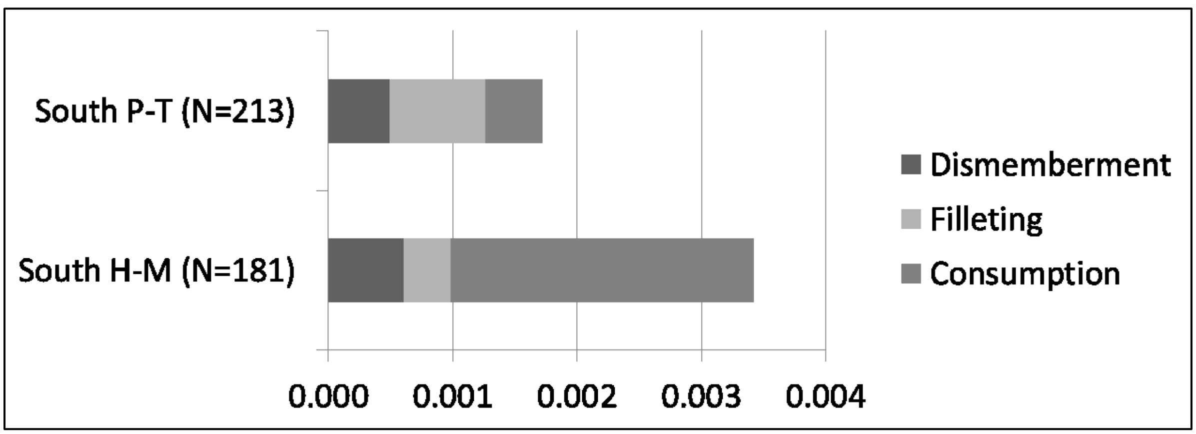


Figure 6.5 Number of cut marks in sheep size category per gram of sheep size bone recorded in a group of occupation levels. 'N' reflects the total number of cut marks found in that group of occupation levels.

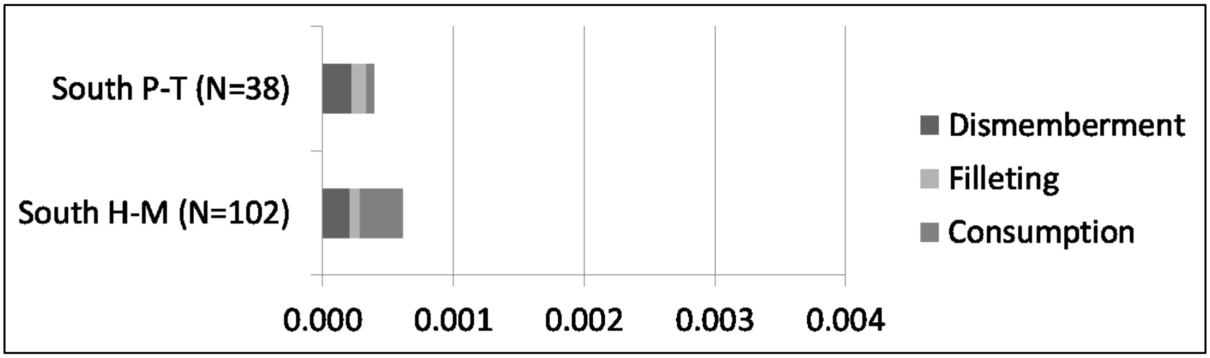


Figure 6.6 Number of cut marks in cow size category per gram of cow size bone recorded in a group of occupation levels. 'N' reflects the total number of cut marks found in that group of occupation levels.

6.5.1 Chronological changes in dismemberment cuts

The frequency of dismemberment cuts in the Çatalhöyük faunal assemblage does not change through time for either sheep-size or cow-size animals. This suggests that over the centuries primary butchery techniques stayed more or less the same at Çatalhöyük (see also Russell, Nerissa *et al.*, in press). However, this stability does not necessarily have profound social implications because there are a limited number of ways in which a ruminant can be taken apart with simple technology and relatively limited effort.

6.5.2 Chronological changes in filleting cuts

The frequency of filleting increase on both sheep-size and cattle-size animals through time (see also Russell, Nerissa *et al.*, in press) suggesting that villagers of these later generations were processing more of their meat prior to cooking it, perhaps for drying (i.e., meat storage) and/or stewing, boiling or even grilling (Russell, Nerissa *et al.*, 2014a, in press).

The possibility of a diachronic increase in stewing is supported by evidence for the greater use of pottery in the mid-later phases (AtalayHastorf, 2006; Last, 2005b). Given the relatively small size of pots and the lack of large serving vessels in Çatalhöyük, it is likely that cooking pots were used primarily or entirely for household consumption (Yalman *et al.*, 2013). That said, stews cooked in the largest pots could have fed a few families at once (Yalman *et al.*, 2013). While still relatively small-scale, such meals might have involved consumption and food sharing beyond the scale of a single dwelling. Numerous small and medium-sized vessels could, of course, have been assembled to feed quite a large group, as at a potluck. In the absence of any house with an unusual quantity of pots as might indicate feast-hosting, the most parsimonious model of large-group sharing of stewed foods would be a collective undertaking.

Conversely, the possibility of storage might indicate an increase in building or household self-sufficiency, and thus tie in to various suggestions that house units became more independent in the site's upper levels (Düring, Bleda S., 2005; HodderPels, 2010). Given that a sheep, or even more so, a cow, yields a relatively large amount of meat, it is unlikely that one co-residential unit could consume the entirety before it begins to spoil. Particularly with an animal as large as a cow, it is ethnographically common to share out at least some of the meat. However, the quantity distributed may be inversely related to the amount destined for household storage. Thus, if the increase in filleting does reflect an increase in meat preservation, it is possible that we are looking at a complementary decrease in inter-house food sharing. However, such interpretation rests on numerous assumptions, and can only be taken as speculative.

6.5.3 Chronological changes in consumption cuts

Consumption cuts in Çatalhöyük decrease over time (Figures 6.5 and 6.6) (see also Russell, Nerissa *et al.*, in press). This suggests a decrease in cooking methods such as roasting and baking that require carving or cutting during consumption. Roasting is a common cooking method in ethnographically documented large scale feasts (Wandsnider, 1997:21). Therefore, the decrease in roasting/baking might theoretically indicate that large scale consumption declined during the site's later occupation. I hesitate, however, to imply that roasting was common in any level, and emphatically do not argue that communal food sharing necessarily decreased. With regards to the former point, no faunal remains from any level display localized burn patterns characteristic of roasting (Russell, NerissaMartin, 2005; Russell, Nerissa *et al.*, in press). That said, the dearth of such burns could easily be explained away. Not all roasts develop burned ends, and/or large scale cooking might have been done at the edge of the site rather than among the houses, for both practical and social reasons (Russell, NerissaMartin, 2005), so the Çatalhöyük team may simply not be finding the bones from large roasts or barbecues. In regards to the latter, while roasting is ethnographically associated with feasting, other preparations are certainly shared as well.

6.6 Discussion and Conclusions

That cut mark trends on sheep-size and cow-size bones are similar is intriguing, considering the special treatments that cattle bones are known to receive at Çatalhöyük (e.g., Russell et al. 2009: Table 2, Russell and Meece 2006: Table 14.5, Twiss and Russell 2009). While these similarities in processing must be in part attributable to a common anatomical logic, it is also possible that they testify to either regular consumption of cattle in quotidian contexts or parallels between cooking practices used for household meals and those used for ritual or special consumption (e.g., Twiss 2010).

Assuming that cut mark trends reflect changes in processing and cooking methods, sheep and cattle were equally affected by the overall changes in culinary practice. The increase in filleting and the decrease in consumption cuts both suggest that as time passed, meat was increasingly removed from the bone before cooking: the increase in filleting cuts suggests a preference for cooking boneless meat, while the decrease in consumption cuts suggests either cooking boneless meat or boiling the meat so that it easily falls of the bone. It thus appears that as time passed, the inhabitants of Çatalhöyük relied increasingly on stewed rather than roasted meat. Ceramic data support this contention as well: pottery, which makes for easier stewing than does basketry, becomes more common over time (Last 2006).

In sum, the cut mark patterns suggest decreasing use of dry heat methods (e.g., roasting or baking) and increasing preference for stewing for both sheep- and cow-size animals. There might have been a decrease in large-scale communal consumption, and an increase in small-scale stewed meals, midway through the Çatalhöyük occupation sequence. These smaller meals might have been cooked and consumed on a household scale, or on the scale of a few households.

Although the body part distribution of cut marks suggest that cattle were treated differently from sheep-size animals depending on the consumption context, the overall changes in cooking and/or storage practices seem to have affected both animal size categories.

Chapter 7

Feasts at Neolithic Çatalhöyük

In the previous section (Chapter Six), I investigated the chronological changes in the cut marks, suggested certain changes in cooking and the degree of food sharing between houses and discussed how these changes relate to those in pottery use.

In the following section, I investigate food consumption and suprahousehold sharing by analyzing the bone clusters that have been identified as feasting deposits based on their pronounced contrast to the bulk of the site faunal assemblage (Russell, Nerissa *et al.*, 2009; Russell, Nerissa *et al.*, in press).

7.1 Feasts: Scale, serving size and social function

Feasts can occur at many scales, ranging from a few people to hundreds. A large range of serving sizes must be considered to estimate the potential number of people involved in each feast. Meat consumption per person depends on various factors. For example, a general dearth of meat can result in small serving sizes. Pumé, who go through seasonal undernutrition (Kramer *et al.*, 2009: 431-2) eat very small portions of meat. Greaves has documented an instance, during the dry season when resources are relatively abundant, where two turtles, an armadillo and four lizards were shared by an entire Pumé camp (i.e. 11 adults and 10 children) (2007: 21).

Environmental restrictions aside, different serving sizes are often associated with the size of the animals chosen to be served at ethnographic feasts. Large animals, such as cows and water buffalo, are often consumed in large servings. For example, Akha of Northern Thailand mostly consume chicken, pigs, cows, water buffalo or a combination thereof in their feasts. They dice up the meat and the bones of pigs and chicken, but they are less likely to dice up the larger animals such as cows and water buffalo (Clarke, 1998: 202).

Meat from large animals are not only served in large portions, but also served to larger crowds. It is unlikely that a water buffalo is killed and consumed by a nuclear family for a small feast. Such a feast usually requires a lesser amount of meat in total and relatively small serving sizes.

Consequently, serving size, animal size and the total quantity of meat all play a factor on the scale of feasts. Further, the scale estimates can help infer what kinds of feasts were held at Çatalhöyük in terms of social function. Based on ethnographic research, it is possible to build rough correlations between 1) feast size, 2) serving portions and 3) the social aspects of feasts in terms of integration and competition. Although feasts are complex phenomena that entail both solidarity and competition (Dietler, 2001: 77; Twiss, Katheryn C., 2008: 419) many ethnographers allude to some kind of correlation between the number of participants, the amount of food available and the 'extravagance' of the feast in terms of promotion of the host and competition between individuals or families (e.g. Clarke, 2001: 55-8; DietlerHerbich, 2001:

242). Therefore, I consider a spectrum of feasts ranging in their emphasis from integration to competition and the possible archaeological correlations along this spectrum.

Based on ethnographic research in small scale societies, it can be generalized that feasts that involve large servings of food for a large crowd tend to facilitate the promotion of the host and/or competition between individuals and families, whether or not they enhance solidarity within the community. Whereas feasts that provide relatively small servings of food to a large or a small crowd tend to emphasize communality and solidarity rather than the promotion of the host or competition between the participants.

Adams' study on Kanan in Indonesia provides insights into the relationship between meat amount and social function (2004). Among Kanan, curing feasts, house feasts and funeral feasts can be small or large in terms of the number of participants (Adams, 2004: 62-5). The ones that promote the success of the host involve a large number of participants and large amounts of food that would allow for large portions (Adams, 2004: 64). Adams notes that one type of curing feast that was held largely to promote the host required lots of food including six pigs and was attended by probably "hundreds of people from Kanan and neighboring villages" (2004: 62-3).

In addition, some of the larger 'house feasts' in Kanan can have a strong promotional aspect. In these feasts hundreds of chickens and one or more pigs are served to hundreds of people (Adams, 2004: 64). Likewise, one water buffalo and one pig were "killed and eaten on a single day" in a largely promotional funeral feast in Kanan (Adams, 2004: 64). Similarly, Akha of Northern Thailand hold large wedding feasts where the host invites many guests, including members beyond his own clan from other villages (Clarke, 1998: 92-3). In these feasts the host makes an effort to impress the guests by his generosity. In one instance, "a very large pig (approximately 1 m long)" was consumed by about 75 people in the course of three days (Clarke, 1998: 93).

The smaller kinds of feasts tend to provide smaller amounts of food. Among Kanan the smaller work feasts and the smaller agricultural feasts involve modest amounts of food. The small work feasts help recruit laborers during the construction of a house. The host serves a lunch with meat and rice to a small number of individuals (Adams, 2004: 64). The small agricultural feasts are held to mark the planting of rice and, promote its growing (Adams, 2004: 63). In these feasts, a household (nuclear family and married children in some cases) eats chicken and rice. These feasts play an important role in reinforcing solidarity within the household. Similarly, Akha of Northern Thailand also hold small feasts for reinforcing the solidarity within the nuclear family (Clarke, 1998: 55 & 60-3). These usually involve the consumption of rice and a chicken in a simple ceremony (Clarke, 1998: 60-3). It can be inferred from these accounts that these feasts are modest in terms of serving portions when compared to the larger promotional feasts mentioned above.

In sum, based on ethnographic data, I make the following generalizations: 1) Small feasts typically involve smaller serving portions; they are rarely as lavish as larger feasts 2) Larger feasts may involve small or large serving portions; those with large serving portions tend to emphasize promotion and competition more than communality.

However, the rough correlation between feast size (i.e. the number of participants), total food amount, serving size and social function does not always apply neatly. Some large and competitive feasts may emphasize food quality and style instead quantity (Dietler, 2001: 85).

Others may emphasize differentiation by serving prestige foods, delicacies, narcotics or drinks rather than copious amounts of food. For example pigs were strongly associated with chiefly consumption in Hawaii. In quotidian consumption and in feasts in Hawaii, pig consumption signified prestige regardless of the meat amount (Kirch, 2001: 179).

In addition, this correlation does not simply translate into cultural significance. Small feasts can be as important as large feasts. For example, ancestral offering ceremonies in the case of Akha are small nuclear family-scale feasts, but they are central to Akha belief system (Clarke, 1998: 60-1).

Having suggested a link between serving portions, size and social function of feasts, I now turn to the archaeological data from bone clusters.

7.2 Bone Clusters

Remains of individual meals can illustrate the scale of consumption and sharing practices. At Çatalhöyük, many bone clusters have been recovered and they have been identified in the field by excavators and/or faunal specialists using the following criteria:

- spatial clustering of remains
- multiple bones in articulation
- large fragments of bones
- bones of cow size animals (such as equids, cattle or deer)

Tight clustering of multiple remains and multiple articulating elements are each considered sufficient to define a cluster, but the other criteria cannot stand alone. After excavation, each field-identified cluster is evaluated by a faunal specialist to assess whether it constitutes a faunally coherent special deposit or a (generally inadvertent) agglomeration of nonspecial or quotidian food remains (the determination rests on several criteria that are listed below).

The bone clusters that have been identified as an agglomeration of quotidian food remains are excluded from the following analysis. Quotidian food remains constitute the large preponderance of the Çatalhöyük faunal assemblage—particularly in midden contexts-- and are assumed to represent quotidian household-level consumption. They are characterized by the following criteria:

- they contain mostly sheep-size animals
- they include elements from all body parts
- they contain relatively highly fragmented specimens
- the bones bear possible traces of having been broken open for marrow or processed for bone grease
- the bones have varying surface conditions within a depositional unit (e.g., a single midden layer), indicating that the specimens were deposited at different times and exposed to taphonomic influences.

In contrast, bone clusters categorized as special deposits include one or more of the following criteria (Please note that these criteria are used by the faunal team *in addition* to the excavator's criteria for identifying a bone cluster).

- bone tool raw materials
- bone tools
- grave goods
- animal burials
- architectural installations
- commemorative deposits (see Russell, Nerissa *et al.*, 2009)
- caches

- abandonment deposits (see Russell, Nerissa *et al.*, 2009)
- collection of bones with a high proportion of cattle-size animals
- atypically large and unprocessed fragments
- bones in articulation
- collections of bones with similar surface conditions, with minimal evidence of extended exposure on the surface.

These criteria distinguish a special deposit from agglomerations of quotidian food remains, but they do not distinguish consumption-related clusters from other kinds of clusters, e.g. collections of bone tool raw materials, architectural installations (commonly horn cores and bucrania), or collections of astragali curated as knucklebones (Russell, NerissaGriffitts, in press; Russell, NerissaMartin, 2005: 39; Russell, Nerissa *et al.*, 2009). I use taxonomic and skeletal element composition data to identify consumption-related bone clusters, selecting clusters with bones that would have carried significant amounts of meat and fat. Thus I eliminate clusters composed of:

- bone tool raw materials
- bone tools
- grave goods
- animal burials
- exclusively cranial elements and/or foot elements

I focus on the clusters containing:

- high proportions of cattle-size animals
- atypically large and unprocessed fragments
- bones in articulation
- uniform surface conditions that indicate minimal exposure on the surface

I have focused on the South area units that have been assigned a Hodder level. I have checked primary, secondary and tertiary contexts. Bone clusters mostly came from primary and secondary contexts which are found in houses and middens. Tertiary deposits which mostly consist of fill deposits did not reveal any clusters except two (Unit 2833 and 3736). These units both come from the fill between two walls (Appendix B, Table B1). Although fill deposits are mostly considered tertiary at Çatalhöyük, the two units were prioritized, and they have been noted as primary deposits by the faunal analysts. Unit 2833 has been described as a well-preserved primary consumption debris. Unit 3736 has been described as single depositional post-consumption remains. Therefore these units have been included in the analysis.

454 units have been both assigned a Hodder Level by the Çatalhöyük team and analyzed in full by the faunal team; 212 of these are from primary and secondary contexts. The levels assigned are South G through T. Some units have been assigned a tentative level such as South ?J or South ?Q. I treat these units as belonging to their posited level, e.g. South J or South Q, in accordance with recent publications on Çatalhöyük faunal research (Russell, Nerissa *et al.*, in press). In addition, South N is excluded from this analysis because only a small area has been excavated from this level, and there are not any fully analyzed units from it as of August 2011. Likewise, only a small portion of South O was excavated at the time of analysis. Therefore this level is underrepresented.

Of the 212 primary and secondary context units analyzed here, 13 units (5%) securely fit the criteria for being a consumption-related bone cluster, and I consider them potential feasting deposits (Appendix B, Table B1 & Table B2). Please note that certain types of deposits that may relate to feasts are excluded from this analysis of commensal scaling:

1) Non-cluster units that contain potential feasting remains are excluded because they contain multiple types of remains within one unit, e.g. quotidian food discard or bone tool raw materials. It is problematic to single out the feasting remains from the rest of the material in these units, which precludes estimation of the amount of meat eaten at feast(s) as opposed to quotidian meals.

2) Certain 'abandonment deposits' have been excluded: 'Abandonment deposits' are found in the deconstruction and abandonment stage of a house. They include feasting remains as well as raw material collections and dismantled installations of bucrania or horn cores (Russell, Nerissa *et al.*, 2009:107; Russell, Nerissa *et al.*, 2008). Certain 'abandonment deposits' comprised of multiple scapulae or mandibles from multiple individuals, deposited together. The surface conditions of these elements often vary within a deposit suggesting that these remains were likely curated, collected from different events at different times. Thus, the meat they represent may or may not have been consumed in one meal.

3) Clusters that consist of bucrania and/or feet elements have been excluded: they are not a significant source of meat (Russell, Nerissa *et al.*, 2009: 106).

4) This analysis focuses on the South Area, therefore potential feasting evidence from the KOPAL area is not analyzed, but discussed where appropriate.

7.2.1 Feast size through meat weight

To assess the scales of commensality at Çatalhöyük I estimate the size of feasts by calculating the meat equivalent represented by each bone cluster.

Each cluster may represent a separate feast or they may be portions taken out from a much larger feast, and eaten at home by one or more households. Ethnographic examples exist where meal portions from large feasts might have been carried back immediately and consumed at homes as smaller feasts. Clarke writes that in the Swinging feasts among Akha of northern Thailand "one buffalo and many pigs (depending on the size of the village) are killed if possible, and people go to eat in their own homes" (1998: 78-9). Large feasts have so far been undetected *on site* at Çatalhöyük. However these might have taken place at the edge-of-the-site KOPAL area that has revealed large cattle bone fragments that indicate minimal processing. In the following analysis I mainly assume that each bone cluster represents a separate feast, but I also indicate and discuss, where appropriate, the possibility of bone clusters representing smaller feasts coming from larger feasts held potentially at the KOPAL area.

To estimate how much meat is represented by each bone cluster, I use bone weight as a proxy for meat weight (Lyman, 2008: 89-102). To do this, I first convert bone weight to live weight (weight of a live animal), then convert the live weight to usable meat weight (edible meat weight). Published conversion factors of bone weight to live weight estimate dry bone to be between 6 and 8.5 to 13 percent of the live weight of an animal (Casteel, 1978; CookTreganza, 1950; Reed, 1963). As a compromise, I take the average proportional weight of dry bone as ten percent of live weight. I then convert the live weight to usable meat weight following White's argument that usable meat weight is equivalent to fifty percent of live weight in relevant bovids (bison, musk-ox, bighorn sheep and mountain goat) (1953: Table 14). I thus divide live weight by half in order to obtain the usable meat weight represented by each bone cluster (Table 7.2).

Table 7.1 Conversion from bone weight to usable meat weight (after Lyman 2008, White 1953, Cook and Treganza 1950, Casteel 1978, Reed 1963). Bone weight is calculated as 10% of live weight; usable meat weight is calculated as 50% of live weight.

	Bone weight (g)	Live Weight (g)	Usable Meat Weight (g)
Conversion factor	X	10X	5X
Largest cluster	8961	89610	44805
Smallest Cluster	56	560	280
Average	2093	20930	10465

These calculations indicate that the South Area feasting clusters range widely in terms of the amount of meat represented. The largest cluster represents more than forty kilos of usable meat, whereas the smallest one represents only about a quarter-kilo of meat. Bone clusters in average represent about 10 kilos of usable meat (10465 g), although 10 out of 13 clusters represent less than 10 kilos of meat.

Assuming that a portion size may range from a piece as small as a meatball (30 g) to a piece as large as a 500 g steak, the number of people and families possibly served at feasts with portion sizes 30, 265 and 500 grams are shown in Table 3. Based on the table, bone clusters represent a large range of feasts roughly from family to village size (Table 7.2). Overall, the clusters can be divided up to four groups according to bone weight (Table 7.2 and Figure 7.1).

Table 7.2 Number of families represented by the feasting clusters and the possible social function of feasts

Size groups	# of units (Units)	Bone weight (g)	Usable weight (g)	Portion (g)	# of people	# of families	% of village (1500 people min)	Scale	Social function
1	1 (4779)	56	280	30	9	1-2	<1	family	solidarity
2	2 (13398) (17094)	280; 402	1400-2010	30	47-67	6-13	3-5	≤neighborhood	solidarity
				265	5-8	1-2	<1	family	
				500	3-4	1	<1	family	
3	7 (1853) (1507) (3142) (4142) (2761) (2833) (1093)	699-1823	3495-9115	30	117-304	15-61	8-20	≥ neighborhood, kin group or other alliance	solidarity & some promotional influence
				265	13-34	2-7	1-2	few families; < neighborhood	solidarity & very limited promotional influence
				500	7-18	1-4	≤1	few families; < neighborhood	solidarity
4	3 (11393) (3736) (1506)	5046-8961	25230-44805	30	841-1494	105-299	57-100	village	solidarity & some promotional influence
				265	95-169	12-34	6-11	≥ neighborhood, kin group or other alliance	solidarity & promotion
				500	50-90	6-18	3-6	≥ neighborhood, kin group or other alliance	Solidarity; promotion; possible competition

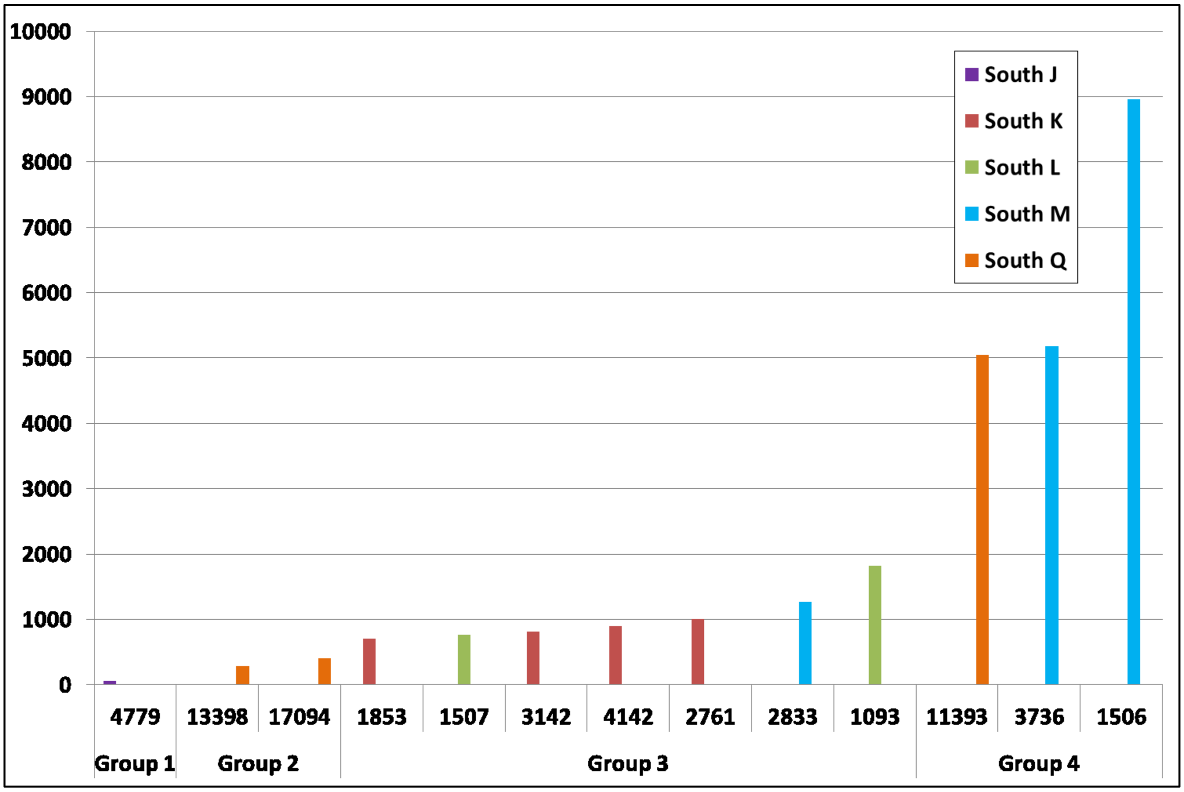


Figure 7.1 Bone Clusters by weight (g) divided to size groups

The first group consists of the smallest cluster which suggests a feast held by a nuclear family and perhaps few more individuals. Such feasts are common ethnographically. These can mark important events in a family's lifecycle, such as birth, death, house construction, renovation or the phases of the agricultural year. Akha of northern Thailand hold many family-size feasts for a number of reasons such as ancestral offerings and baby naming (Clarke, 1998: 55). Clarke suggests that these small feasts enhance solidarity within the nuclear family (Clarke, 1998: 60 & 132). Moreover, he suggests that the ancestral offering feasts are central to Akha culture in that they help define a nuclear family "as a social unit, the most basic corporate group" (Clarke, 1998: 61). Clarke's account implies that the nuclear family defines itself as an Akha family and identifies with the Akha culture through these small but significant feasts.

The second group consists of two clusters. These clusters suggest small to medium scale feasts for a family or 6-13 families depending on the serving size. These are likely to be solidarity feasts, with either large servings for a family or small servings for several families.

The third group consists of seven clusters. These suggest either small scale (less than 10 families) or large scale (15-61 families) inter household feasts. If the portion sizes were as small as a 30-g meatball, these clusters would represent a feast for a neighborhood, a kin group or perhaps a larger alliance (117-304 people). These were probably a solidarity feast that served modest amounts of food. Despite the modest serving size, the potential number of participants (8-20% of the village population) suggests that this feast had some promotional influence in the village because it involved a significant portion of the village. Therefore this would have been a solidarity feast with some promotional influence.

If the serving size in Group 3 was 265 g, these feasts would serve 13-34 people or 2-7 families. These would have been largely solidarity events. The considerable size of the servings might suggest some promotional value, but the small number of participants would mean that the promotional influence would have been very limited.

If the serving size in Group 3 was 500 grams, these would have been feast for a few families (7-18 people). Although the serving size is impressive, the number of participants suggests that these would have been small-scale solidarity feasts. They might have involved a nuclear family and its married children with their families, or they might have involved a few neighboring households. These possibly reinforced unity within the small group and helped shape household identity.

Lastly, the fourth group consists of the largest three clusters. If the portions were 30-g each, then these clusters represent feasts for nearly the whole village. This would imply an effort to serve as many people as possible for enhancing solidarity village wide. These would likely be events where small portions of meat (along with other kinds of foods) are consumed by the whole village. Ethnographically such an event is likely to be considered a solidarity feast. Although there may be a promotional component to this feast due to the large attendance, the small amount of meat per person would suggest that the emphasis of the feast would be to share and integrate rather than impress or compete.

If meat was served in large portions in these events (265-500g), they would involve 3-11% (50-169 people) of the village, perhaps a neighborhood or a kin-related group. Given the large serving portions and the relatively large attendance, these feasts must have promoted the host in terms of status, wealth, hunting skills, ability to collect wealth or other attributes. Therefore, they might have had some competitive aspect.

Although the largest feasts might have involved some competition between individuals and families, I differentiate these events from ethnographically documented lavish feasts such as the large Enga feasts where hundreds of pigs were consumed (Wiessner, 2001: 131) because there is a lack of material correlates (faunal and other) for lavish and competitive feasts *on site* at Çatalhöyük. Unlike in Makriyalos where cups, large pots and vessels have been found in large numbers (Pappa *et al.*, 2004: 16-44), the pots and vessels at Çatalhöyük are relatively small in size (Yalman *et al.*, 2013). Nor have sizable collections of pots been found in proximity to each other. Bone clusters do not necessarily indicate large numbers of animals either. The MNI values of the largest bone clusters (Group 4) represent between 4 and 8 animals (Table 7.3). Moreover, the animals are far less than complete in most cases. Tables 7.4 and 7.5 show the expected number of diagnostic zones in an intact carcass and the number of diagnostic zones found in the bone clusters; cattle and sheep/goat specimens add up to only small portions of individual animals; the rest of the taxa are even more partial. Therefore I use caution not to assume lavish and competitive feasts where multiple large animals were killed and consumed all at once *on site*. Hence, if each bone cluster represents a separate feast, then the largest feasts at Çatalhöyük might have been solidarity events at the village scale or communal and promotional (but not highly competitive) feasts at the neighborhood-scale.

Table 7.3 MNI estimates based on DZ (if DZ=0 and NISP >1, NISP is shown instead of MNI) (Highlighted in red where MNI > 1)

Unit	Level	Cattle	Sheep/Goat	Equid	Deer	Pig	Fox
4779	South J						
1853	South K	1	1		1		
3142	South K	1	1				
2761	South K	1	1	1			
4142	South K	1	1				
1093	South L	1	1	1			
1507	South L	1	1	1			
1506*	South M	2	3	1		1	1
2833	South M	1	3	1		1	
3736*	South M	1	1	2	1	1	
13398	South Q	1	2				1
11393*	South Q	1	1		1	1	
17094	South Q	1	1				

Table 7.4 Sheep/goat skeletal segments in bone clusters in number of diagnostic zones

Unit	Cranium (maxilla, mandible)	Axial Skeleton (Vertebrae, Scapula, Pelvis)	Forelimb (Humerus, Radius, ulna)	Hindlimb (Femur, patella, tibia, os malleolare)	Feet (carpals, tarsals, metapodia, phalanges)
Intact Carcass	4	7	10	12	30
1093					
1506		5	7	2	11
1507		1		1	
1853		1			1
2761					5
2833		2	5	4	2
3142		1			
3736		1	1	1	1
4142					
4779					
11393					
13398	3	3			
17094		1	4	1	

Table 7.5 Cattle skeletal segments in bone clusters in number of diagnostic zones

Unit	Cranium (maxilla, mandible)	Axial Skeleton (Vertebrae, Scapula, Pelvis)	Forelimb (Humerus, Radius, ulna)	Hindlimb (Femur, patella, tibia, os malleolare)	Feet (carpals, tarsals, metapodia, phalanges)
Intact Carcass	**4**	**7**	**10**	**12**	**30**
1093				**1**	**4.5**
1506	**1**	**1**	**1**	**2**	**13**
1507		**1**			**0**
1853					**0**
2761			**1**	**1**	**1**
2833					**1**
3142				**1**	**1**
3736		**1**		**2**	**5.5**
11393	**1**	**3**	**2**		**0**
13398					**0**
17094					**0**
4142					
4779					

However, if the meat was provided by multiple people as in potluck feasts, then the promotional aspect would have been less strong in these feasts. Two of the three largest (in weight) bone clusters reveal multiple MNI numbers for at least one taxon (Table 7.3). This combined with the fact that most animal bodies are incomplete (Table 7.4 and 7.5) raises the possibilities of potluck style feasts or large scale off-site feasts. Please note that multiple MNI numbers per taxon is not a factor of high NISP because the small clusters also carry multiple MNI numbers per taxon (Figure 7.2 and Table 7.3)

Potential Potluck Feasts

Is it possible that animal body parts stored from multiple animals were brought in by a number of participants for a potluck style solidarity feast? Domesticated cattle would have been 'stored on the hoof' for feasts, equids might have been hunted in multiples or equids and wild cattle might have been captured to be killed later. Ethnographically, animals in large feasts are mostly killed and eaten fresh. Even in modern villages where refrigeration is possible most feasts involve freshly killed animals (e.g. Ertug-Yaras, 1997). Therefore, it is unlikely that large feasts were potlucks that served meat mostly from storage, even though stored meat might have been consumed in quotidian consumption and in smaller feasts. It is more likely that the animals represented in the large clusters were freshly killed for a feast occasion, were partially consumed in the feast and partially distributed and/or stored. This would have resulted in incomplete body parts form multiple animals. These would have been relatively large-scale feasts (potluck or not) where one or several individuals/families provided the meat by deliberately culling and/or hunting multiple animals in advance. Hence, the largest clusters may represent potluck feasts where fresh kills were served. If so, these would have been solidarity feasts. As documented in Kanan, the promotional aspects of potlucks may be weaker than that of feasts held by an individual (Adams, 2004: 61).

Large-scale off site feasts

Multiple MNI numbers (regardless of cluster size) and incomplete body parts also bring up the possibility of large-scale off site feasts that resulted in bone clusters on site. KOPAL area at the edge of the site attests to this possibility as it revealed large fragments of minimally processed bones, especially from large animals. If so, feasts at Çatalhöyük might have included very large off-site feasts that resulted in smaller deposits on site. For example, if 1506 was part of a larger feast, then it would have originated in a feast of at least two cattle, three sheep/goats, an equid, a pig and a fox (Table 7.3). Similarly, Unit 3736 represents two equids, a cattle, a sheep/goat, a pig and a deer. Unit 2833 represents three sheep/goats, a cattle, an equid and a pig. These feasts might have been similar in scale to large promotional Kanan feasts (Adams, 2004).

Adams noted that one type of curing feast in Kanan involved six pigs and was attended by probably "hundreds of people" (2004: 62-3). Similarly, large 'house feasts' served hundreds of chickens and one or more pigs to hundreds of people (Adams, 2004: 64). Likewise, one water buffalo and one pig were served in a large funeral feast (Adams, 2004: 64). Adams argued that these feasts advertised the success of the host in generating surplus. They also resulted in debt relationships that families used for social or political support or to ensure economic returns (2004: 73-5). Adams emphasized that Kanan feasts in general are primarily integrative, but the large feasts had a strong promotional aspect in addition to solidarity (2004: 66-7). Arguably this implies that they were not highly competitive feasts. Off-site feasts at Çatalhöyük might have been similar where hundreds of people attend and consume multiple (for example one to ten) animals sponsored by a host. These feasts would have been highly integrative as they involve a significant portion of the village. At the same time, they would promote the ability of the host in generating surplus and feeding large numbers of people. The host would widen their social network, maintain allies from distant kin or other relations and ensure political support. These feasts might have been opportunities to create and reiterate possible inequalities. Alternatively, sharing of food surplus in these events might have helped tolerate or mitigate inequalities possibly emerging in a largely egalitarian society.

Multiple MNI numbers and incomplete body parts bring up a third possibility: It is conceivable that the animals body parts were originally complete in each of these feasts. In addition to consuming meat in the feasts in the serving portions I have considered, the guests might have taken some body parts home with them. This kind of meat distribution might have meant strong ties within the feasting group and reinforced solidarity. It also might have led to debt-relationships that defined group membership.

Having reached a sense of scale and social function regarding the feasts represented by the bone clusters, I move forward to distribution of the clusters in time and space.

7.2.2 Chronological changes in feast size and taxa

Çatalhöyük has 13 chronological levels in the South Area (Levels South G through South T). Not all levels are represented by the bone clusters. The clusters come only from South J, K, L, M and Q (Figure 7.2). All levels except H, I and T have comparable volumes in terms of excavated soil (South H, I and T have been excluded due to limited volume of soil). However, South G may be contextually distinct from the rest of the occupational levels because it is the earliest level of the site and it might have been an off-settlement dump area. In addition, as mentioned earlier, South N and O have been excluded from the analysis due to the fact that faunal recording of these levels was incomplete at the time of this analysis. In sum, levels South J, K, L, M, P, Q, R and S provided comparable potential for this analysis. All these levels except P and S revealed bone clusters. Therefore, I do not have a complete chronological sample.

I investigate the potential changes on the total amount of meat consumed in feasts through time from those levels that revealed a bone cluster. Figures 7.2 and 7.3 show the cluster weight and NISP respectively in each level. Figure 7.4 shows the total bone weight of clusters in each level and Figure 7.5 shows the density of clusters in grams per litre of soil excavated (g/L).

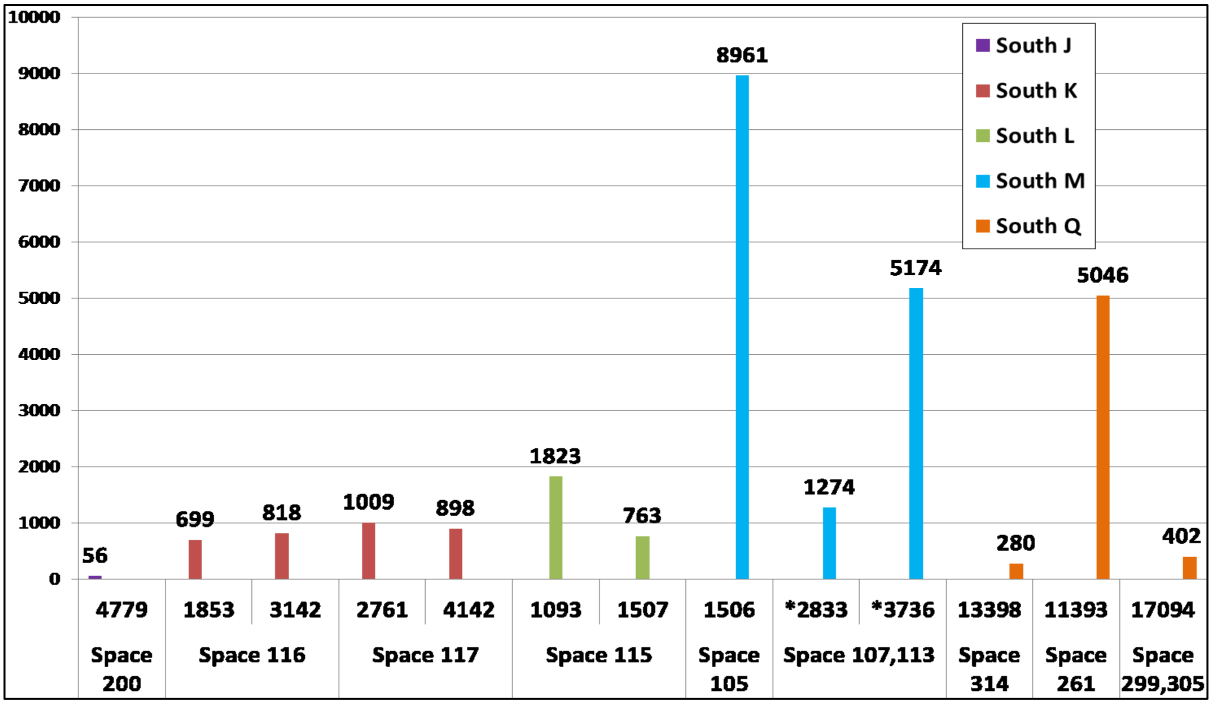


Figure 7.2 Bone clusters: Absolute weight by level and space.
* Bone clusters in between walls (i.e. in between Spaces 107 and 113)

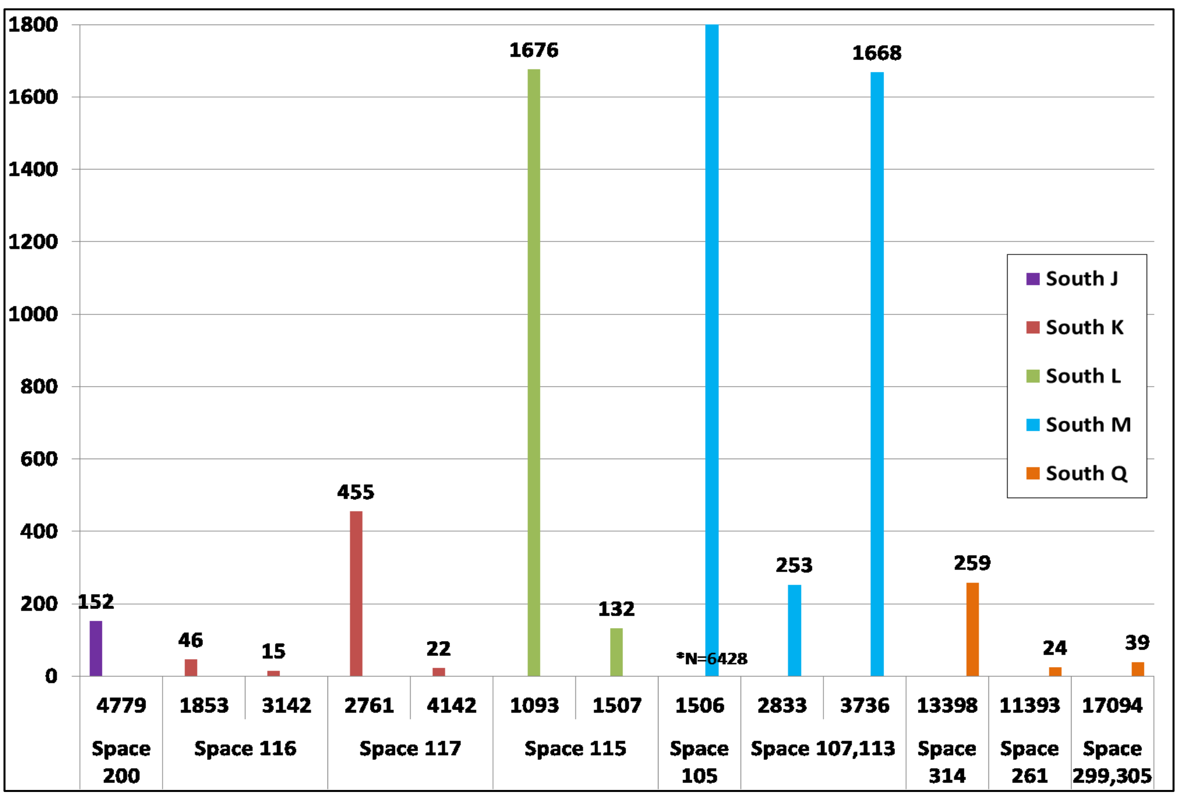


Figure 7.3 Bone Clusters: NISP by Level and Space
* Please note that the y axis has been cut off at 1800 for better visibility of smaller clusters. NISP of unit 1506 is 6428.

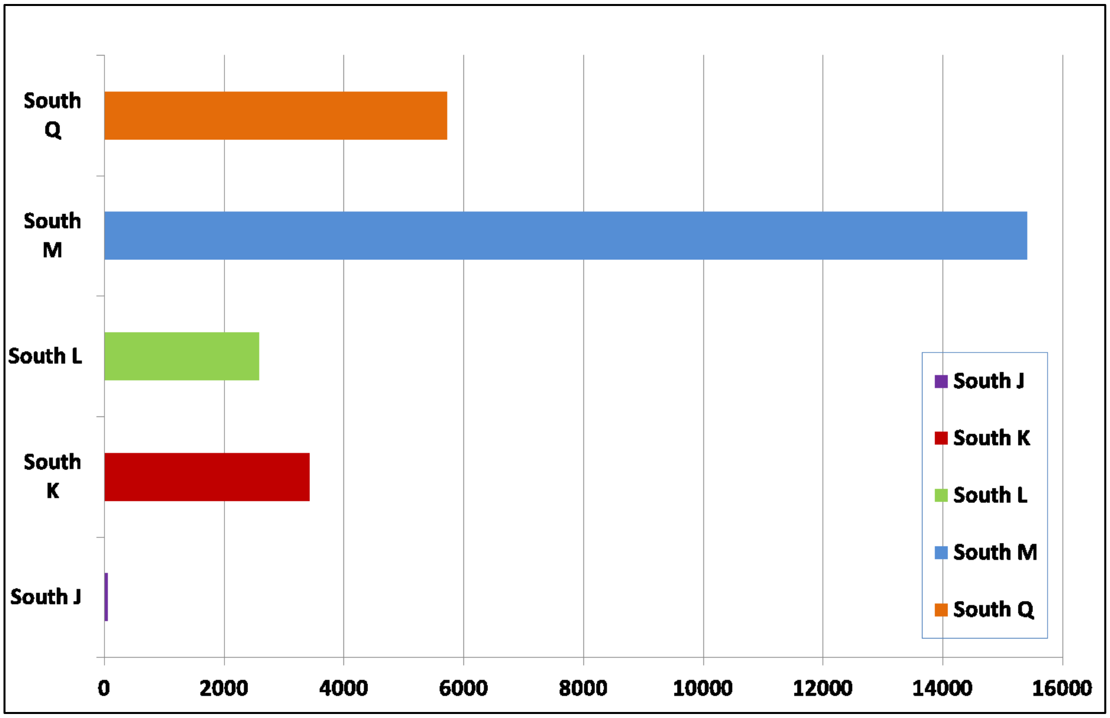


Figure 7.4 Total weight of bone clusters by occupation level (g)

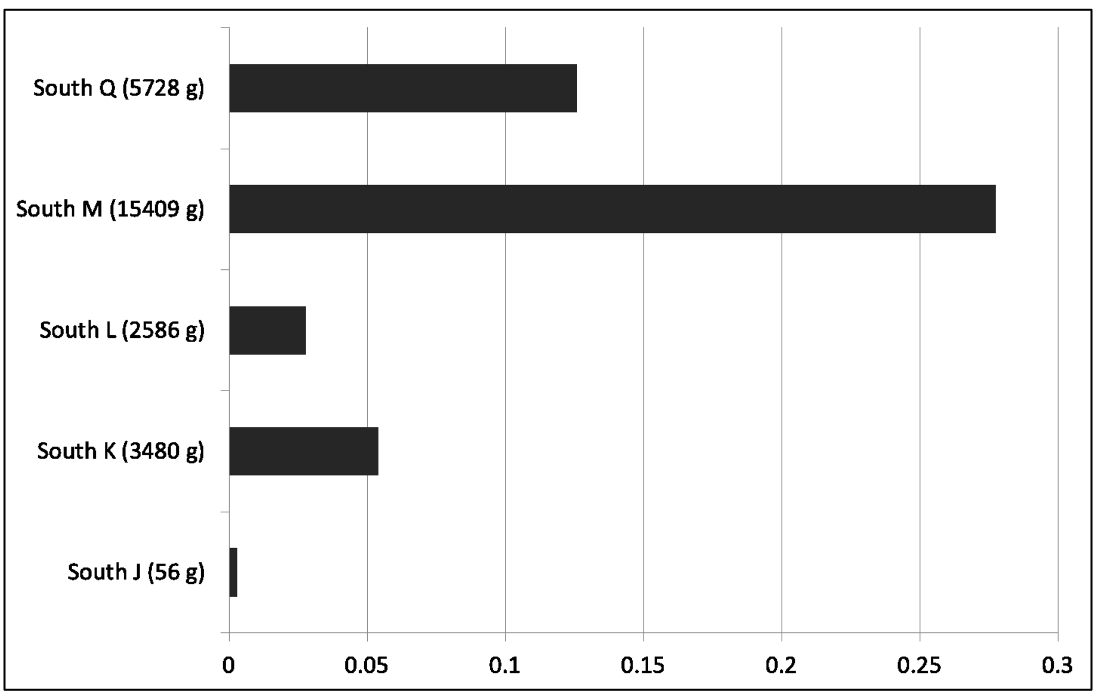


Figure 7.5 Bone cluster densities in g/L of soil excavated

Figure 7.2 suggests an increase in the average amount of meat consumed at feasts in the levels South M and Q. The overall increase is due to three large clusters discussed in the previous section (i.e. Group 4 clusters: 1506, 3736 & 11393). The rest of the clusters are relatively similar in size (56-1823 g) and quite distinct from the largest three (5174-8961 g). In other words, the later levels contain large as well as small clusters. Therefore, the change may indicate that larger feasts started to be held at level M and onwards. This is supported by the MNI estimates as well (Table 7.3). The clusters with multiple MNI for at least one taxon occur in levels M and onwards. This is not merely a factor of large NISP as the clusters with small NISP in the later levels (namely units 2833 and 13398) also revealed multiple MNI numbers per taxon (Figure 7.3 & Table 7.3).

That large feasts started to be held in levels M and onwards is an interesting possibility considering the fact that there are other changes at Çatalhöyük around or after level M, such as the appearance of domesticated cattle in the later levels, increase in use of pottery (AtalayHastorf, 2006), increase in sheep in South P-T compared to South H-M in quotidian and special contexts (while relatively stability in cattle specimen amounts), a peak in equids in South K-M (Russell, Nerissa *et al.*, in press), possible appearance of smaller (possibly family) herds in the later levels indicated by sheep faunal remains (Russell, Nerissa *et al.*, in press), introduction of new obsidian sources, and the changes in stone tools from a flake industry to blades (Carter *et al.*, 2005; Carter *et al.*, 2008: 904-6; Conolly, 1999). These changes hint at a general transformation at the site around the mid-levels. Particularly, domestication of cattle and the potential appearance of smaller (possibly family) sheep herds in the later levels raise the possibility of relative wealth accumulation by families. Crucially, Çatalhöyük inhabitants might have held large feasts in mid to later levels to negotiate the concurrent changes. Potential differentiations might have led to demands on sharing surpluses and mitigating imbalances. Feasts might have been held to maintain solidarity by sharing surplus. Alternatively, they might have been increasingly promotional, enabling further differentiation. Another possibility is that these feasts promoted the wealth of the host while at the same time reinforcing possibly weakening solidarity in the settlement.

Next I explore the taxonomic changes in bone clusters through time. Figures 7.6 and 7.7 show changes in the density of taxonomic distribution in bone clusters through time (in NISP/L and DZ/L respectively). Although both cattle and sheep/goat in feasts increase through time, sheep/goat in particular increase significantly from South K-L to South M-Q. Therefore, sheep might have been used in feasts more frequently over time. Considering the fact that sheep density in quotidian contexts also rose significantly over time (Russell, Nerissa *et al.*, in press), it can be inferred that sheep had a more important role in the later levels.

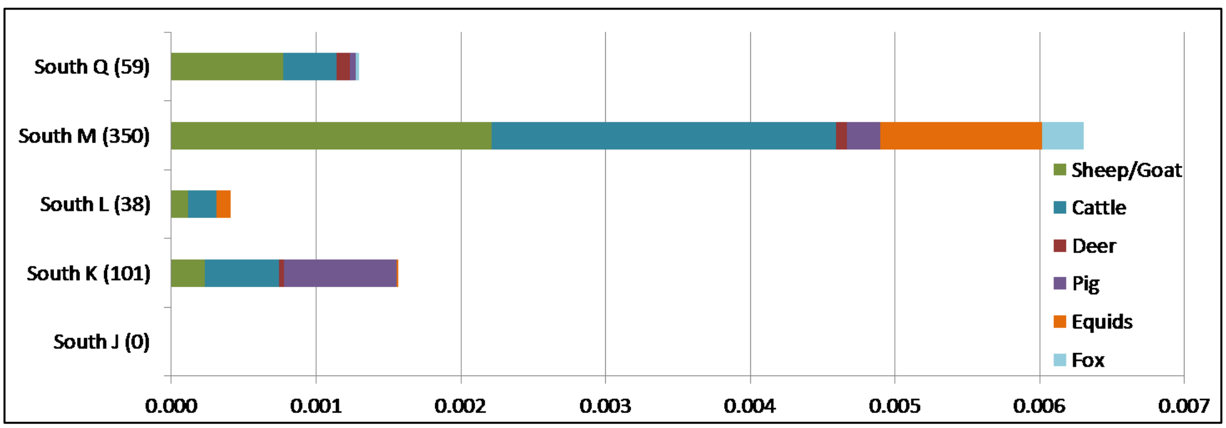


Figure 7.6 Mammal taxa density in bone clusters in NISP/L of soil excavated

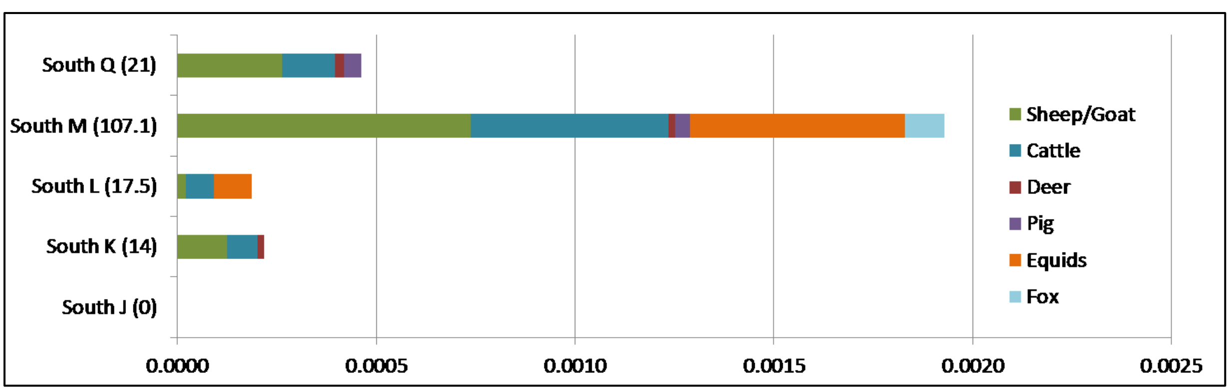


Figure 7.7 Mammal taxa density in bone clusters in DZ/L of soil excavated

The changing taxa distribution in feasts somewhat echoes the taxa distribution in quotidian consumption in the later levels: Sheep/goat density increases in quotidian consumption in levels South P-T as well as in feasting clusters in levels South M-Q. In addition, the peak in equids in South M bone clusters (Figure 7.6 and 7.7) also parallels their peak in the quotidian consumption contexts in South M (Russell, Nerissa *et al.*, in press).

That the taxa distribution in bone clusters is similar to that in quotidian contexts brings to mind the dialectical relationship observed between feasts and quotidian meals by Douglas (1975). She has emphasized the repetition of quotidian elements in feasts. Twiss has pointed to a lack of such repetition between quotidian meals and feasts at Çatalhöyük based on the evidence of domestic storage and festal trophies (2012: 67). Perhaps a repetition between quotidian meals and feasts is discernible in terms of the kinds of animals consumed at these two contexts in the mid to later levels in the South area. Twiss has argued that Çatalhöyük feasts and quotidian meals both contributed to household identity, public and private (2012). If so, it is plausible that sheep meat started to have an important role in feasts as some families might have started to have their own herds and the public consumption of surplus sheep became important for household identity.

7.2.3 Spatial distribution of Bone Clusters

I now analyze the spatial distribution of the variably sized clusters to assess whether they were discarded in houses or in middens, and whether they are spread across the excavation area or focused on certain locations.

Figure B1 (Appendix B) shows the spatial distribution of bone clusters on all levels. Figures B2 through B6 (Appendix B) show the spatial extent of excavation and the distribution of the bone clusters on each level. Figure B1 through B6 suggest that there is variability in context types regarding feasts: they occur in middens, in-between walls and houses (Appendix B, Table B1). There is no clear correlation between feast size and context type. Both smaller and larger units are found in middens, in-between walls and buildings.

Buildings, in-between building walls and middens

As seen on Table B1 (Appendix B), six out of 13 bone clusters come from middens (two of which are associated with a building), four clusters come from inside buildings (associated with building use), two clusters come from in-between walls of buildings (associated with at least one building) and one cluster comes from a house fill (association with building use is unclear). On one hand, it is striking that only about half of the deposits come from middens, considering that the majority of the faunal material comes from middens and that faunal material from buildings typically consists of small miscellaneous fragments. On the other hand, buildings may be treated differently in terms of excavation tools, the material found in the buildings may receive special attention from excavators and faunal analysts due to the possibility of *in situ* or deliberate placement, so clusters may have a higher probability of recognition in buildings than in middens. However, Table B1 (Appendix B) shows that most units were recovered by similar excavation tools and suggests that the excavation method did not play a major role in the recovery of the bone clusters from houses versus middens. However, taphonomic factors might have played a role: Bone clusters might preserve better in houses and in-between walls than in middens where the bones may be more susceptible to disturbance. Alternatively, it is possible that some of the feasting clusters were deliberately placed in houses or discarded in-between walls as opposed to middens (see above). Martin and Russell (2000) have suggested that there were deliberate and specific practices that led to the formation of different kinds of deposits such as in-between walls, middens, house fills and 'dirty floors'. Shillito et al (2011) have argued that there are consistent differences among various kinds of midden deposits and floor deposits resulting from ancient habitual practices at this site. Thus, taphonomic factors aside, the bone clusters are likely to have been placed deliberately on their respected locations.

In addition, 8 out of 13 deposits are associated with a building (via occupation/use, in-between walls or associated midden). Therefore it is likely that these feasts were stratigraphically associated with the buildings (Figures 7.2 & B1 – B6). It is possible that feasting deposits clustered in and around certain houses, particularly in Levels South K, L, M and Q. However, the relationship between the deposits in South L (in a midden) and the adjacent houses is unclear. Is there any indication that the houses stratigraphically associated with the feasting deposits in South K, M and Q higher status compared to other houses?

Regarding Level M, Building 40, there is no clear evidence that this building was distinguished in terms of architectural elaboration, sequential construction, or high number of burials. However, the other two occupation levels, K and Q suggest some correlations. Building 2 in South K has some features that can be considered elaboration, such as wall niches and at least one wall installation of cattle horn. In Level Q, Building 65 is not very elaborate, but it is a sequential house.

On a related note, the single feasting deposit in South J also comes from a sequential house (Building 23). So then it is possible that there is a relationship between feasting deposition and the status of a house. However, this requires further inquiry. The limited horizontal exposition in each level prevents a detailed spatial analysis; South Q for example has at least one cluster in each exposed area. Further, some parts of the middle section in South K were truncated and some of the data might have been lost. In addition, the sample sizes are is really small.

Storage capacity can also shed light on potential differentiation between the houses associated with feasting deposits and other houses. If storage capacity (i.e. number of bins and/or side room area) is taken as an indicator of wealth, it has been argued that feasting memorabilia (bone trophies and art) and storage capacity did not correlate with each other in houses with well-documented data (Twiss, K. C., 2012: 66) . The feasting clusters analyzed in this chapter do not necessarily correlate with high storage capacity either as only one of these houses (Building 65) has a large number of bins and a large side room (Table 7.6) . The rest of the houses associated with the bone clusters have either small side rooms and/or a small number of bins.

The feasting clusters identified in this analysis do not directly correlate with animal bone installations in houses either. Only one of the houses associated with feasting clusters (Building 23) have cattle bone installations. If installations and feasting clusters both reflect feasting location, then there may have been multiple ways of depositing and treating feasting remains. It is possible that the consumption remains were deposited in the host's house or next to the house in some feasts, while bucrania and horn cores were installed in host's house in other feasts. It is also possible that bucrania and horn cores were installed in the houses of people other than the host.

In sum, feasting evidence suggests that feasts were small scale, but they may have been used as a source of social differentiation. However, their relation to social differentiation needs further inquiry.

Table 7.6 Storage data for buildings associated with bone clusters

Building	# of bins	side room area m^2	Units	No. of clusters associated	Units	References
2	side room unexcavated	2	1853 4142 2761	2	1853 4142 2761	Twiss 2012: Table 2; Farid 2007
23	1 (in main room; side room unexcavated)	5.6	4779	1	4779	Twiss 2012: Table 2; Mellaart 1964: 70–3; Mellaart 1967: 104; Farid 2007
65	5	5.5	17094 13398	2	17094 13398	Twiss 2012: Table 2; Regan 2007
40	1 small bin	Space 107 (House 2) is possibly side room? ~10-14m^{2*}	2833 3736	2	2833 3736	Farid 1995 Farid 1996
Space 113 = Mellaart House 7	side room mostly excavated by Mellaart	~1.5m^2*	2833 3736	2	2833 3736	Mellaart 1964: 40 Mellaart 1963: 73

*Size estimated from excavation plans

7.3 Summary and Discussion

In sum, bone clusters suggest that the scale of feasts might have ranged from a few people to hundreds; many bone clusters represent feasts for a few or several families. The largest clusters might have involved a large proportion of the settlement. It is difficult to guess what Çatalhöyük occupants would have considered an ‘entire village’ event, but the largest bone clusters could have signified such events especially if each family sent a representative. Above all, the bone clusters suggest that feasts occurred on multiple scales, and the average cluster represents an interhouse (or a multiple-family) sharing event.

The possible serving sizes combined with the number of participants may shed light into the social function of feasts. Although I have considered 30, 265 and 500 grams of meat per person in this analysis, it is likely that many Çatalhöyük feasts involved serving portions of 265 or larger. Ethnographic examples suggest a fine balance between the amount of meat available and the number of people at a feast. For example, among the Seltaman of Papua New Guinea, the goal in feasts is to share the meat as widely as possible, while at the same time making sure that everyone gets to eat their fill (Whitehead, 2000: 153). If so, most feasting clusters would point to small feasts possibly involving less than 12 families. These would likely have been solidarity events that helped maintain unity within various subgroups such as neighbors, kin and other alliances. However, the largest clusters suggest that some feasts involved crowds larger than a neighborhood. These would have promoted the host's influence as well as maintaining communality within the village. In terms of social function, most feasts would have emphasized solidarity and some would have promoted the host's status. The feasts likely played an important role in creating and maintaining debt relationships and building alliances.

Spatial distribution suggests variability in feasting contexts types. Although some spaces revealed multiple clusters, there is no correlation between feast occurrence and context type.

If the houses associated with the feasting clusters are distinct from other houses, then there may have been multiple sets of criteria through which houses can be differentiated from one another in this settlement, some involving feasting practices, others involving paintings and architectural installations as argued by Hodder and Pels (2010).

Houses that held feasts might have been differentiated from other houses through a reputation of generosity. However, this might not have translated into material wealth. Although some promotional benefit to the host probably existed in some feasts, it is possible that the houses associated with feasting clusters helped maintain equality rather than fostering differentiation within the settlement.

Chronological analysis suggests continuity in feasting practices, an increase in use of sheep in feasts as well as a possible introduction of larger feasts over time. It is plausible that sheep meat started to have an important role in feasts as some families might have started to have their own herds and the public consumption of surplus sheep became important for household identity.

Chapter 8 Summary and Conclusions

In this thesis I have investigated the scale and significance of interhousehold food sharing at the early agricultural site Neolithic Çatalhöyük at Central Anatolia. I have analyzed zooarchaeological material from this site and discussed analyses from other lines of data published elsewhere. I have argued that interhousehold food sharing was a significant habitual social practice at Çatalhöyük and that feasts also emphasized sharing of food at a suprahousehold level.

A strong food sharing ethos often relates to a worldview in which humans think of themselves as living alongside and in cooperation with plants and animals. Nature is believed to be a part of the social world, and there is not a sharp distinction between nature and culture. This worldview is the basis for a strong sharing ethos among many hunter gatherers as well as societies with mixed economies of hunting, gathering and cultivation. In this way of thinking, animals and plants are believed to share themselves with humans, and humans in turn are expected to share the procured food widely (e.g. Bodenhorn, 2000: 33-34; Ingold, 2005: 173). Based on this premise, I have proposed that the inhabitants of the early agricultural village Çatalhöyük relied on a strong food sharing ethos and incorporated domestic animals into an already existing interhousehold food sharing tradition. To test this proposition, I have asked the following questions:

- Were there significant differences in access to meat between houses?
- Was quotidian food equipment suitable for making meals for multiple households?
- Were species used in quotidian consumption (such as sheep meat and cereals) shared between households?
- Were domestic animals shared as much as wild animals that yielded large amounts of food?
- What was the scale of feasts? Did feasts emphasize equal sharing of food?
- What kinds of dependences might food sharing have created between houses?
- Were there exclusive access rights to animal resources or was the use of these resources communal?

My analysis pointed to the following findings:

Were there significant differences in access to meat between houses?

If there was a strong interhousehold food sharing ethos at Çatalhöyük, I would expect to find no significant differences between households in access to meat. According to isotopic and dental analyses, meat was consumed on a regular basis at Çatalhöyük. According to my analysis based on zooarchaeological remains in midden units (stratigraphically associated with specific houses), there were not any significant differences between houses in meat access based on taxa distribution and meat-rich body parts. To be specific, the spatial analysis of zooarchaeological remains in household trash revealed similar results between household middens in terms of distribution of cattle vs caprines and distribution of animal skeletal parts with high meat utility.

Animal skeletal parts might also have been deemed valuable on the basis of criteria other than their food value, such as ritual value of a skeletal part, or value of certain bones as a source of material for bone tools and jewelry. However, there were not any discernible patterns in the distribution of particular skeletal parts across the middens.

Although middens did not reveal significant differences, analyses done by others on bone distribution in houses may indicate some differences: Ritually valuable bucrania installations in some houses may suggest high social status and differences in access to animals/ hunting or ritually valuable skeletal parts. These bucrania displays presumably signified large scale feasts, probably facilitated in some way by the household that had the bucrania installation. However, there is no evidence so far that these displays implied socioeconomic differentiation. According to published analyses (Twiss, K. C., 2012: 66), if these installations marked any social status, this differentiation did not involve material wealth in the form of high storage capacity. Therefore, it is likely that feasts provided these households or some of their individual members with high social status, but only to a limited extent.

Another possibility of differentiation was sequential vs nonsequential houses. Based on ethnographic House society models, it has been proposed that continuity of houses in prehistoric societies may signal individuals seeking privilege by claiming links to the histories and roots of certain houses and ancestors (see Beck 2005: 15). At Çatalhöyük, It has been suggested that sequential houses that carry similar architectural characteristics through time may imply some kind of differentiation between these houses and the non-sequential houses. My zooarchaeological analysis based on house-associated (stratigraphical association) middens did not reveal significant differences between sequential and nonsequential houses. Therefore, if the sequential houses had differentiated status, this was not translated into better access to meat or to ritually valuable animals/skeletal parts.

Was quotidian food equipment suitable for making meals for multiple households?

Different lines of evidence suggest different answers to this question.

The presence of outdoor fire spots and the occasional occurrence of external ovens suggested that interhousehold plant food sharing occurred from time to time.

Ceramic cooking pots ('deep jars') were large enough to accommodate meals for one or a few families, suggesting they may have been used for interhousehold meals (Chapter 4, also see Yalman et al 2013: 179). In addition, not all houses owned a cooking pot, suggesting that these pots were used in interhousehold meals. According to the pottery analysis, although the deep jars were not ubiquitous, there is no evidence that they were rare items of prestige or equipment associated with feasting either. Therefore it is possible that these jars accommodated regular or frequent interhousehold consumption.

Ground stone evidence suggests that each house had a basic tool kit and food could have been processed on a household scale without interhousehold collaboration. However, larger grinding stones seem to have been distributed unequally between houses. These were heavy objects that probably stayed fixed on the house floors. Wright (2014: 15) suggested that these tools might have been shared by multiple houses and may point to interhousehold collaboration. They might have been used for example in larger scale processing for storage or feasts. The highest number of these tools came from a burnt building that seems more elaborate compared to other burnt buildings. However, it is not clear whether the high numbers of large grinding tools in this house were the result of unequal access or a, possibly intentional, house burning practice. Therefore it is not clear if the large grinding tools in this house implied higher status (Wright 2014: 29).

Hence, it can be summarized that quotidian food sharing at both interhousehold and household levels were practiced at this site, based on evidence from food equipment.

Were species used in quotidian consumption (such as sheep meat and cereals) shared between households?

Plants and animals provide different answers to this question: The faunal assemblage at Çatalhöyük consists mostly of sheep. Given that human isotopic and dental evidence suggests regular, and probably frequent, meat consumption, meat from domesticated sheep was probably consumed on frequently. Faunal evidence from household trash middens also supports the finding that sheep meat was consumed at least frequently. According to ethnographic evidence from farming villages in early to mid-twentieth century Greece any animal larger than a sucking lamb (2-3 months old yielding up to 10 kg of meat) is too large for a single nuclear family to consume without the use of meat storage (Halstead 2007: 28-29 & 34). Russell et al pointed out that the culling patterns at Neolithic Çatalhöyük suggest a major cull of sheep around one to two years of age, a typical pattern for herding for meat production (Russell, N. *et al.*, 2013: 226-227). The material evidence of meat storage at Çatalhöyük is so far minimal. Therefore, it is probable that most sheep were shared at a suprahousehold level in this settlement.

Analyses of botanical remains suggest that quotidian plant processing and meal preparation was done on a small scale, probably at the level of the individual structure or house. This suggests that plant foods were mostly shared within the households and/or they contributed to suprahousehold food sharing on a potluck basis from the stores of individual houses. Therefore it is probable that plant foods were not shared between households to the same extent as animal foods.

Were domestic animals shared as much as wild animals?

Cattle, as the second most ubiquitous taxon in the assemblage, were wild at least until the middle part of the Çatalhöyük occupation. In the later levels, both wild and domesticated cattle were consumed. Especially as hunted animals, cattle were likely consumed occasionally rather than daily. It has been suggested that cattle was an important animal for feasting at Çatalhöyük (e.g. Russell, Nerissa *et al.*, 2009; Twiss, K. C., 2012). Lack of refrigeration would necessitate the large scale sharing of cattle meat. In addition, if there was a strong food sharing ethos, this would contribute to the large scale sharing of cattle meat. Further, the ritual significance of cattle at this site probably contributed to its role in suprahousehold feasting. Therefore, it has been suggested that cattle meat probably played an important role in interhousehold food sharing at this site (Bogaard *et al.*, 2010).

Suprahousehold food sharing might have also applied to sheep meat. Even though cattle likely involved larger scales of food sharing, it is likely that sheep meat was also used for suprahousehold food sharing. Although the sharing of sheep meat probably involved smaller crowds, such as a few families, given the ethnographic evidence, it may have been done on a daily basis (Halstead 2007).

If Çatalhöyük inhabitants kept a long-term hunter-gatherer tradition of interhousehold food sharing, it is likely that they incorporated domestic species into this food sharing system. Similarities in the treatment of wild and domestic foods may suggest that the food sharing rules applied to both wild and domestic foods: First, my analysis of cut marks suggested that cattle and sheep were treated similarly and went through similar changes over time in butchery, processing and consumption. Second, my analysis on feasting clusters suggested that domestic sheep were frequently included in feasts in addition to cattle, implying that wild and domestic animals were treated similarly at least to some extent. Overall, food sharing rules probably applied to both wild and domestic animals.

What was the scale of feasts?

Bone clusters that represent special meals or feasts suggested that the scale of these meals might have ranged from a few people to hundreds, but the majority of the clusters probably represent feasts for a few or several families. Assuming that the amount of meat served in these feasts were 256 g or larger, most feasting clusters would point to small feasts possibly involving less than 12 families. The largest cluster might have involved a large proportion of the settlement and it could have signified a village-wide event especially if each family sent a representative. However, a feast of that scale was not the norm; seemingly, most feasts were much smaller, involving a few families. In addition there have not been any feasting deposits that included large numbers of cups, vessels, or large pots to suggest large-scale feasts.

Did feasts emphasize equal sharing of foods?

There is no substantial evidence, such as destruction of wealth or significant food wastage, to suggest ostentatious feasts at Çatalhöyük. This observation, combined with the small scale of these events, leads me to believe that feasts were not of particularly competitive character. This suggests that interhousehold food sharing may have been emphasized more than overt displays of wealth or differentiation at Çatalhöyük feasts.

Spatial distributions of feasting remains did not reveal a clear indication that feasts were held by certain houses. Some feasting remains were deposited in middens, others on house floors. A few spaces contained multiple clusters, but these locations did not favor a particular context type; some of these spaces were middens, while others were houses. The houses that revealed more feasting remains than other houses were not distinguishable from other houses in terms of features like architectural elaboration or meat access. The sample size of houses with multiple feasting clusters is small. However, if the houses with multiple feasting remains had a higher social status and/or certain privileges related to hosting these events, for example due to a reputation of generosity or due to possible hunting privileges, these probably did not translate into material wealth.

Based on these findings, feasts at Çatalhöyük would likely have emphasized solidarity events and helped maintain unity within various subgroups such as neighbors, kin and other alliances. The evidence also suggests that groups made up of a few families were an important scale of socialization in feasting as well as quotidian contexts.

That said, larger feasts may have been relatively more competitive. The largest clusters suggested that some feasts involved crowds larger than a neighborhood. These could have promoted the host's influence as well as maintaining communality within the village. Bucrania displays in houses may indicate an attempt to gain prestige by the host or the hunter, but it must be noted that these were not public displays; they were only visible to those who were in the houses. Consequently, these displays had a limited audience (Twiss, K. C. *et al.*, 2012).

Overall, most feasts would emphasize solidarity and at least the larger feasts would promote the host's status. Thus feasts likely played an important role in maintaining equality, as well as building multiple-family groups, while allowing for gaining prestige to a limited extent at Çatalhöyük.

What kinds of dependences might food sharing have created between houses?

Households were likely to have been independent in certain tasks, but not in others. Evidence for the small scale final processing and cooking of plant foods indoors suggested that houses acted independently in these practices. Storage and food processing facilities in private side rooms of houses also suggests independence in storage, processing and consumption. However, it is unclear if the households acted independently during crop production. Botanical evidence suggested that the initial processing stages for cereals (i.e. threshing and winnowing) were probably performed in the fields rather than in the village. Therefore, harvesting and initial processing of plant foods may or may not have been communal activities.

Households might not have been independent in terms of meat consumption. It is likely that domestic sheep meat was regularly, and perhaps frequently, eaten by a few families, at a suprahousehold, but small, scale. Since meat is often served with plant foods, it is likely that plants were also shared between households in these meals. Hunting cattle was probably a group activity and its butchery, processing and consumption were suprahousehold activities as well.

Architectural evidence may also provide some clues to household independence. Düring and Marciniak suggested that the Çatalhöyük settlement plan changed from house clusters to individual houses with larger open spaces around the houses during the mid-levels of the occupation (Düring, Bleda SMarciniak, 2006: 179). Based on this observation, they suggested that the households at Çatalhöyük became increasingly independent over time. However, this change in settlement plan is not very clear: although there may have been some neighborhoods in certain occupation levels, there is not a clear trend towards separate houses with large open spaces between them. Also, other lines of evidence do not necessarily point towards increasing household independence (see Chapter 4). My analysis suggested that the changes in cut marks in the mid-levels coinciding with the appearance of deep cooking pots point to an increase in small scale, but possibly interhousehold-level, cooking. Therefore there may not have been an increase in household independence over time.

Were there exclusive access rights to resources or was the use of these resources communal?

Ethnographic evidence suggested that interhousehold food sharing often relates to communal ownership of resources or flexible rights of use by individuals or groups (see Chapter 2). If food was shared between households on a regular basis at Çatalhöyük, then it is likely that resources were not owned exclusively by households.

In terms of plant resources, ethnographic evidence on small-scale societies suggested that the land may be owned communally and harvest shared more or less equally between houses. Alternatively, there may be rights over land plots based on use, care or labor investment. The use rights can be flexible in that demands of use by others are accepted, or land plots may be rotated among groups regularly to eliminate differences in access to soils of different quality (see Chapter 2). These non-exclusive rights may be applicable to Neolithic Çatalhöyük as well.

In terms of animals, if they were owned separately (as animals or herds) by each household, there would have been variation between households in meat access. Therefore, the lack of differentiation in meat access found in this analysis may be a result of interhousehold livestock sharing in addition to food sharing. A few publications discussed the possibility of separate household herds in the later levels of Çatalhöyük, but these works are so far preliminary and the sample sizes are small.

In conclusion, this thesis investigated interhousehold food sharing at Neolithic Çatalhöyük. Ethnographic evidence was used to discuss food sharing in hunter gatherer and small scale agriculturalists. These ethnographic works helped me suggest possible scenarios of interhousehold food sharing during transition to agriculture. I have analyzed archaeological evidence from Neolithic Çatalhöyük to explore how these scenarios apply to this early agricultural site. Overall, evidence from Çatalhöyük suggested that regular interhousehold food sharing, especially among a few families, contributed greatly to the integration and long lifespan of this community.

This thesis also pointed out the significant role of quotidian food practices in social integration. Çatalhöyük society must have needed to deal with conflicts caused the large size of this permanent settlement. Interhousehold food sharing on a frequent basis likely played a major role in reaffirming social connections and minimizing tension. Of course this does not mean that quotidian food sharing itself could not have caused any tensions, or that there were not any imbalances. However, the practice of food sharing itself (regardless of its results in terms of food transaction) could have helped individuals stay connected to the larger society.

In addition, this analysis emphasized the potential similarities in perception of wild and domestic food sources by suggesting that early agriculturalists might not have seen a strong separation between wild and domestic foods. The investigation of interhousehold food sharing, a practice typically associated with hunting and gathering, in agricultural societies emphasized the possible similarities between these two subsistence systems during transition to agriculture. Hence, this thesis emphasized the gradual and slow-paced nature of transition to agriculture. Particularly in Central Anatolian Neolithic, settlements carried much continuity across the transition from hunting-gathering to agriculture through practices like lithic production, mobility and the use of wild resources from earlier sites like Boncuklu and Aşıklı to Çatalhöyük. In this context, I suggested that Çatalhöyük socioeconomic organization also carried many important aspects characteristic to hunting-gathering. Some of this continuity extended beyond the Neolithic Çatalhöyük as well into Çatalhöyük West, Köşk Höyük and Tepecik Çiftlik.

Above all, this thesis suggested that there were many reasons why early agriculturalists would share food beyond the immediate family. Food may have been shared at the production level, facilitating a social organization in which families were interdependent social units. Alternatively, families might have shared food at the consumption level to reduce risk and maintain cohesion between relatively independent households. Hence, food sharing beyond the immediate family likely played a crucial role in this transitional time period.

References

Adams, R. L. (2004). Ethnoarchaeology in Indonesia Illuminating the Ancient Past at Çatalhöyük? *American antiquity, 70*(1), 56-78. doi: 10.2307/40035277

Arbuckle, B. S., Kansa, S. W., Kansa, E., Orton, D., Çakırlar, C., Gourichon, L., . . . Würtenberger, D. (2014). Data Sharing Reveals Complexity in the Westward Spread of Domestic Animals across Neolithic Turkey. *PLoS ONE, 9*(6), e99845. doi: 10.1371/journal.pone.0099845

Asouti, E., & Fuller, D. Q. (2013). A Contextual Approach to the Emergence of Agriculture in Southwest Asia: Reconstructing Early Neolithic Plant-Food Production. *Current Anthropology, 54*(3), 299-345. doi: 10.1086/670679

Asouti, E., & Hather, J. (2001). Charcoal analysis and the reconstruction of ancient woodland vegetation in the Konya Basin, south-central Anatolia, Turkey: results from the Neolithic site of Çatalhöyük East. *Vegetation History and Archaeobotany, 10*(1), 23-32. doi: 10.1007/pl00013369

Atalay, S., & Hastorf, C. A. (2006). Food, Meals, and Daily Activities: Food Habitus at Neolithic Catalhoyuk. *American antiquity, 71*(2), 283-320.

Baird, D. (2012a). The Late Epipaleolithic, Neolithic and Chalcolithic of the Anatolian Plateau, 13000-4000 BC. In D. Potts (Ed.), *A Companion to the Archaeology of the Ancient Near East* (pp. 431-465). Oxford: Wiley-Blackwell.

Baird, D. (2012b). Pınarbaşı: from Epipalaeolithic camp site to sedentarising village in central Anatolia. In M. Ozdogan & N. Basgelen (Eds.), *The Neolithic in Turkey: new excavations and new discoveries – Central Turkey, vol 3* (pp. 285-311). Istanbul: Arkeoloji ve Sanat Yayınları.

Baird, D., Carruthers, D., Fairbairn, A., & Pearson, J. (2011). Ritual in the landscape: evidence from Pınarbaşı in the seventh-millennium cal BC Konya Plain. [Article]. *Antiquity, 85*(328), 380-394.

Baird, D., Fairbairn, A., Martin, L., & Middleton, C. (2012). The Boncuklu Project: the origins of sedentism, cultivation and herding in central Anatolia. In M. Ozdogan & N. Basgelen (Eds.), *The Neolithic in Turkey: new excavations and new research – Central Turkey, vol 3* (pp. 219-244). Istanbul: Arkeoloji ve Sanat Yayinlari.

Banning, E. B. (1998). The Neolithic period: triumphs of architecture, agriculture, and art. *Near eastern archaeology*, 188-237.

Banning, E. B. (2011). So Fair a House: Göbekli Tepe and the Identification of Temples in the Pre-Pottery Neolithic of the Near East. *Current Anthropology, 52*(5), 619-660. doi: 10.1086/661207

Bayliss, A., Brock, F., Farid, S., Hodder, I., Southon, J., & Taylor, R. E. (2015). Getting to the Bottom of It All: A Bayesian Approach to Dating the Start of Çatalhöyük. *Journal of world prehistory, 28*(1), 1-26. doi: 10.1007/s10963-015-9083-7

Bender, B. (1978). Gatherer-Hunter to Farmer: A Social Perspective. *World Archaeology, 10*(2), 204-222. doi: 10.2307/124229

Benz, M. (2010a). The principle of sharing : an introduction. In M. Benz (Ed.), *Principle of sharing : segregation and construction of social identities at the transition from foraging to farming.* (Vol. 14, pp. 1-17). Berlin: Ex Oriente.

Benz, M. (2010b, 2010). *The principle of sharing : segregation and construction of social identities at the transition from foraging to farming : proceedings of a symposium held on 29th-31st January 2009 at the Albert-Ludwigs-University of Freiburg, hosted by the Department of Near Eastern Archaeology*, Berlin.

Bıçakçı, E. (2012). Tepecik-Çiftlik. In M. Ozdogan & N. Basgelen (Eds.), *The Neolithic in Turkey: New excavations and new research: Central Turkey.Vol. 3*. Arkeoloji ve Sanat Yayinlari: Istanbul.

Binford, L. (1991). When the going gets tough, the tough get going: Numaniut local groups, camping patterns and economic organisation. In C. Gamble & W. A. Boismier (Eds.), *Ethnoarchaeological approaches to mobile campsites* (pp. 25-137). Ann Arbor, Michigan, Editors: pp.25-137

Binford, L. R. (1978). *Nunamiut ethnoarchaeology*. New York: Academic Press.

Bird-David, N., Abramson, A., Jon, A., Bicchieri, M. G., Burch, E. S., Jr., Ember, C. R., . . . Wenzel, G. W. (1992). Beyond "The Original Affluent Society": A Culturalist Reformulation [and Comments and Reply]. *Current Anthropology, 33*(1), 25-47. doi: 10.2307/2743706

Bodenhorn, B. (2000). It's good to know who your relatives are but we were taught to share with everybody :shares and sharing among Inupiaq households. *Social economy of sharing : resource allocation and modern hunter-gatherers, 53*, 27-60.

Bogaard, A. (2005). 'Garden agriculture' and the nature of early farming in Europe and the Near East. *World Archaeology, 37*(2), 177-196. doi: 10.1080/00438240500094572

Bogaard, A., Charles, M., Ergun, M., Ertuğ, F., & Filipović, D. (2008). Macro Botanical Remains 2008. *Çatalhöyük Research Project, Archive Report.* *http://www.catalhoyuk.com/downloads/Archive_Report_2008.pdf*

Bogaard, A., Charles, M., Livarda, A., Ergun, M., Filipović, D., & Jones, G. (2013). The archaeobotany of mid-later occupation levels at Neolithic Çatalhöyük. In I. Hodder (Ed.), *Humans and Landscapes of Çatalhöyük: reports from the 2000-2008 seasons*. Los Angeles: Monographs of the Cotsen Institute of Archaeology, UCLA.

Bogaard, A., Charles, M., & Twiss, K. C. (2010). Food storage and sharing at Çatalhöyük: the botanical and faunal evidence. In M. Benz (Ed.), *The Principle of Sharing. Segregation and Construction of Social Identities at the Transition from Foraging to Farming. Studies in Early Near Eastern Production, Subsistence, and Environment 14* (pp. 313-330). Berlin: ex oriente.

Bogaard, A., Filipovic, D., Charles, M., Twiss, K. C., Demirergi, G. A., Henecke, J., . . . Russell, N. (2009). Private pantries and celebrated surplus: Storing and sharing food at Neolithic Çatalhöyük, Central Anatolia. *Antiquity Antiquity, 83*(321), 649-668.

Bogaard, A., Henton, E., Evans, J. A., Twiss, K. C., Charles, M. P., Vaiglova, P., & Russell, N. (2014a). Locating Land Use at Neolithic Çatalhöyük, Turkey: The Implications of 87Sr/86Sr Signatures in Plants and Sheep Tooth Sequences. *Archaeometry, 56*(5), 860-877. doi: 10.1111/arcm.12049

Bogaard, A., & Isaakidou, V. (2010). From Mega-Sites to Farmsteads: Community Size, Ideology and the Nature of Early Farming Landscapes in Western Asia and Europe. In B. Finlayson & G. Warren (Eds.), *Landscapes in Transition*: Oxbow Books.

Bogaard, A., Krause, R., & Strien, H.-C. (2011). Towards a social geography of cultivation and plant use in an early farming community: Vaihingen an der Enz, south-west Germany. [Article]. *Antiquity, 85*(328), 395-416.

Bogaard, A., Ryan, P., Yalman, N., Asouti, E., Twiss, K. C., Mazzucato, C., & Farid, S. (2014b). Assessing Outdoor Activities and Their Social Implications at Catalhoyuk. In I. Hodder (Ed.), *Integrating Catalhoyuk: Themes from the 2000-2008 seasons* (Vol. Volume 10, pp. 123-148): British Institute at Ankara.

Bogucki, P. (1992). *American antiquity, 57*(4), 734-736. doi: 10.2307/280838

Bollig, M. (1992). [Bad year economics: Cultural responses to risk and uncertainty, Paul Halstead, John O'Shea]. *Zeitschrift für Ethnologie, 117*, 270-275.

Buitenhuis, H. (1997). Asikli Höyük: A protodomestication site. *Anthropozoologica*(25-26), 655-662.

Byrd, B. (2005). Reassessing the Emergence of Village Life in the Near East. *Journal of Archaeological Research, 13*(3), 231-290. doi: 10.1007/s10814-005-3107-2

Byrd, B. F. (1994). Public and private, domestic and corporate: the emergence of the Southwest Asian village. [Article]. *American antiquity, 59*(4), 639+.

C, R. J., G, D. A., M, B., & D, S. (2000). Les bâtiments communautaires de Jerf el Ahmar et Mureybet Horizon PPNA (Syrie). *Paléorient*, 29-44.

Carleton, W. C., Conolly, J., & Collard, M. (2013). Corporate kin-groups, social memory, and "history houses"? A quantitative test of recent reconstructions of social organization and building function at Çatalhöyük during the PPNB. *Journal of archaeological science, 40*(4), 1816-1822. doi: http://dx.doi.org/10.1016/j.jas.2012.11.011

Carter, T., Conolly, J., & Spasojević, A. (2005). The Chipped Stone. In I. Hodder (Ed.), *Changing Materialities at Çatalhöyük: Reports from the 1995-1999 Seasons*. Cambridge: McDonald Institute Monographs/British Institute of Archaeology at Ankara.

Carter, T., Dubernet, S., King, R., Le Bourdonnec, F., Poupeau, G., & Shackley, M. (2008). Eastern Anatolian obsidians at Çatalhöyük and the reconfiguration of regional interaction in the Early Ceramic Neolithic. *Antiquity, 82*(318), 900-909.

Carter, T., Poupeau, G., Bressy, C., & Pearce, N. J. G. (2006). A new programme of obsidian characterization at Çatalhöyük, Turkey. *YJASC Journal of Archaeological Science, 33*(7), 893-909.

Casteel, R. W. (1978). Faunal Assemblages and the "Wiegemethode" or Weight Method. *Journal of Field Archaeology, 5*, 71-77.

Cauvin, J., & Watkins, T. (2000). *The birth of the Gods and the origins of agriculture*. Cambridge, UK; New York: Cambridge University Press.

Cessford, C. (2007). Level pre-XII.E-A and levels XIIand XI, spaces 181, 199 and 198. In I. Hodder (Ed.), *Excavating Çatalhöyük: South, North, and KOPAL Area reports from the 1995–99 seasons*. Cambridge: McDonald Institute Monographs/British Institute of Archaeology at Ankara.

Charles, M., Doherty, C., Asouti, E., Bogaard, A., Henton, E., Larsen, C. S., . . . Twiss, K. C. (2014). Landscape and Taskscape at Catalhoyuk: An Integrated Perspective. In I. Hodder (Ed.), *Integrating Catalhoyuk: Themes from the 2000-2008 seasons. Volume 10* (pp. 71-90): British Institute at Ankara.

Clarke, M. J. (1998). *Feasting Among the Akha of Northern Thailand: An Ethnoarchaeological Case Study*.

Clarke, M. J. (2001). Akha feasting: an ethnoarchaeological perspective. In M. Dietler & B. Hayden (Eds.), *Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Power* (pp. 144-167). Washington, D.C: Smithsonian Institution Press.

Conolly, J. (1999). Technical strategies and technical change at Neolithic Çatalhöyük, Turkey. *Antiquity, 73*(282), 791-800.

Cook, S. F., & Treganza, A. E. (1950). *The quantitative investigation of Indian mounds : with special reference to the relation of the physical components to the probable material culture*. Berkeley: University of California Press.

Demirergi, G. A. (2013). *Consumption, Sharing and Farming At Neolithic Çatalhöyük*. Paper presented at the 112th Annual Meeting of the American Anthropological Association, Chicago, IL.

Demirergi, G. A., Twiss, K. C., Bogaard, A., Green, L., Ryan, P., & Farid, S. (2014). Of bins, basins and banquets: storing, handling and sharing at Neolithic Çatalhöyük. In I. Hodder (Ed.), *Integrating Çatalhöyük: Themes from the 2000-08 Seasons*. Los Angeles: Cotsen Institute of Archaeology Publications.

Dewbury, A. G., & Russell, N. (2007a). Relative frequency of butchering cutmarks produced by obsidian and flint : an experimental approach. *Journal of archaeological science, 34*(3), 354-357.

Dewbury, A. G., & Russell, N. (2007b). Relative frequency of butchering cutmarks produced by obsidian and flint: an experimental approach. *Journal of archaeological science, 34*(3), 354-357. doi: 10.1016/j.jas.2006.05.009

Dietler, M. (2001). Theorizing the feast: Rituals of consumption, commensal politics, and power in African contexts. *Feasts: Archaeological and ethnographic perspectives on food, politics, and power*, 65-114.

Dietler, M., & Hayden, B. (2001a). Digesting the feast—good to eat, good to drink, good to think: an introduction. In M. Dietler & B. Hayden (Eds.), *Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Power* (pp. 1-22). Washington, D.C: Smithsonian Institution Press.

Dietler, M., & Hayden, B. (Eds.). (2001b). *Feasts : archaeological and ethnographic perspectives on food, politics, and power*. Washington, D.C.: Smithsonian Institution Press.

Dietler, M., & Herbich, I. (2001). Feasts and labor mobilization: Dissecting a fundamental economic practice. *Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Power, Smithsonian Institution Press, Washington, DC*, 240-264.

Dietrich, O. (2012). The role of cult and feasting in the emergence of Neolithic communities :new evidence from Göbekli Tepe, south-eastern Turkey. *Antiquity, 86*(333), 674-695.

Doherty, C. (2013). Sourcing Çatalhöyük's Clays. In I. Hodder (Ed.), *Substantive Technologies at Çatalhöyük: Reports from the 2000-2008 Seasons: Çatalhöyük Research Project Volume 9* (pp. 51-66): British Institute at Ankara.

Doherty, C., Charles, M., & Bogaard, A. (2007). Preliminary Coring *Catalhoyuk Archive Report 2007. http://www.catalhoyuk.com/downloads/Archive_Report_2007.pdf* (pp. 382-389).

Douglas, M. (1975). Deciphering a meal. *Implicit Meanings: Essays in Anthropology* (pp. 249–275). Boston: Routledge & Paul.

Düring, B. S. (2005). Building Continuity in the Central Anatolian Neolithic: Exploring the Meaning of Buildings at Aşıklı Höyük and Çatalhöyük. [Article]. *Journal of Mediterranean Archaeology, 18*(1), 3-29.

Düring, B. S. (2007). The Articulation of Houses at Neolithic Catalhoyuk, Turkey. In R. A. Beck (Ed.), *The durable house : house society models in archaeology.* (Vol. Occasional Paper No. 35, pp. 130 - 153). Southern Illinois University, Carbondale: Center for Archaeological, Investigations.

Düring, B. S., & Marciniak, A. (2006). Households and communities in the central Anatolian Neolithic. *Archaeological Dialogues, 12*(02), 165-187.

Eddisford, D. (in press). Building 49. In I. Hodder (Ed.), *Çatalhöyük Excavations: the 2000-2008 Seasons*. Los Angeles: Monographs of the Cotsen Institute of Archaeology, UCLA.

Emma Guerrero, Miquel Molist, Ian Kuijt, & Josep Anfruns. (2009). Seated Memory: New Insights into Near Eastern Neolithic Mortuary Variability from Tell Halula, Syria. *Current Anthropology, 50*(3), 379-391. doi: 10.1086/598211

Ertug-Yaras, F. (1997). *An ethnoarchaeological study of subsistence and plant gathering in central Anatolia.* PhD Unpublished PhD Thesis, Washington University, St Louis. Available from http://worldcat.org /z-wcorg/ database.

Evershed, R. P., Payne, S., Sherratt, A. G., Copley, M. S., Coolidge, J., Urem-Kotsu, D., . . . Burton, M. M. (2008). Earliest date for milk use in the Near East and southeastern Europe linked to cattle herding. [10.1038/nature07180]. *Nature, 455*(7212), 528-531.

Fairbairn, A., Asouti, E., Near, J., & Martinoli, D. (2002). Macro-botanical evidence for plant use at Neolithic Çatalhöyük south-central Anatolia, Turkey. *Vegetation History and Archaeobotany, 11*(1-2), 41-54. doi: 10.1007/s003340200005

Fairbairn, A. S., Jenkins, E., Baird, D., & Jacobsen, G. (2014a). 9th millennium plant subsistence in the central Anatolian highlands: new evidence from Pınarbaşı, Karaman Province, central Anatolia. *Journal of archaeological science, 41*(0), 801-812. doi: http://dx.doi.org/10.1016/j.jas.2013.09.024

Fairbairn, A. S., Jenkins, E., Baird, D., & Jacobsen, G. (2014b). 9th millennium plant subsistence in the central Anatolian highlands: new evidence from Pınarbaşı, Karaman Province, central Anatolia. *Journal of archaeological science, 41*, 801-812. doi: http://dx.doi.org/10.1016/j.jas.2013.09.024

Fairbairn, A. S., Martinoli, D., & Near, J. (2005). Macrobotanical investigation of the north, south and KOPAL area excavations at Catalhöyük East. In I. Hodder (Ed.), *Inhabiting Çatalhöyük: Reports from the 1995-99 Seasons* (pp. 137-201). Cambridge, London: McDonald Institute for Archaeological Research/British Institute at Ankara.

Farid, S. (2007a). Introduction to the South Area Excavations. In I. Hodder (Ed.), *Excavating Çatalhöyük : South, North and Kopal area reports from the 1995-1999 seasons*. Cambridge: McDonald Institute Monographs/British Institute of Archaeology at Ankara.

Farid, S. (2007b). Neolithic excavations in the South Area, East Mound, Çatalhöyük. In I. Hodder (Ed.), *Excavating Çatalhöyük: South, North and KOPAL Area Reports from the 1995-99 Seasons* (pp. 41-342). Cambridge: McDonald Institute Monographs/British Institute of Archaeology at Ankara.

Farid, S. (in press). Buildings 51 and 52. In I. Hodder (Ed.), *Çatalhöyük Excavations: the 2000-2008 seasons*. Los Angeles: Monographs of the Cotsen Institute of Archaeology, UCLA.

Finlayson, B. (2010). Archaeology, evidence and anthropology: circular arguments in the transition from foraging to farming. In M. Benz (Ed.), *The Principle of Sharing. Segregation and Construction of Social Identities at the Transition from Foraging to Farming* (pp. 19-34). Berlin: Ex Oriente.

Finlayson, B., Kuijt, I., Mithen, S., & Smith, S. (2011). New Evidence from Southern Jordan: Rethinking the role of architecture in changing societies at the beginning of the Neolithic process. *Paléorient, 37*(1), 123-135. doi: 10.2307/41496926

Fortier, A. (2000). Monkey's Thigh is the Shaman's Meat: Ideologies of Sharing among the Raute of Nepal. In G. W. Wenzel, G. Hovelsrud-Broda & N. Kishigami (Eds.), *The social economy of sharing: Resource allocation and modern hunter-gatherers* (pp. 113-148). Osaka: National Museum of Ethnology.

French, D. H. (1998). *Canhasan Sites I: Canhasan 1: Stratigraphy and Structures (British Institute of Archaeology at Ankara Monographs, 23) (v. 1)*: British Institute of Archaeology, Ankara.

French, D. H., Hillman, G. C., Payne, S., & Payne, R. J. (1972). Excavations at Can Hasan III 1969-1970. In E. S. Higgs (Ed.), *Papers in economic prehistory : studies.* (pp. 181-190). Cambridge: Cambridge Univ. Press.

Friesen, T. M. (2001). A Zooarchaeological Signature for Meat Storage: Re-Thinking the Drying Utility Index. *American antiquity, 66*(2), 315-331.

Goring-Morris, A. N., & Belfer-Cohen, A. (2008). A Roof Over One's Head: Developments in Near Eastern Residential Architecture Across the Epipalaeolithic–Neolithic Transition. In J.-P. Bocquet-Appel & O. Bar-Yosef (Eds.), *The Neolithic Demographic Transition and its Consequences* (pp. 239-286): Springer Netherlands.

Greaves, R. D. (2007). The ethnoarchaeology of hunting and collecting: Pumé foragers of Venezuela. *Expedition, 49*(1), 18-27.

Gurven, M., & Jaeggi, A. V. (2015). Food Sharing. In R. Scott & S. Kosslyn (Eds.), *Emerging Trends in the Social and Behavioral Sciences*: John Wiley & Sons, Inc.

Gurven, M., Mulder, M. B., Hooper, P. L., Kaplan, H., Quinlan, R., Sear, R., . . . Bell, A. (2010). Domestication Alone Does Not Lead to Inequality. [Article]. *Current Anthropology, 51*(1), 49-64. doi: 10.1086/648587

Halstead, P. (1989). The economy has a normal surplus: economic stability and social change among early farming communities of Thessaly, Greece. *Bad Year Economics: Cultural Responses to Risk and Uncertainty*, 68-80.

Halstead, P. (1992). From Reciprocity to Redistribution : modelling the Exchange of Livestock in Neolithic Greece. *Anthropozoologica: Les animaux et leurs produits dans le commerce et les échanges, 16*, 19-30.

Halstead, P. (1999). Neighbours from Hell? The Household in Neolithic Greece. In P. Halstead (Ed.), *Neolithic Society in Greece* (pp. 77-95). Sheffield: Sheffield Academic Press.

Halstead, P. (2004). Farming and feasting in the Neolithic of Greece: the ecological context of fighting with food. *Documenta Praehistorica. Porocilo o raziskovanju paleolitika, neolotika in eneolitika v Sloveniji. Neolitske studije = Neolithic studies, 31*, 151-161.

Halstead, P. (2007). Carcasses and commensality : investigating the social context of meat consumption in Neolithic and Early Bronze Age Greece. In C. Mee & J. Renard (Eds.), *Cooking up the past : food and culinary practices in the Neolithic and Bronze Age Aegean* (pp. 25-49).

Halstead, P. (2011). Feast, food and fodder in Neolithic-Bronze age Greece: commensality and the construction of value. *eTopoi. Journal for Ancient Studies*.

Halstead, P. (2012). Feast, Food and Fodder in Neolithic-Bronze Age Greece: Commensality and the Construction of Value. In S. Pollock (Ed.), *Between Feasts and Daily Meals: Toward an Archaeology of Commensal Spaces* (Vol. Special Volume 2, pp. 21-51). Berlin: Excellence Cluster Topoi - Journal for Ancient Studies.

Halstead, P., & O'Shea, J. M. (1989). *Bad year economics : cultural responses to risk and uncertainty*. Cambridge [England]; New York: Cambridge University Press.

Henton, E. (2012). The combined use of oxygen isotopes and microwear in sheep teeth to elucidate seasonal management of domestic herds: the case study of Çatalhöyük, central Anatolia. *Journal of archaeological science, 39*(10), 3264-3276. doi: http://dx.doi.org/10.1016/j.jas.2012.05.020

Henton, E., Meier-Augenstein, W., & Kemp, H. F. (2010). The Use of Oxygen isotopes in sheep molars to investigate past herding practices at the Neolithic Settlement of Çatalhöyük, Central Anatolia. [Article]. *Archaeometry, 52*(3), 429-449. doi: 10.1111/j.1475-4754.2009.00492.x

Henton, E. M. (2011). *Herd management and the social role of herding at Neolithic Çatalhoyuk : an investigation using oxygen isotope and dental microwear evidence in sheep (PhD Thesis)*. University College, London.

Hillson, S., Larsen, C., Boz, B., Pilloud, M., Sadvari, J., Agarwal, S., . . . Haddow, S. (2013). The human remains I: Interpreting community structure, health, and diet in Neolithic Çatalhöyük. In I. Hodder (Ed.), *Humans and Landscapes of Çatalhöyük: reports from the 2000–2008 seasons* (pp. 333-388). Los Angeles: Cotsen Institute of Archaeology Publications.

Hodder, I. (1990). *The domestication of Europe*. Oxford: B. Blackwell, Incorporated.

Hodder, I. (2003). The lady and the seed: some thoughts on the role of agriculture in the "neolithic revolution" *Archaeology Beyond Dialogue*. Salt Lake City: University of Utah Press.

Hodder, I. (2005a). *Changing materialities at Çatalhöyük: reports from the 1995-99 seasons*: McDonald Institute for Archaeological Research.

Hodder, I. (2005b). Socialization and Feasting at Çatalhöyük: A Response to Adams. *American antiquity, 70*(1), 189-191. doi: 10.2307/40035278

Hodder, I. (2007a). Çatalhöyük in the Context of the Middle Eastern Neolithic. *Annual Review of Anthropology, 36*(1), 105-120. doi: doi:10.1146/annurev.anthro.36.081406.094308

Hodder, I. (2013a). *Humans and landscapes of Çatalhöyük : reports from the 2000-2008 seasons*: British Institute of Archaeology at Ankara; Cotsen Institute of Archaeology at UCLA.

Hodder, I. (2013b). *Substantive technologies at Çatalhöyük : reports from the 2000-2008 seasons. Volume 8*: British Institute of Archaeology at, Ankara; Cotsen Institute of Archaeology at UCLA.

Hodder, I. (2014a). *Çatalhöyük excavations : the 2000-2008 seasons. Volume 7*: British Institute of Archaeology at, Ankara

Cotsen Institute of Archaeology at, Ucla.

Hodder, I. (2014b). Çatalhöyük: The leopard changes its spots. A summary of recent work. *Anatolian Stud. Anatolian Studies, 64*, 1-22.

Hodder, I. (2014c). *Integrating Çatalhöyük : themes from the 2000-2008 seasons*.

Hodder, I. (2014d). *Religion at Work in a Neolithic Society: Vital Matters*: Cambridge University Press.

Hodder, I. (Ed.). (2007b). *Excavating Çatalhöyük : South, North and KOPAL area reports from the 1995-99 seasons*. Cambridge: McDonald Institute Monographs/British Institute of Archaeology at Ankara.

Hodder, I. (Ed.). (in press). *Çatalhöyük Excavations: the 2000-2008 seasons*. Los Angeles: Monographs of the Cotsen Institute of Archaeology, UCLA.

Hodder, I., & Cessford, C. (2004). Daily practice and social memory at Çatalhöyük. *American antiquity*, 17-40.

Hodder, I., & Farid, S. (2014). Questions, History of Work and Summary of Results. In I. Hodder (Ed.), *Çatalhöyük excavations : the 2000-2008 seasons* (pp. 1-34). Los Angeles, CA

Albuquerque, NM: British Institute at Ankara; Cotsen Institute of Archaeology Press.

Hodder, I., & Meskell, L. (2012). Symbolism, Feasting, and Power at Çatalhöyük: A Response to Sutliff and to Hayden. *Current Anthropology, 53*(1), 128-129.

Hodder, I., & Pels, P. (2010). History houses: A new Interpretation of architectural elaboration at Çatalhöyük. In I. Hodder (Ed.), *Religion in the Emergence of Civilization: Çatalhöyük as a Case Study* (pp. 163 - 186). Cambridge: Cambridge University Press.

House, M. (in press). Building 77. In I. Hodder (Ed.), *Çatalhöyük Excavations: the 2000-2008 Seasons*. Los Angeles: Monographs of the Cotsen Institute of Archaeology, UCLA.

Hovelsrud-Broda, G. (2000). "Sharing", Transfers, Transactions and the Concept of Generalized Reciprocity. In G. W. Wenzel, G. Hovelsrud-Broda & N. Kishigami (Eds.), *The social economy of sharing: Resource allocation and modern hunter-gatherers* (pp. 193-214). Osaka: National Museum of Ethnology.

Hunt, R. C. (2000). Forager Food Sharing Economy: Transfers and Exchanges. In G. W. Wenzel, G. Hovelsrud-Broda & N. Kishigami (Eds.), *The Social Economy of Sharing:Resource Allocation and Modern Hunter-Gatherers. Senri Ethnological Studies No. 53* (pp. 7-26). Osaka: National Museum of Ethnology.

Ingold, T. (1983). The Significance of Storage in Hunting Societies. *Man, 18*(3), 553-571. doi: 10.2307/2801597

Ingold, T. (2000). *The perception of the environment: essays on livelihood, dwelling and skill*: Psychology Press.

Ingold, T. (2005). Time, memory and property. In T. Widlok & W. G. Tadesse (Eds.), *Property and equality, Volume 1: Ritualisation, sharing, egalitarianism* (pp. 165-174). Oxford: Berghahn.

Jensen, K. O. D., & Holm, L. (1999). Preferences, quantities and concerns: socio-cultural perspectives on the gendered consumption of foods. [Article]. *European Journal of Clinical Nutrition, 53*(5), 351-359.

Kenyon, K. M. (1954). Excavations at Jericho. *The Journal of the Royal Anthropological Institute of Great Britain and Ireland, 84*(1/2), 103-110. doi: 10.2307/2844004

Kirch, P. V. (2001). Polynesian feasting in ethnohistoric, ethnographic, and archaeological contexts: A comparison of three societies. *Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Power, Smithsonian Institution Press, Washington, DC*, 168-184.

Kishigami, N. (2000). Contemporary Inuit Food Sharing and Hunter Support Program of Nunavik, Canada. In G. W. Wenzel, G. Hovelsrud-Broda & N. Kishigami (Eds.), *The social economy of sharing: Resource allocation and modern hunter-gatherers* (pp. 171-192). Osaka: National Museum of Ethnology.

Kitanishi, K. (2000). The Aka and Baka : food sharing among two central Africa hunter-gatherer groups. In G. W. Wenzel, G. Hovelsrud-Broda & N. Kishigami (Eds.), *The Social Economy of Sharing:Resource Allocation and Modern Hunter-Gatherers. Senri ethnological studies No. 53* (pp. 149-169). Osaka: National Museum of Ethnology.

Kohler, T. A., Van Pelt, M., & Yap, L. (2000). Reciprocity and its limits: Considerations for a study of the prehispanic Pueblo world. *Alternative leadership strategies in the Prehispanic Southwest*, 180-206.

Kramer, K. L., Greaves, R. D., & Ellison, P. T. (2009). Early reproductive maturity among Pumé foragers: implications of a pooled energy model to fast life histories. *American Journal of Human Biology, 21*(4), 430-437.

Kuijt, I. (1996). Negotiating Equality through Ritual: A Consideration of Late Natufian and Prepottery Neolithic A Period Mortuary Practices. *Journal of Anthropological Archaeology, 15*(4), 313-336. doi: http://dx.doi.org/10.1006/jaar.1996.0012

Kuijt, I. (2000a). Keeping the peace: Ritual, skull caching, and community integration in the Levantine Neolithic. *Life in Neolithic farming communities: Social organization, identity, and differentiation*, 137-162.

Kuijt, I. (2000b). Life in Neolithic farming communities: An introduction. In I. Kuijt (Ed.), *Life in Neolithic Farming Communities: Social Organization, Identity, and Differentiation, Kluwer Academic/Plenum Publishers, New York* (pp. 3-13).

Kuijt, I. (2000c). People and space in early agricultural villages: Exploring daily lives, community size, and architecture in the late Pre-Pottery Neolithic. *Journal of Anthropological Archaeology, 19*(1), 75-102.

Kuijt, I. (2001). Place, Death, and the Transmission of Social Memory in Early Agricultural Communities of the Near Eastern Pre-Pottery Neolithic. *Archeological Papers of the American Anthropological Association, 10*(1), 80-99. doi: 10.1525/ap3a.2001.10.1.80

Kuijt, I. (2008). Demography and Storage Systems During the Southern Levantine Neolithic Demographic Transition. In J.-P. Bocquet-Appel & O. Bar-Yosef (Eds.), *The Neolithic Demographic Transition and its Consequences* (pp. 287-313). Dordrecht; London: Springer.

Kuijt, I. (2009). What Do We Really Know about Food Storage, Surplus, and Feasting in Preagricultural Communities? *Current Anthropology, 50*(5), 641-644.

Kuijt, I. (2015). The Neolithic refrigerator on a Friday night: How many people are coming to dinner and just what should i do with the slimy veggies in the back of the fridge? *Environ. Archeol. Environmental Archaeology, 20*(4), 321-336.

Kuijt, I., & Finlayson, B. (2009). Evidence for food storage and predomestication granaries 11,000 years ago in the Jordan Valley. *Proceedings of the National Academy of Sciences of the United States of America, 106*(27), 10966-10970.

Kuijt, I., & Goring-Morris, N. (2002). Foraging, Farming, and Social Complexity in the Pre-Pottery Neolithic of the Southern Levant: A Review and Synthesis. *Journal of world prehistory, 16*(4), 361-440. doi: 10.2307/25801196

Kuijt, I., Guerrero, E., Molist, M., & Anfruns, J. (2011). The changing Neolithic household: Household autonomy and social segmentation, Tell Halula, Syria. *Journal of Anthropological Archaeology, 30*(4), 502-522. doi: http://dx.doi.org/10.1016/j.jaa.2011.07.001

Larsen, C. S., Hillson, S. W., Ruff, C. B., Sadvari, J. W., & Garofalo, E. M. (2013). The Human Remains II: Interpreting Lifestyle and Activity in Neolithic Çatalhöyük. In I. Hodder (Ed.), *Humans and Landscapes of Çatalhöyük: reports from the 2000–2008 seasons* (pp. 389-404). Los Angeles: Cotsen Institute of Archaeology Publications.

Last, J. (2005a). Art. In I. Hodder (Ed.), *Çatalhöyük perspectives: Reports from the 1995–99 seasons. Çatalhöyük Research Project Volume 6.* Oxford: Oxbow Books.

Last, J. (2005b). Pottery from the East Mound. In I. Hodder (Ed.), *Changing Materialities at Çatalhöyük: Reports from the 1995-99 Seasons* (pp. 101-138). Cambridge: McDonald Institute Monographs/British Institute of Archaeology at Ankara.

Leon-Guerrero, A., & Frankfort-Nachmias, C. (2002). *Social Statistics for a Diverse Society* (3 ed.). Thousand Oaks: Pine Forge Press.

Lévi-Strauss, C. (1983). The Way of the Masks, trans. *S. Modelski, London, Cape*.

Lyman, R. L. (2008). *Quantitative paleozoology*. Cambridge; New York: Cambridge University Press.

Macdonald, G. (2000). Economies and Personhood: Demand Sharing among the Wiradjuri of New South Wales. In G. W. Wenzel, G. Hovelsrud-Broda & N. Kishigami (Eds.), *The social economy of sharing: Resource allocation and modern hunter-gatherers* (pp. 87-112). Osaka: National Museum of Ethnology.

Marciniak, A., Barański, M. Z., Bayliss, A., Czerniak, L., Goslar, T., Southon, J., & Taylor, R. E. (2015). Fragmenting times: interpreting a Bayesian chronology for the Late Neolithic occupation of Çatalhöyük East, Turkey. [Article]. *Antiquity, 89*(343), 154-176. doi: 10.15184/aqy.2014.33

Martin, L., & Russell, N. (2000). Trashing rubbish. In I. Hodder (Ed.), *Towards reflexive method in archaeology: the example at Catalhoyuk* (pp. 57-69): McDonald Institute Monographs & British Institute of Archaeology.

Matthews, R. J. (1996). The excavation of Building 1, North Area *Catalhoyuk 1996 Archive Report*. http://www.catalhoyuk.com/archive_reports/1996/ar96_02.html.

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* (pp. 355-398). London: McDonald Institute for Archaeology/British Institute of Archaeology at Ankara.

Matthews, W. (2005b). Micromorphology and microstratigraph: Contextual Studies. Chapter 19 on Supplemetary CD. In I. Hodder (Ed.), *Inhabiting Çatalhöyük: Reports from the 1995–1999 seasons* (pp. 553-572). London: McDonald Institute for Archaeology/British Institute of Archaeology at Ankara.

Mazzucato, C. (2013). Sampling and Mapping Çatalhöyük. In I. Hodder (Ed.), *Humans and Landscapes of Çatalhöyük: reports from the 2000–2008 seasons*. Los Angeles: Cotsen Institute of Archaeology Publications.

Metcalfe, D., & Jones, K. T. (1988). A Reconsideration of Animal Body-Part Utility Indices. *American antiquity, 53*(3), 486-504. doi: 10.2307/281213

Mills, B. (2014). Relational networks and religious sodalities at Çatalhöyük *Religion at Work in a Neolithic Society: Vital Matters.* (pp. 159-186). Cambridge: Cambridge Univ. Press.

Nakamura, C., & Meskell, L. (2014). The Çatalhöyük Burial Assemblage. In I. Hodder (Ed.), *Humans and landscapes of Çatalhöyük: reports from the 2000-2008 seasons* (pp. 431-455). Los Angeles: Cotsen Institute.

Ozbasaran, M. (2012). Asikli. In M. Ozdogan, N. Basgelen & P. Kuniholm (Eds.), *The Neolithic in Turkey, New Excavations & New Research. Central Turkey: Vol 3* (pp. 135-158). Istanbul: Arkeoloji ve Sanat Yayinlari.

ÖZdogan, M., & ÖZdoĞAn, A. (1989). CAYÖNÜ: A Conspectus of Recent Work. *Paléorient, 15*(1), 65-74. doi: 10.2307/41492333

Öztan, A. (2012). Köşk Höyük: A Neolithic Settlement in Niğde-Bor Plateau. In M. Ozdogan & N. Basgelen (Eds.), *The Neolithic in Turkey: New excavations and new research: Central Turkey.Vol. 3*. Istanbul: Arkeoloji ve Sanat Yayinlarid.

Pappa, M., Halstead, P., Kotsakis, K., Bogaard, A., Fraser, R., Isaakidou, V., . . . Veropoulidou, R. (2010). The Neolithic site of Makriyalos, northern Greece: a reconstruction of the social and economic structure of the settlement through a comparative study of the finds. In S. Voutsaki & S. M. Valamoti (Eds.), *Diet, economy and society in the ancient Greek world : towards a better integration of archaeology and science : proceedings of the International Conference held at the Netherlands Institute at Athens* (pp. 77-88). Leuven: Peeters.

Pappa, M., Halstead, P., Kotsakis, K., & Urem-Kotsou, D. (2004). Evidence for large-scale feasting at Late Neolithic Makriyalos, N Greece. *Food, cuisine and society in Prehistoric Greece. Sheffield studies in aegean archaeology, 5*, 16-44.

Pearson, J. A. (2013). Human and animal diet as evidenced by stable carbon and nitrogen isotope analysis. In H. I (Ed.), *Humans and Landscapes of Çatalhöyük: reports from the 2000–2008 seasons. Çatalhöyük Research Project Volume 8.* (pp. 265-292): BRITISH INSTITUTE AT ANKARA.

Pearson, J. A., Bogaard, A., Charles, M., Hillson, S. W., Larsen, C. S., Russell, N., & Twiss, K. (2015). Stable carbon and nitrogen isotope analysis at Neolithic Çatalhöyük: evidence for human and animal diet and their relationship to households. *Journal of archaeological science, 57*(0), 69-79. doi: http://dx.doi.org/10.1016/j.jas.2015.01.007

Pearson, J. A., Hedges, R. E. M., Molleson, T. I., & Özbek, M. (2010). Exploring the relationship between weaning and infant mortality: An isotope case study from Aşıklı Höyük and Çayönü Tepesi. *American Journal of Physical Anthropology, 143*(3), 448-457. doi: 10.1002/ajpa.21335

Pitter, S. (2013). *Molecular and stable isotopic analyses of the fatty acyl components of the pottery of Çatalhöyük, Turkey understanding the relationships between animal domestication, ceramic technology, environmental variation and their roles in the secondary products revolution.* PhD Dissertation, Stanford, University. Retrieved from http://purl.stanford.edu/xm152jw3650 Available from http://worldcat.org /z-wcorg/ database.

Reed, C. A. (1963). Osteo-Archaeology. *Science in archaeology : a comprehensive survey of progress and research*, 204-216.

Regan, R., & Taylor, J. (2014). The sequence of Buildings 75, 65, 56, 69, 44 and 10 and external Spaces 119, 129, 130, 144, 299, 314, 319, 329, 333, 339, 367, 371 and 427. In I. Hodder (Ed.), *Çatalhöyük Excavations: the 2000-2008 seasons* (pp. 131-189). Los Angeles: Monographs of the Cotsen Institute of Archaeology, UCLA.

Richards, M. P., Pearson, J. A., Molleson, T. I., Russell, N., & Martin, L. (2003). Stable Isotope Evidence of Diet at Neolithic Çatalhöyük, Turkey. *Journal of archaeological science, 30*(1), 67-76. doi: http://dx.doi.org/10.1006/jasc.2001.0825

Roberts, N. (2009). Diversity and complexity in early farming communities of Southwest Asia: new insights into the economic and environmental basis of neolithic Çatalhöyük. *Current Anthropology, 50*(3), 393-402.

Roberts, N., Black, S., Boyer, P., Eastwood, W. J., Griffiths, H. I., Lamb, H. F., . . . Yiğitbaşioğlu, H. (1999). Chronology and stratigraphy of Late Quaternary sediments in the Konya Basin, Turkey: Results from the KOPAL Project. *Quaternary Science Reviews, 18*(4–5), 611-630. doi: http://dx.doi.org/10.1016/S0277-3791(98)00100-0

Rollefson, G. O. (1998). 'Ain Ghazal (Jordan) : ritual and ceremony III. *Paléorient, 24*(1), 43-58. doi: 10.2307/41492753

Rollefson, G. O., & Köhler-Rollefson, I. (1993). PPNC ADAPTATIONS IN THE FIRST HALF OF THE 6th MILLENNIUM B.C. *Paléorient, 19*(1), 33-42. doi: 10.2307/41492533

Russell, N. (2012a). *Social zooarchaeology : humans and animals in prehistory*. Cambridge; New York: Cambridge University Press.

Russell, N., & Griffitts, J. L. (in press). Çatalhöyük Worked Bone: South and 4040 Areas. In I. Hodder (Ed.), *Substantive Technologies at Çatalhöyük: Reports from the 2000-2008 seasons*. Los Angeles: Monographs of the Cotsen Institute of Archaeology, UCLA.

Russell, N., & Martin, L. (2005). The Çatalhöyük mammal remains. In I. Hodder (Ed.), *Inhabiting Çatalhöyük: Reports from the 1995-1999 Seasons*. Cambridge: McDonald Institute Monographs/British Institute of Archaeology at Ankara.

Russell, N., Martin, L., & Twiss, K. C. (2009). Building memories: commemorative deposits at Çatalhöyük. *Anthropozoologica, 44*(1), 103-125.

Russell, N., Stevanović, M., Ryan, P., Milić, M., & Filipović, D. (2008). *Bringing down the house: House closing and abandonment deposits at Neolithic Çatalhöyük, Turkey.* Paper presented at the Society for American Archaeology, Vancouver.

Russell, N., Twiss, K., Orton, D., & Demirergi, A. (2014a). Changing Neolithic animal use at Çatalhöyük, Turkey. In B. D. Cupere & V. Linseele (Eds.), *Archaeozoology of the Near East 10*. Leuven: Peeters.

Russell, N., Twiss, K., Orton, D., & Demirergi, A. (in press). More on the Çatalhöyük mammal remains In I. Hodder (Ed.), *Humans and Landscapes of Çatalhöyük: reports from the 2000-2008 seasons*. Los Angeles: Monographs of the Cotsen Institute of Archaeology, UCLA.

Russell, N., Twiss, K. C., Orton, D. C., & Demirergi, A. (2013). More on the Çatalhöyük mammal remains. In I. Hodder (Ed.), *Humans and Landscapes of Çatalhöyük: Reports from the 2000-2008 Seasons* (pp. 203-251). Los Angeles: Monographs of the Cotsen Institute of Archaeology, UCLA.

Russell, N., Wright, K. I., Carter, T., Ketchum, S., Yalman, E. N., Regan, R., . . . Milič., M. (2014b). Bringing down the house: House closing deposits at Çatalhöyük. In I. Hodder (Ed.), *Integrating Çatalhöyük: Themes from the 2000-2008 Seasons*. Los Angeles: Cotsen Institute of Archaeology Press.

Russell, N. D., Adam G. (2012b). Cooking meat and bones at Neolithic Çatalhöyük, Turkey. In S. R. G. a. E. Rodríguez-Alegría (Ed.), *The Menial Art of Cooking: Archaeological Studies of Cooking and Food Preparation* (pp. 87-97). Boulder: University Press of Colorado.

Ryan, P. (in press). Plant exploitation from household and landscape perspectives: the phytolith evidence. In I. Hodder (Ed.), *In Humans and Landscapes of Çatalhöyük: Reports from the 2000–2008 Seasons*. Los Angeles: Monographs of the Cotsen Institute of Archaeology, UCLA.

Schiefenhövel, W., & Ingrid, B.-K. (1996). Of harvests and hierarchies : securing staple food and social position in the Trobriand islands. In P. Wiessner & W. Schiefenhövel (Eds.), *Food and the status quest : an interdisciplinary perspective* (pp. S. 235-251.). Providence: Berghahn Books.

Schirmer, W. (1990). Some Aspects of Building at the 'Aceramic-Neolithic' Settlement of Cayonu Tepesi. *World Archaeology, 21*(3), 363-387. doi: 10.2307/124836

Shillito, L.-M., & Matthews, W. (2013). Geoarchaeological Investigations of Midden-Formation Processes in the Early to Late Ceramic Neolithic Levels at Çatalhöyük, Turkey ca. 8550–8370 cal BP. *Geoarchaeology, 28*(1), 25-49. doi: 10.1002/gea.21427

Shillito, L.-M., Matthews, W., Almond, M. J., & Bull, I. D. (2011). The microstratigraphy of middens: capturing daily routine in rubbish at Neolithic Çatalhöyük, Turkey. *Antiquity, 85*(329), 1024-1038.

Shillito, L.-M., & Ryan, P. (2013). Surfaces and streets: phytoliths, micromorphology and changing use of space at Neolithic Catalhoyuk (Turkey). [Report]. *Antiquity*(337), 684.

Smith, E. A., Hill, K., Marlowe, F. W., Nolin, D., Wiessner, P., Gurven, M., . . . Bell, A. (2010). Wealth Transmission and Inequality among Hunter-Gatherers. [Article]. *Current Anthropology, 51*(1), 19-34. doi: 10.1086/648530

Steadman, S. R. (2000). Spatial Patterning and Social Complexity on Prehistoric Anatolian Tell Sites: Models for Mounds. *Journal of Anthropological Archaeology, 19*(2), 164-199. doi: http://dx.doi.org/10.1006/jaar.2000.0363

Stiner, M. C., Buitenhuis, H., Duru, G., Kuhn, S. L., Mentzer, S. M., Munro, N. D., . . . Özbaşaran, M. (2014). A forager–herder trade-off, from broad-spectrum hunting to sheep management at Aşıklı Höyük, Turkey. *Proceedings of the National Academy of Sciences, 111*(23), 8404-8409. doi: 10.1073/pnas.1322723111

Testart, A., Forbis, R. G., Hayden, B., Ingold, T., Perlman, S. M., Pokotylo, D. L., . . . Stuart, D. E. (1982). The Significance of Food Storage Among Hunter-Gatherers: Residence Patterns, Population Densities, and Social Inequalities [and Comments and Reply]. *curranth Current Anthropology, 23*(5), 523-537.

Tomkins, P. (2007). Communality and competition. The social life of food and containers at Aceramic and Early Neolithic Knossos, Crete. In C. Mee & J. Renard (Eds.), *Cooking Up the Past: Food and Culinary Practices in the Neolithic and Bronze Age Aegean*: Oxbow Books.

Tringham, R. (2000). The Continuous House. In R. A. Joyce & S. D. Gillespie (Eds.), *Beyond kinship: social and material reproduction in house societies* (pp. 115-134). Philedelphia: Univ. of Pennsylvania Press.

Twiss, K. (in press). The Archaeology of Food and Social Diversity. *Journal of Archaeological Research*, 1-39. doi: 10.1007/s10814-012-9058-5

Twiss, K. C. (2007a). Home is where the hearth is: food and identity in the Neolithic Levant. In K. C. Twiss (Ed.), *The Archaeology of Food and Identity, Occasional Paper* (pp. 50-68).

Twiss, K. C. (2007b). The Neolithic of the southern Levant. *Evolutionary Anthropology: Issues, News, and Reviews, 16*(1), 24-35. doi: 10.1002/evan.20113

Twiss, K. C. (2008). Transformations in an early agricultural society: Feasting in the southern Levantine Pre-Pottery Neolithic. *Journal of Anthropological Archaeology, 27*(4), 418-442. doi: 10.1016/j.jaa.2008.06.002

Twiss, K. C. (2012). The Complexities of Home Cooking: Public Feasts and Private Meals Inside the Çatalhöyük House. In S. Pollock (Ed.), *Between Feasts and Daily Meals. Toward an Archaeology of Commensal Spaces* (Vol. Special Volume 2, pp. 53-73). Berlin: Excellence Cluster Topoi - Journal of Ancient Studies.

Twiss, K. C. (Ed.). (2007c). *The archaeology of food and identity*. [Carbondale, Ill.]: Center for Archaeological Investigations, Southern Illinois University Carbondale.

Twiss, K. C., Bogaard, A., Bogdan, D., Carter, T., Charles, M. P., Farid, S., . . . Yeomans, L. (2008). Arson or Accident? The Burning of a Neolithic House at Çatalhöyük, Turkey. *Journal of Field Archaeology, 33*(1), 41-57. doi: 10.1179/009346908791071358

Twiss, K. C., Bogaard, A., Charles, M., Henecke, J., Russell, N., Martin, L., & Jones, G. (2009). Plants and Animals Together: Interpreting Organic Remains from Building 52 at Çatalhöyük. *Current Anthropology, 50*(6), 885-895.

Twiss, K. C., Demirergi, G. A., & Bogaard, A. (2012). *The Temporality of Food at Neolithic Çatalhöyük, Anatolia*. Paper presented at the SAA 77th Annual Meeting, Memphis. TN.

Uerpmann, H.-P. (1973). Animal Bone Finds and Economic Archaeology: A Critical Study of 'Osteo-Archaeological' Method. *World Archaeology, 4*(3), 307-322.

Verhoeven, M. (2004). Beyond Boundaries: Nature, Culture and a Holistic Approach to Domestication in the Levant. *Journal of world prehistory, 18*(3), 179-282. doi: 10.2307/25801222

Verhoeven, M. (2009). Archaeology and anthropology :relating the past and the present. *Anthropology of the Middle East, 4*(1), 18-32.

Wandsnider, L. (1997). The Roasted and the Boiled: Food Composition and Heat Treatment with Special Emphasis on Pit-Hearth Cooking. *Journal of Anthropological Archaeology, 16*(1), 1-48. doi: 10.1006/jaar.1997.0303

Watkins, T. (1990). The origins of house and home? *World Archaeology, 21*(3), 336-347.

Watkins, T. (2004). Building houses, framing concepts, constructing worlds. *Paléorient*, 5-23.

Wenzel, G. W. (1995). Ningiqtuq: Resource sharing and generalized reciprocity in Clyde River, Nunavut. [Article]. *Arctic Anthropology, 32*(2), 43.

Wenzel, G. W., Hovelsrud-Broda, G., & Kishigami, N. (Eds.). (2000). *The social economy of sharing : resource allocation and modern hunter-gatherers. Senri Ethnological Studies No. 53*. Osaka: National Museum of Ethnology.

White, T. E. (1953). A Method of Calculating the Dietary Percentage of Various Food Animals Utilized by Aboriginal Peoples. *American antiquity, 18*(4), 396-398.

Whitehead, H. (2000). *Food rules : hunting, sharing, and tabooing game in Papua New Guinea*. Ann Arbor: University of Michigan Press.

Wiessner, P. (1982a). Beyond Willow Smoke and Dogs' Tails: A Comment on Binford's Analysis of Hunter-Gatherer Settlement Systems. *American antiquity, 47*(1), 171-178. doi: 10.2307/280065

Wiessner, P. (1982b). Risk, reciprocity and social influences on !Kung San economics. In E. B. Leacock & R. B. Lee (Eds.), *Politics and history in band societies* (pp. 61-84). Cambridge: Cambridge University Press.

Wiessner, P. (2001). Of feasting and value: Enga feasts in a historical perspective (Papua New Guinea). *Feasts: Archaeological and ethnographic perspectives on food, politics, and power*, 115-143.

Woodburn, J. (1982). Egalitarian Societies. *Man, 17*(3), 431-451. doi: 10.2307/2801707

Wright, K. (2004). The emergence of cooking in Southwest Asia. *Archaeology International no, 8*(2004/2005), 33-37.

Wright, K. (2013). The Ground Stone Technologies of Çatalhöyük. In I. Hodder (Ed.), *Substantive Technologies at Çatalhöyük: Reports from the 2000–2008 Seasons. Volume 9* (pp. 365-416): British Institute at Ankara.

Wright, K. I. (1994). Ground-stone tools and hunter-gatherer subsistence in southwest Asia: implications for the transition to farming. *American antiquity*, 238-263.

Wright, K. I. (2000). The social origins of cooking and dining in early villages of western Asia. *Proceedings of the Prehistoric Society*, 89-121.

Wright, K. I., Tsoraki, C., & Siddall, R. (in press). The ground stone technologies of Çatalhöyük *Substantive Technologies at Çatalhöyük: Reports from the 2000-2008 seasons*. Los Angeles: Monographs of the Cotsen Institute of Archaeology, UCLA.

Wright, K. I. K. (2014). Domestication and inequality? Households, corporate groups and food processing tools at Neolithic Çatalhöyük. *Journal of Anthropological Archaeology, 33*, 1-33.

Yalman, N., Özbudak, D. T., & Gültekin, H. (2013). The Neolithic pottery of Çatalhöyük: recent studies. In I. Hodder (Ed.), *Substantive Technologies at Çatalhöyük: Reports from the 2000-2008 seasons*. Los Angeles: Monographs of the Cotsen Institute of Archaeology, UCLA.

Appendix A

Table A1 Appendix A: Midden Spaces and relevant data used in analysis

Space	HouseAssocW (House number stratigraphically associated with midden, if any)	Midden Stratigraphically Assoc. w House (HouseWall) or Not (Midden)	Level	Level Equivalent	Sequential House or Not	Area	Soil Volume (L)	Hot – Cold Spots (*sensu* Mazzucato 2013)
279	None	Midden	North I (Q, R,)	QR	No	North	9722475	
226	None	Midden	North I (Q, R,)	QR	No	North	16880087	
60	None	Midden	North G (M, N, O,)	MNO	No	North	559617	Hot Spot
133	B82 (Pre51/52?)	House wall	North G (M, N, O,)	MNO	No	North	215325	Hot Spot
85	B3 (+others?)	House wall	North G (M, N, O,)	MNO	No	North	34564.75	
314	B65	House wall	,South.Q,	Q	Yes	South	114533.3	Hot Spot
299	B65	House wall	,South.Q,	Q	Yes	South	2430188	
339	B56	House wall	,South.R,	R	Yes	South	4755192	
129	B44	House wall	,South.S,	S	Yes	South	5043668	Hot Spot
319	B44	House wall	,South.S,	S	Yes	South	397032.4	Hot Spot
126	B10	House wall	,South.T,	T	Yes	South	119547.8	
119	B10	House wall	,South.T,	T	Yes	South	37947.55	
261	B53	House wall	,South.Q,	Q	No	South	7	Cold Spot
260	None	Midden	,South.Q,	Q	No	South	818059.8	Cold Spot
132	None	Midden	,South.P,	P	No	South	1301115	Cold Spot
427	None	Midden	,South.P,	P	No	South	2082	
105	None	Midden	,South.?M,	M	No	South	2387819	
115	None	Midden	,South.?L,	L	No	South	37226200	
198	None	Midden	,South.I,	I	No	South	327979	
199	None	Midden	,South.H,	H	No	South	1291042	
181	None	Midden	,South.G,	G	No	South	15572051	

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Area * SheepGoatDZperL	20	95.2%	1	4.8%	21	100.0%

Area and Sheep/Goat DZ/L Crosstabulation

Count

		SheepGoatDZperL																			Total
		.000010	.000013	.000021	.000026	.000031	.000056	.000069	.000089	.000101	.000120	.000135	.000199	.000204	.000243	.000341	.000385	.000646	.001921	.003182	
Area	North	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	5
	South	1	1	0	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	0	15
Total		1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.162	.320	.503	.615
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A1 Statistical Results: Gamma Value for Correlations between Area and Sheep/Goat Density DZ/L

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Area * CattleDZperL	20	95.2%	1	4.8%	21	100.0%

Area and Cattle DZ/L Crosstabulation

Count

		CattleDZperL															Total
		.000000	.000001	.000002	.000003	.000004	.000005	.000006	.000013	.000014	.000015	.000017	.000023	.000028	.000038	.000087	
Area	North	0	1	1	1	0	0	0	0	1	0	0	0	0	0	1	5
	South	2	0	1	1	1	2	1	1	1	1	1	1	1	1	0	15
Total		2	1	2	2	1	2	1	1	2	1	1	1	1	1	1	20

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.139	.343	.404	.687
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A2 Statistical Results: Gamma Value for Correlations between Area and Cattle Density DZ/L

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Area * SheepGoatDZperNISP	21	100.0%	0	0.0%	21	100.0%

Area And Sheep/Goat DZ/NISP Crosstabulation

Count

		SheepGoatDZperNISP																					
		.00	.05	.06	.07	.11	.12	.13	.14	.15	.16	.16	.16	.16	.16	.18	.18	.20	.20	.23	.26	.98	Total
Area	North	0	0	1	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	5
	South	1	1	0	1	1	1	1	1	1	0	0	1	0	1	1	1	1	1	0	1	1	16
Total		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	21

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Gamma	-.025	.277	-.090	.928
N of Valid Cases		21			

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

Figure A3 Statistical Results: Gamma Value for Correlations between Area and Sheep/Goat Fragmentation (DZ/NISP)

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Area * CattleDZperNISP	21	100.0%	0	0.0%	21	100.0%

Area and Cattle DZ/NISP Crosstabulation

Count

		CattleDZperNISP														Total
		.00	.04	.08	.09	.13	.15	.16	.17	.20	.21	.22	.23	.30	.56	
Area	North	0	1	0	0	1	0	0	0	1	2	0	0	0	0	5
	South	2	2	1	1	3	1	1	1	0	0	1	1	1	1	16
Total		2	3	1	1	4	1	1	1	1	2	1	1	1	1	21

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	-.173	.284	-.596	.551
N of Valid Cases		21			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A4 Statistical Results: Gamma Value for Correlations between Area and Cattle Fragmentation (DZ/NISP)

Crosstab

Count

		Skeletal Segment Completeness DZ/MNI Cattle - Head					Total
		.00	.05	.08	.13	.19	
Area	North	5	0	0	0	0	5
	South	9	1	2	3	1	16
Total		14	1	2	3	1	21

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	.365	.093	2.562	.010
	Kendall's tau-c	.317	.124	2.562	.010
	Gamma	1.000	0.000	2.562	.010
N of Valid Cases		21			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A5 Statistical Results: Gamma and Kendall’s tau-c Values for Correlations between Area and Skeletal Segment Completeness (DZ/MNI). Skeletal Segment: Cattle Head

Crosstab													
Count													
		Skeletal Segment Completeness DZ/MNI Cattle - Torso											Total
		.00	.07	.11	.14	.18	.19	.21	.24	.25	.36	.43	
Area	North	4	0	0	0	1	0	0	0	0	0	0	5
	South	6	1	1	2	0	1	1	1	1	1	1	16
Total		10	1	1	2	1	1	1	1	1	1	1	21

Symmetric Measures					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	.314	.148	1.894	.058
	Kendall's tau-c	.327	.172	1.894	.058
	Gamma	.643	.304	1.894	.058
N of Valid Cases		21			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A6 Statistical Results: Gamma and Kendall's tau-c Values for Correlations between Area and Skeletal Segment Completeness (DZ/MNI). Skeletal Segment: Cattle Torso

Crosstab

Count

		Skeletal Segment Completeness DZ/MNI Cattle – Upper Limb							
		.00	.05	.09	.10	.12	.14	.32	Total
Area	North	3	2	0	0	0	0	0	5
	South	5	5	1	1	1	2	1	16
Total		8	7	1	1	1	2	1	21

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	.309	.144	1.880	.060
	Kendall's tau-c	.317	.169	1.880	.060
	Gamma	.636	.257	1.880	.060
N of Valid Cases		21			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A7 Statistical Results: Gamma and Kendall’s tau-c Values for Correlations between Area and Skeletal Segment Completeness (DZ/MNI). Skeletal Segment: Cattle Upper Limb

Crosstab

Count

		Skeletal Segment Completeness DZ/MNI Cattle – LowerLimb														Total
		.00	.04	.06	.08	.10	.11	.13	.17	.18	.19	.20	.24	.29	.40	
Area	North	0	1	0	1	0	0	2	0	1	0	0	0	0	0	5
	South	3	0	1	4	1	1	0	1	0	1	1	1	1	1	16
Total		3	1	1	5	1	1	2	1	1	1	1	1	1	1	21

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	0.000	.164	0.000	1.000
	Kendall's tau-c	0.000	.186	0.000	1.000
	Gamma	0.000	.270	0.000	1.000
N of Valid Cases		21			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A8 Statistical Results: Gamma and Kendall's tau-c Values for Correlations between Area and Skeletal Segment Completeness (DZ/MNI). Skeletal Segment: Cattle Lower Limb

Crosstab										
Count										
		Skeletal Segment Completeness DZ/MNI Cattle – Feet								Total
		.00	.08	.17	.21	.25	.40	.60	.83	
Area	North	3	0	0	1	1	0	0	0	5
	South	6	2	1	2	2	1	1	1	16
Total		9	2	1	3	3	1	1	1	21

Symmetric Measures					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	.156	.182	.839	.401
	Kendall's tau-c	.163	.195	.839	.401
	Gamma	.310	.369	.839	.401
N of Valid Cases		21			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A9 Statistical Results: Gamma and Kendall's tau-c Values for Correlations between Area and Skeletal Segment Completeness (DZ/MNI). Skeletal Segment: Cattle Feet

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
SheepGoatDZperL * CattleDZperL	5	100.0%	0	0.0%	5	100.0%

Sheep/Goat DZ/L and Cattle DZ/L Crosstabulation

Count

		CattleDZperL					Total
		.000001	.000002	.000003	.000014	.000087	
SheepGoatDZperL	.000021	1	0	0	0	0	1
	.000031	0	1	0	0	0	1
	.000056	0	0	1	0	0	1
	.000120	0	0	0	1	0	1
	.003182	0	0	0	0	1	1
Total		1	1	1	1	1	5

Symmetric Measures

		Value	Asymptotic Standardized Error[a]
Ordinal by Ordinal	Kendall's tau-b	1.000	0.000
	Kendall's tau-c	1.000	0.000
	Gamma	1.000	0.000
N of Valid Cases		5	

a. Not assuming the null hypothesis.

Figure A10 Statistical Results: Gamma and Kendall’s tau-c Values for Correlations between Sheep/Goat and Cattle Densities (DZ/L) in the North Area

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
SheepGoatDZperL * CattleDZperL	15	93.8%	1	6.3%	16	100.0%

Sheep/Goat DZ/L and Cattle DZ/L Crosstabulation

Count

		CattleDZperL													
		.000000	.000002	.000003	.000004	.000005	.000006	.000013	.000014	.000015	.000017	.000023	.000028	.000038	Total
Sheep/Goat DZperL	.000010	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	.000013	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	.000026	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	.000031	0	0	0	0	0	0	0	0	1	0	0	0	0	1
	.000069	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	.000089	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	.000101	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	.000135	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	.000199	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	.000204	0	0	0	0	0	0	0	1	0	0	0	0	0	1
	.000243	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	.000341	0	0	0	0	0	0	0	0	0	1	0	0	0	1
	.000385	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	.000646	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	.001921	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total		2	1	1	1	2	1	1	1	1	1	1	1	1	15

Symmetric Measures					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Kendall's tau-b	.067	.237	.284	.776
	Gamma	.068	.238	.284	.776
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A11 Statistical Results: Gamma and Kendall’s tau-c Values for Correlations between Sheep/Goat and Cattle Densities (DZ/L) in the South Area

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
midden linked to a specific house or not * SheepGoatDZperL	20	95.2%	1	4.8%	21	100.0%

‘Midden linked to a specific house or not’ and **Sheep/Goat DZ/L Crosstabulation**

Count

		SheepGoatDZperL																			Total
		.000010	.000013	.000021	.000026	.000031	.000056	.000069	.000089	.000101	.000120	.000135	.000199	.000204	.000243	.000341	.000385	.000646	.001921	.003182	
midden linked to a specific house or not	Linked toHouse	0	0	0	0	0	0	0	1	0	1	1	0	1	1	1	1	1	0	1	9
	Not Linked to House	1	1	1	1	2	1	1	0	1	0	0	1	0	0	0	0	0	1	0	11
Total		1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	-.548	.121	-4.490	.000
	Kendall's tau-c	-.750	.167	-4.490	.000
	Gamma	-.758	.165	-4.490	.000
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A12 Statistical Results: Gamma and Kendall’s tau-c Values for Correlations between Sheep/Goat Density and Middens linked to Specific Houses vs Middens Not Linked to Specific Houses

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
midden linked to a specific house or not * SheepGoatDZperL	5	100.0%	0	0.0%	5	100.0%

'Midden linked to a specific house or not' and Sheep/Goat DZ/L Crosstabulation

Count

		SheepGoatDZperL					Total
		.000021	.000031	.000056	.000120	.003182	
midden linked to a specific house or not	Linked to House	0	0	0	1	1	2
	Not Linked to House	1	1	1	0	0	3
Total		1	1	1	1	1	5

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	-.775	.071	-5.477	.000
	Kendall's tau-c	-.960	.175	-5.477	.000
	Gamma	-1.000	0.000	-5.477	.000
N of Valid Cases		5			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A13 Statistical Results: Gamma and Kendall's tau-c Values for Correlations between Sheep/Goat Density and Middens linked to Specific Houses vs Middens Not Linked to Specific Houses, in the North Area

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
midden linked to a specific house or not * SheepGoatDZperL	15	93.8%	1	6.3%	16	100.0%

'Midden linked to a specific house or not' and Sheep GoatDZ/L Crosstabulation

Count

		SheepGoatDZperL															
		.000010	.000013	.000026	.000031	.000069	.000089	.000101	.000135	.000199	.000204	.000243	.000341	.000385	.000646	.001921	Total
midden linked to a specific house or not	Linked to House	0	0	0	0	0	1	0	1	0	1	1	1	1	1	0	7
	Not Linked to House	1	1	1	1	1	0	1	0	1	0	0	0	0	0	1	8
Total		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	-.469	.176	-2.666	.008
	Kendall's tau-c	-.640	.240	-2.666	.008
	Gamma	-.643	.240	-2.666	.008
N of Valid Cases		15			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A14 Statistical Results: Gamma and Kendall's tau-c Values for Correlations between Sheep/Goat Density and Middens linked to Specific Houses vs Middens Not Linked to Specific Houses, in the South Area

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Sequential Midden * SheepGoatDZperL	20	95.2%	1	4.8%	21	100.0%

'Sequential Midden or Not' and Sheep/Goat DZ/L Crosstabulation

Count

		SheepGoatDZperL																			Total
		.000010	.000013	.000021	.000026	.000031	.000056	.000069	.000089	.000101	.000120	.000135	.000199	.000204	.000243	.000341	.000385	.000646	.001921	.003182	
Sequential midden?	No	1	1	1	1	2	1	1	0	1	1	0	1	0	0	0	0	0	1	1	13
	Yes	0	0	0	0	0	0	0	1	0	0	1	0	1	1	1	1	1	0	0	7
Total		1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20

Symmetric Measures					
		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	.419	.145	2.726	.006
	Kendall's tau-c	.550	.202	2.726	.006
	Gamma	.604	.205	2.726	.006
N of Valid Cases		20			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A15 Statistical Results: Gamma and Kendall's tau-c Values for Correlations between Sheep/Goat Density and Sequential Middens vs Non-sequential Middens

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Sequential Midden or not * SheepGoatBprDZMNIHead	21	100.0%	0	0.0%	21	100.0%

‘Sequential Midden or Not’ and Skeletal Completeness DZ/MNI Crosstabulation Sheep/Goat Head

Count

		SheepGoatBprDZMNIHead															Total
		.00	.05	.09	.11	.13	.25	.33	.43	.45	.47	.50	.58	.60	.61	.63	
Sequential midden?	No	4	1	1	1	1	0	1	0	1	1	1	1	0	0	1	14
	Yes	0	0	0	0	0	1	0	1	1	0	1	1	1	1	0	7
Total		4	1	1	1	1	1	1	1	2	1	2	2	1	1	1	21

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	.392	.140	2.641	.008
	Kendall's tau-c	.499	.189	2.641	.008
	Gamma	.579	.197	2.641	.008
N of Valid Cases		21			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A16 Statistical Results: Gamma and Kendall’s tau-c Values for Correlations between Sequential Middens vs Non-sequential Middens and Skeletal Segment Completeness. Skeletal Segment: Sheep/Goat Head

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Sequential Midden or not * SheepGoatBprDZMNIHead	10	100.0%	0	0.0%	10	100.0%

‘Sequential Midden or Not’ and Skeletal Completeness DZ/MNI Crosstabulation Sheep/Goat Head

Count

		SheepGoatBprDZMNIHead									Total
		.00	.11	.25	.43	.45	.50	.58	.60	.61	
Sequential Midden?	No	2	1	0	0	0	0	0	0	0	3
	Yes	0	0	1	1	1	1	1	1	1	7
Total		2	1	1	1	1	1	1	1	1	10

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	.691	.103	3.623	.000
	Kendall's tau-c	.840	.232	3.623	.000
	Gamma	1.000	0.000	3.623	.000
N of Valid Cases		10			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A17 Statistical Results: Gamma and Kendall’s tau-c Values for Correlations between Sequential Middens (all linked to specific houses) vs Non-sequential Middens that are linked to specific houses and Skeletal Segment Completeness. Skeletal Segment: Sheep/Goat Head

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Sequential Midden or not *CattleBprDZMNIFeet	10	100.0%	0	0.0%	10	100.0%

'Sequential Midden or Not' and Skeletal Completeness DZ/MNI Crosstabulation
Cattle Feet

Count

		CattleBprDZMNIFeet				Total
		.00	.08	.21	.60	
Sequential Midden?	No	3	0	0	0	3
	Yes	3	1	2	1	7
Total		6	1	2	1	10

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	.486	.148	2.335	.020
	Kendall's tau-c	.480	.206	2.335	.020
	Gamma	1.000	0.000	2.335	.020
N of Valid Cases		10			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A18 Statistical Results: Gamma and Kendall's tau-c Values for Correlations between Sequential Middens (all linked to specific houses) vs Non-sequential Middens that are linked to specific houses and Skeletal Segment Completeness. Skeletal Segment: Cattle Feet

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Sequential Midden or Not * SheepGoatBprDZMNITorso	10	100.0%	0	0.0%	10	100.0%

'Sequential Midden or Not' and Skeletal Completeness DZ/MNI Crosstabulation Sheep/Goat Torso

Count

		SheepGoatBprDZMNITorso									Total
		.00	.07	.09	.10	.10	.20	.23	.31	.35	
Sequential Midden?	No	1	1	0	0	1	0	0	0	0	3
	Yes	1	0	1	1	0	1	1	1	1	7
Total		2	1	1	1	1	1	1	1	1	10

Symmetric Measures					
		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	.395	.202	1.762	.078
	Kendall's tau-c	.480	.272	1.762	.078
	Gamma	.600	.291	1.762	.078
N of Valid Cases		10			

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

Figure A19 Statistical Results: Gamma and Kendall's tau-c Values for Correlations between Sequential Middens (all linked to specific houses) vs Non-sequential Middens that are linked to specific houses and Skeletal Segment Completeness. Skeletal Segment: Sheep/Goat Torso

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Sequential middens or not* CattleBprDZMNIUpperLimb	10	100.0%	0	0.0%	10	100.0%

'Sequential Midden or Not' and Skeletal Completeness DZ/MNI Crosstabulation Cattle Upper Limb							
Count							
		CattleBprDZMNIUpperLimb					Total
		.00	.05	.09	.14	.32	
Sequential Midden?	No	2	1	0	0	0	3
	Yes	2	2	1	1	1	7
Total		4	3	1	1	1	10

Symmetric Measures					
		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	.400	.201	1.748	.080
	Kendall's tau-c	.440	.252	1.748	.080
	Gamma	.733	.292	1.748	.080
N of Valid Cases		10			
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					

Figure A20 Statistical Results: Gamma and Kendall's tau-c Values for Correlations between Sequential Middens (all linked to specific houses) vs Non-sequential Middens that are linked to specific houses and Skeletal Segment Completeness. Skeletal Segment: Cattle Upper Limb

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Sequential Middens or Not* CattleDZperNISP	21	100.0%	0	0.0%	21	100.0%

'Sequential Midden or Not' and Cattle DZ/NISP Crosstabulation

Count

		CattleDZperNISP														Total
		.00	.04	.08	.09	.13	.15	.16	.17	.20	.21	.22	.23	.30	.56	
Sequential Midden?	No	1	1	1	0	3	1	0	0	1	2	1	1	1	1	14
	Yes	1	2	0	1	1	0	1	1	0	0	0	0	0	0	7
Total		2	3	1	1	4	1	1	1	1	2	1	1	1	1	21

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	-.344	.148	-2.211	.027
	Kendall's tau-c	-.435	.197	-2.211	.027
	Gamma	-.522	.218	-2.211	.027
N of Valid Cases		21			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A21 Statistical Results: Gamma and Kendall's tau-c Values for Correlations between Sequential Middens vs Non-sequential Middens and Cattle Fragmentation (DZ/NISP)

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Sequential Midden or Not * CattleDZperNISP	10	100.0%	0	0.0%	10	100.0%

'Sequential Midden or Not' and Cattle DZ/NISP Crosstabulation

Count

		CattleDZperNISP									Total
		.00	.04	.09	.13	.16	.17	.20	.21	.56	
Sequential Midden?	No	0	0	0	0	0	0	1	1	1	3
	Yes	1	2	1	1	1	1	0	0	0	7
Total		1	2	1	1	1	1	1	1	1	10

Symmetric Measures

		Value	Asymptotic Standardized Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	-.691	.093	-3.623	.000
	Kendall's tau-c	-.840	.232	-3.623	.000
	Gamma	-1.000	0.000	-3.623	.000
N of Valid Cases		10			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure A22 Statistical Results: Gamma and Kendall's tau-c Values for Correlations between Sequential Middens (all linked to specific houses) vs Non-sequential Middens that are linked to specific houses and Cattle Fragmentation

Appendix B

Table B1 Bone Clusters Data from Çatalhöyük Faunal and Excavation Databases

Unit	Level	Context	Context associated with house(s)	Context Detail	Space	Building	Bone Weight (g)	NISP	Data Category	Interpretive Category	Deposition (based on faunal and/or excavation database)	Location	Description	Fast Track/ Priority Unit	Execution	Additional Material
13398	Q	midden / yard	Yes	"next to a bin, perhaps in another one, on or near the floor" in yard/outdoor extension of B65	314 yard/outdoor extension of B65, to the north of the building	Outside area of B 65	280	259	Cluster	bone cluster	Faunal database: Secondary	external	no data	fast track	trowel	stone objects
11393	Q	midden	Not necessarily associated w/ any house	Midden adjacent to a building, but not necessarily contemporaneous	261 Midden adjacent to B53	-	5046	24	Cluster	animal bone dump, feasting dep	Faunal database: Secondary Excavation database: Secondary	midden	no data	neither	leaf trowel, dental/ modelling tools	some stones and single pot frag
17094	Q	midden	Yes	*Midden adjacent to B 65	299/305* Phase: 299/305.2: Midden occupation of B65 Contemporary with B65 use	Outside area of B 65	402	39	cluster	bone cluster	no data	external	no data	priority	Trowel, leaf trowel	no data
1506	M	midden	Not necessarily associated w/ any house	Midden abutting a wall, but no stratigraphic relationship	105 Midden	-	8961	6428	cluster	bones	Excavation database: Primary Faunal database: Primary	cut	foundation cut	priority	Trowel, leaf trowel	shell, charcoal, clay ball, stone
2833	M	between walls	Yes	Fill between walls of roughly contemporaneous houses Deposit is probably contemporaneous with the houses Between walls F52 to the south and F75 to the north	107,113 Between spaces 107 and 113 Space 107: Mellaart House 2 or B40 Space 113: Mellaart House 7 Buildings roughly contemporaneous; South ?M (South ?M is probably South M) Wall F52 of Space 107 (Building 40/Mellaart House 2) Wall F75 of Space 113 (Mellaart house 7)	between walls of B40 and Mellaart House 7	1274	253	fill	accumulation/dump	Excavation database: Heterogeneous deposit (primary/secondary uncertain) Faunal database: Primary	between walls	no data	priority	mattock and trowel	no data

3736	M	between walls	Yes	Fill between walls of roughly contemporaneous houses Deposit is probably contemporaneous with the houses Between wall (F52) to the south and wall (F75) to the north.	107/113 Between spaces 107 and 113 Space 107: Mellaart House 2 or B40 Space 113: Mellaart House 7 Deposit between walls of two buildings Buildings roughly contemporaneous; South ?M (South ?M is probably South M) Between wall F52 of Space 107 (Building 40/Mellaart House 2) and wall F75 of Space 113 (Mellaart house 7)	between walls of B40 and Mellaart House 7	5174	1669	Fill	Infill	Excavation database: Homogenous deposit (primary/secondary uncertain) Faunal database: Primary	between walls	no data	priority	Trowel from edge	'other materials' including botanical remains and clay balls
Unit	**Level**	**Context**	**Context associated with house(s)**	**Context Detail**	**Space**	**Building**	**Bone Weight (g)**	**NISP**	**Data Category**	**Interpretive Category**	**Deposition (based on faunal and/or excavation database)**	**Location**	**Description**	**Fast Track/ Priority Unit**	**Execution**	**Additional Material**
1093	L	midden	Not necessarily associated w/ any house	midden not necessarily associated w/ any house	115 Space directly below space 105 (midden) and at Level VIII (~South L) extends westwards below Spaces 106 & B.40 (107, 108), and partly above Building 2	-	1823	1676	Cluster	Cluster	Excavation database: Secondary Faunal database: Primary	midden	no data	priority	no data	burnt mudbrick, bots, obsid, pottery, burnt stone
1507	L	midden	Not necessarily associated w/ any house	midden not necessarily associated w/ any house	115 Space directly below space 105 (midden) and at Level VIII (~South L) extends westwards below Spaces 106 & B.40 (107, 108), and partly above Building 2	-	763	132	cluster	bones	Excavation database: Primary Faunal database: Secondary	no data	no data	priority	trowels (various sizes)	charcoal
3142	K	house fill,	Unclear relationship between the bone cluster and the house unclear	fill of Building 2 small eastern room.. Relationship between the fill and the house is not certain	116 Small eastern room of B.2. Space overlies B.9 and underlies Sp.115	2	818	15	cluster	bone dump	Excavation database: Primary Faunal database: Secondary	no data	no data	neither	Trowel, leaf and brush.	charcoal, lots of phytoliths, hackberry and some coprolite.
1853	K	house	Yes associated w/ house use	bin or wall niche in the small room of Building 2. Some of the bones are closely associated with, or embedded in white thick plaster.	116 Small eastern room of B.2. Space overlies B.9 and underlies Sp.115	2	699	46	cluster	bones in bin	Excavation database: Secondary Faunal database: Secondary	midden	no data	neither	trowel leaf	no data

4142**	K	house	Yes associated w/ house use	Larger room of B2	117 Larger room of B2	2	898	22	cluster	bone cluster	Excavation database: Primary Faunal database: Primary	cut	post hole	priority	no data	no data
2761	K	house	Yes associated w/ house use	Dump on floor in a penning area in B.2	117 Larger room of B2 Space overlies B.9 and underlies Sp.115	2	1009	455	activity	dump	Excavation database: Heterogeneous deposit (primary/secondary uncertain) Faunal database: Secondary	no data	penning	priority	trowel	basal deposit
4779	J	house	Yes associated w/ house use	Deposit on the dirty floor of the larger room of B23	200 Space 200 is part of the larger room of B23.	23	56	152	floor (use)	floor	Excavation database: Composite (floors/bedding/plaster) (primary/secondary uncertain) Faunal database: Primary	building	no data	priority	trowel	no data

*299/305 was initially a midden area adjacent to Building 65, later on it was connected to the building by a crawl hole. Unit 17094 comes from the midden occupation phase rather than the crawl hole access phase.

**4142 was found as one cluster with articulating cattle vertebrae fragments on the ground. Although unit 4142 may be a part of a larger unit (Unit 1873) that contains a mixture of large cattle fragments and quotidian consumption remains, I have taken it as a separate unit because it was found as a distinct cluster regardless of the possibility that it is a cluster within a larger unit).

Table B2 Summary Table: Bone Clusters by Context and Level

Unit number	Space	Context	Stratigraphic association to a house (Yes/Unknown)	Level
13398	314*	midden	Yes	South Q
11393	261	midden	Unknown	South Q
17094	299/305*	midden	Yes	South Q
1506	105	midden	Unknown	South M
3736	107,113	house fill	Yes	South M
2833	107,113	house fill	Yes	South M
1507	115	midden	Unknown	South L
1093	115	midden	Unknown	South L
3142	116	house	Unknown	South K
1853	116	house	Yes	South K
4142	117	house	Yes	South K
2761	117	house	Yes	South K
4779	200*	house	Yes	South J

*Stratigraphic association to a sequential house

Figure B1 Spatial distribution of bone clusters through occupation levels

Figure B2 Bone Cluster Locations in Level South J (Map: Camilla Mazzucato, Çatalhöyük Research Project)

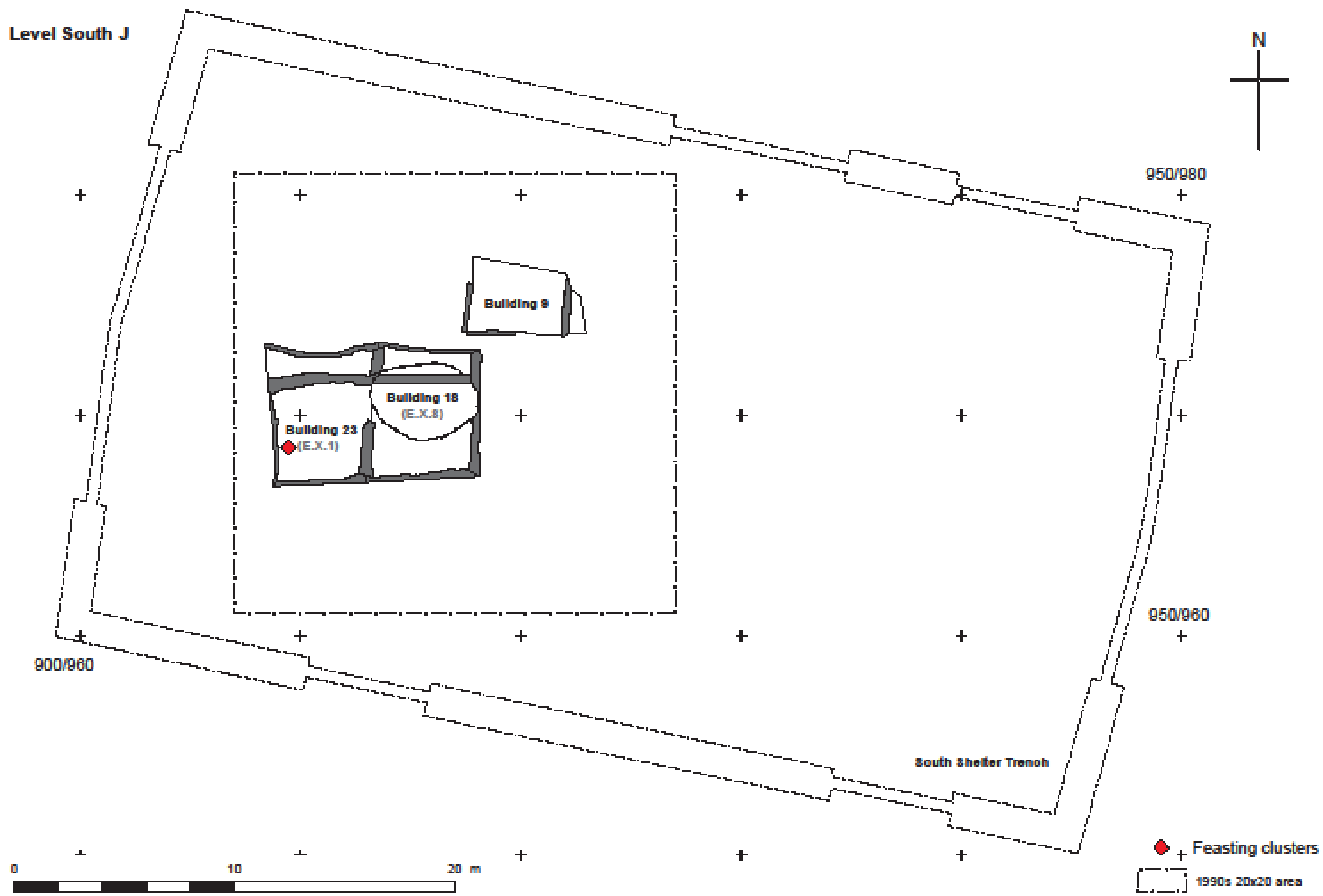


Figure B3 Bone Cluster Locations in Level South K (Map: Camilla Mazzucato, Çatalhöyük Research Project)

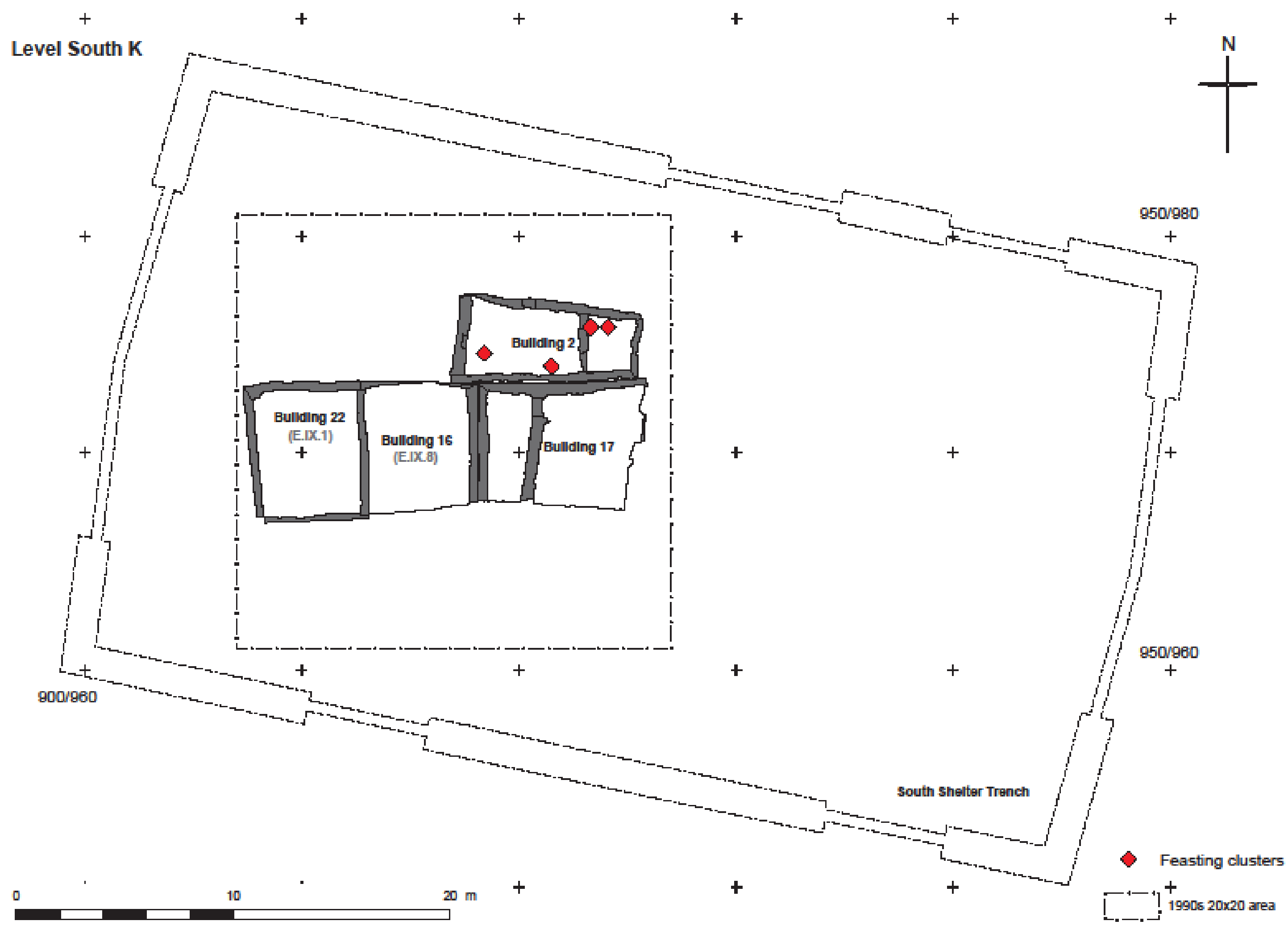


Figure B4 Bone Clusters in Level South L (Map: Camilla Mazzucato. Çatalhöyük Research Project)

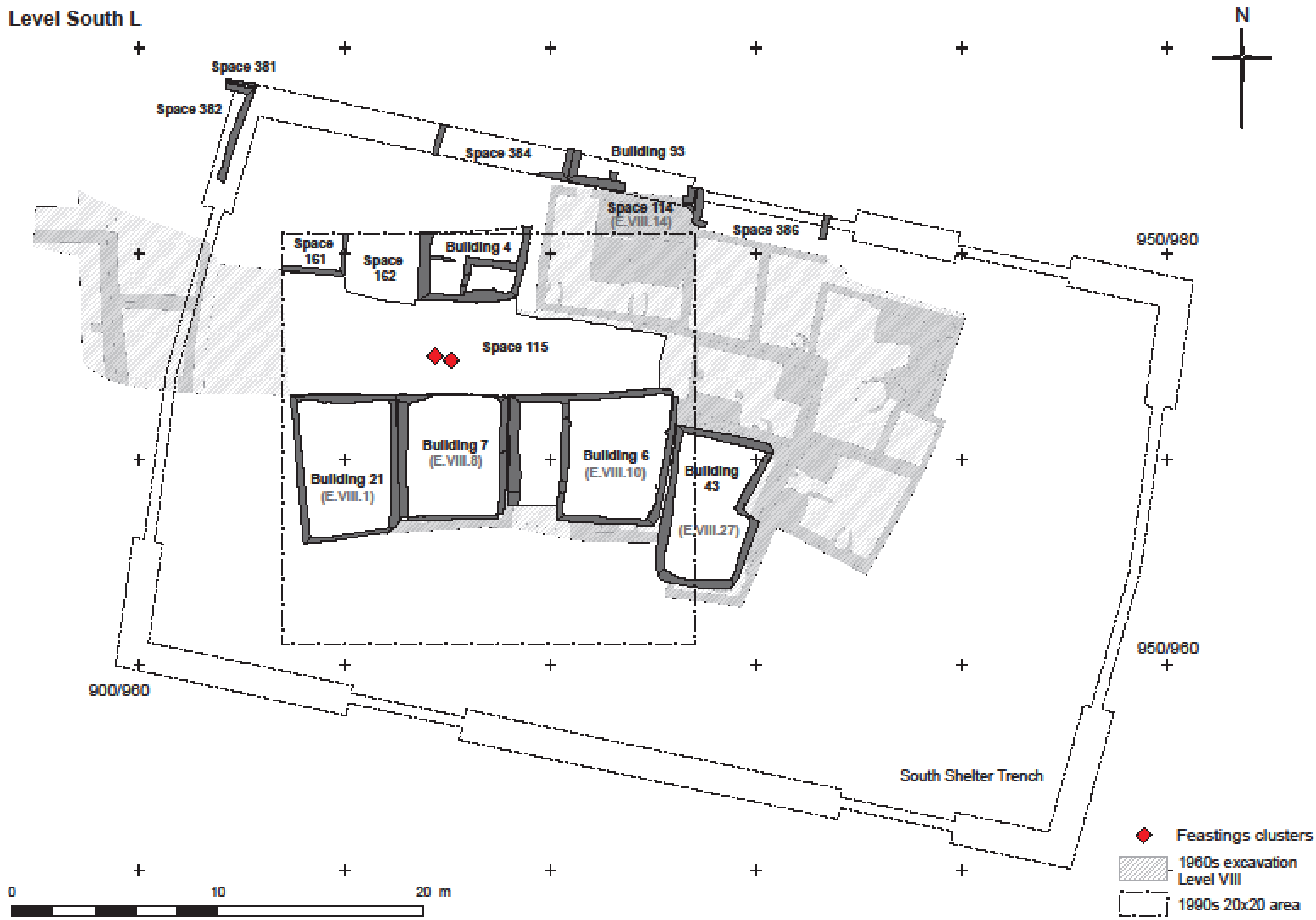


Figure B5 Bone Clusters in Level South M (Map: Camilla Mazzucato, Çatalhöyük Research Project)

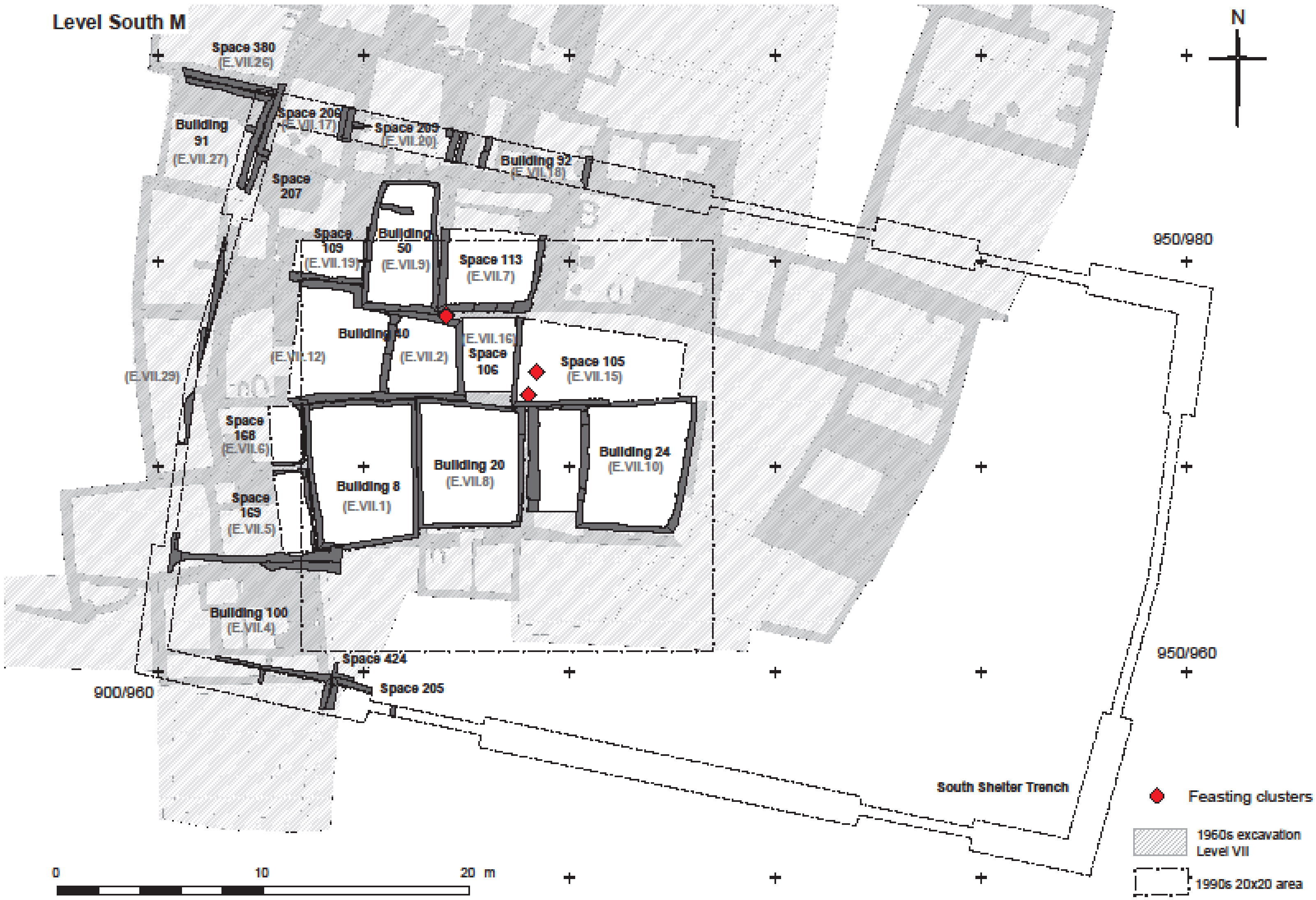


Figure B6 Bone Clusters in Level South Q (Map: Camilla Mazzucato, Çatalhöyük Research Project)